



RYK M185 SEQUENCER

E-PANEL PCB V3.772 - V3.774 BUILD INSTRUCTIONS

The Panel PCB build is fairly straightforward, but the order that the components are soldered is critical, as in some areas their positions are very close together.

Please follow these instructions carefully.

This PCB is double sided, which makes removal of components very difficult, and in some cases such as switches, impossible without destroying the component.

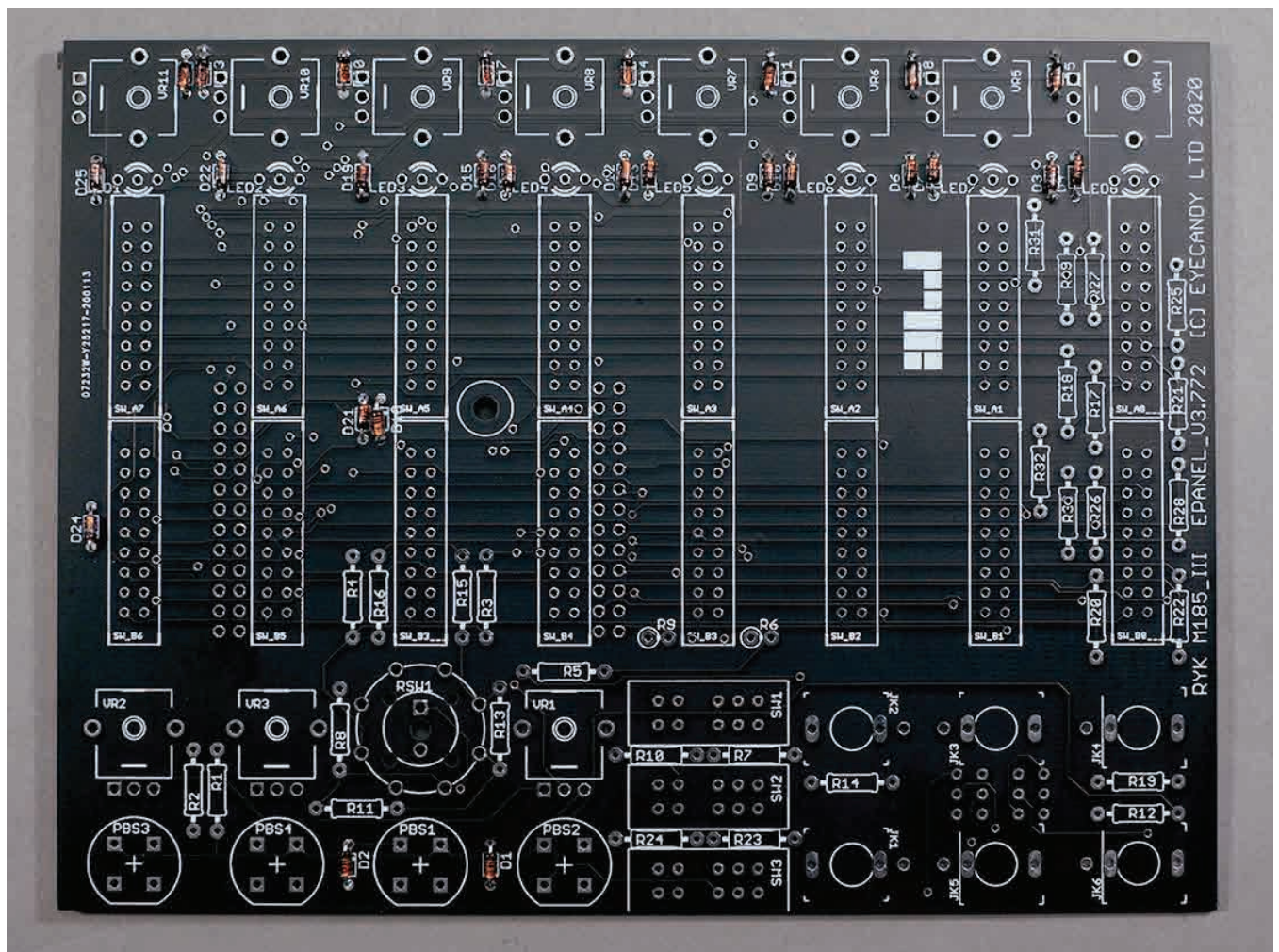
So please work methodically and carefully, checking each item is correctly orientated and seated before soldering in place. Check twice, solder once !

Some components are placed on the underside of the board, these are the two DIL Pin Headers, and the two 2-way miniature slide switches. Be aware these do not have screen-print on the under-side.

It is a good idea to print out the BOM and PCB placement documents. Whilst assembling use a highlight marker pen to indicate on the BOM list and PCB image each component as you go.

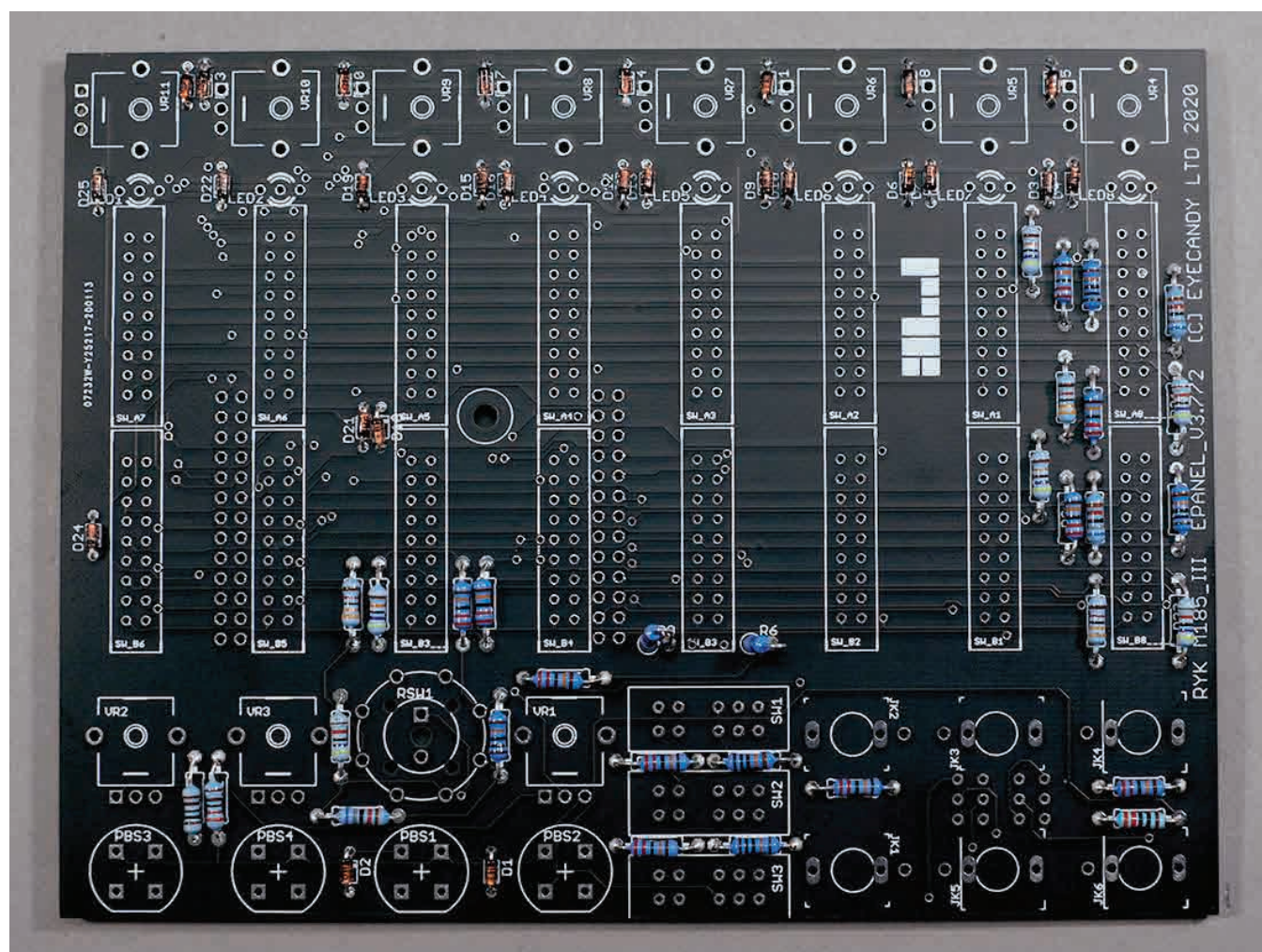
STAGE 1 - Bag B

Solder all the 1N4148 diodes, taking caring to orient the black stripe on the body with the stripe on the PCB silkscreen.



Solder all the Resistors, taking care to check their colour codes / values against the BOM list..

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STAGE 3 - Bag C

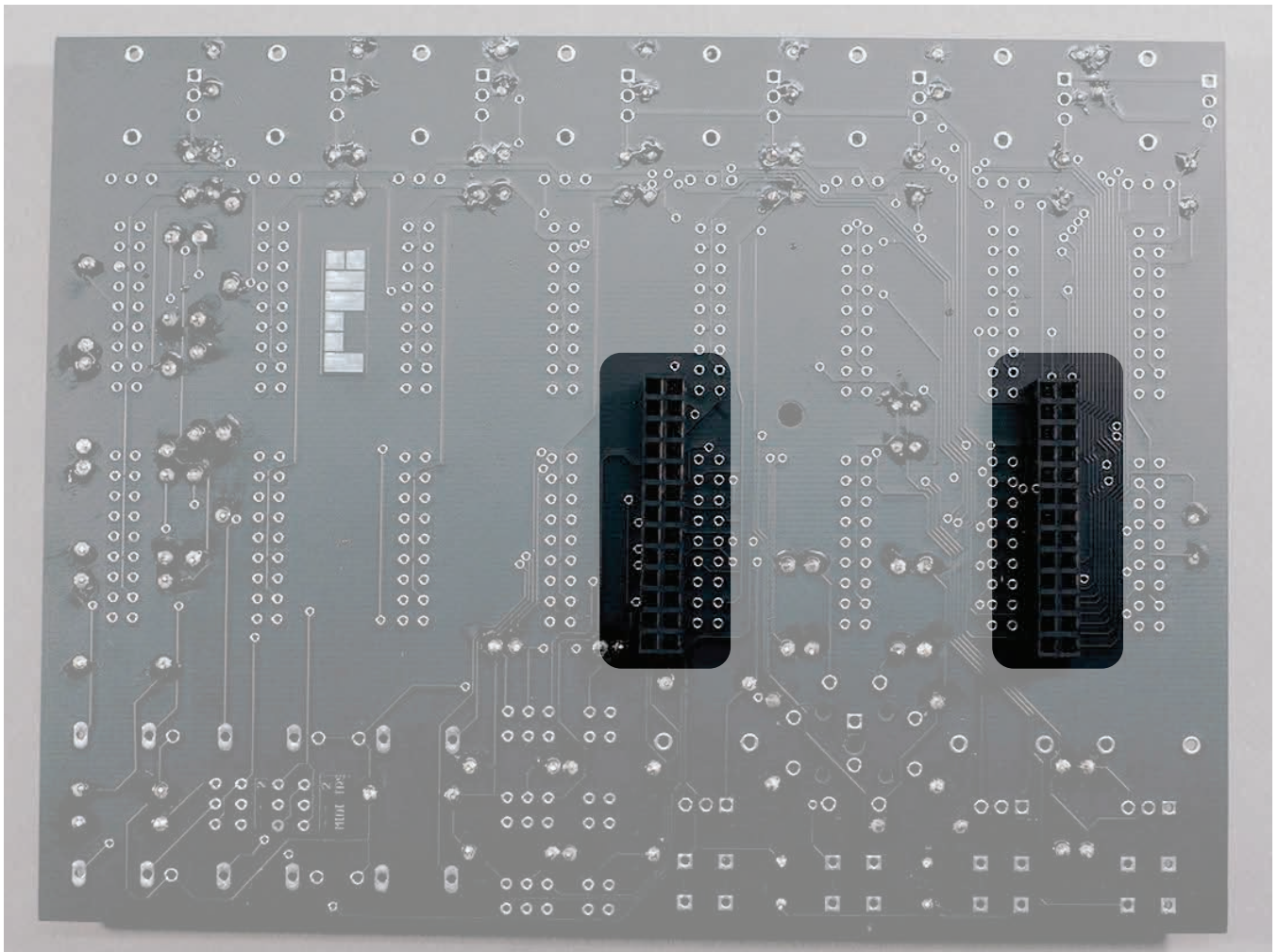
The female pin-headers are next.

If you are building this PCB first then follow the instructions below, if not then you should insert these headers on the male pin-headers of the Main PCB board that you have already assembled.

Then insert the headers into this PCB, and following the remaining instructions below . [this technique is useful for making sure both pin headers line up evenly]

These are placed on the underside of the PCB, and soldered from the topside. Hold a header in place making sure it is completely perpendicular to the PCB.

Whilst holding it in place, solder the the two opposite corner pins to first, then check the header is placed well before soldering the remaining pins.



STAGE 4 - Bag D

Insert all 16 of the 8-way slide switches onto the PCB, making sure they are firmly seated.

Flip the PCB over, and push a switch from behind to make sure it is firmly seated onto the PCB.

Whilst pushing the switch against the PCB from behind, solder two opposite corner pins.

Push only the metal part of the switch not the lever.

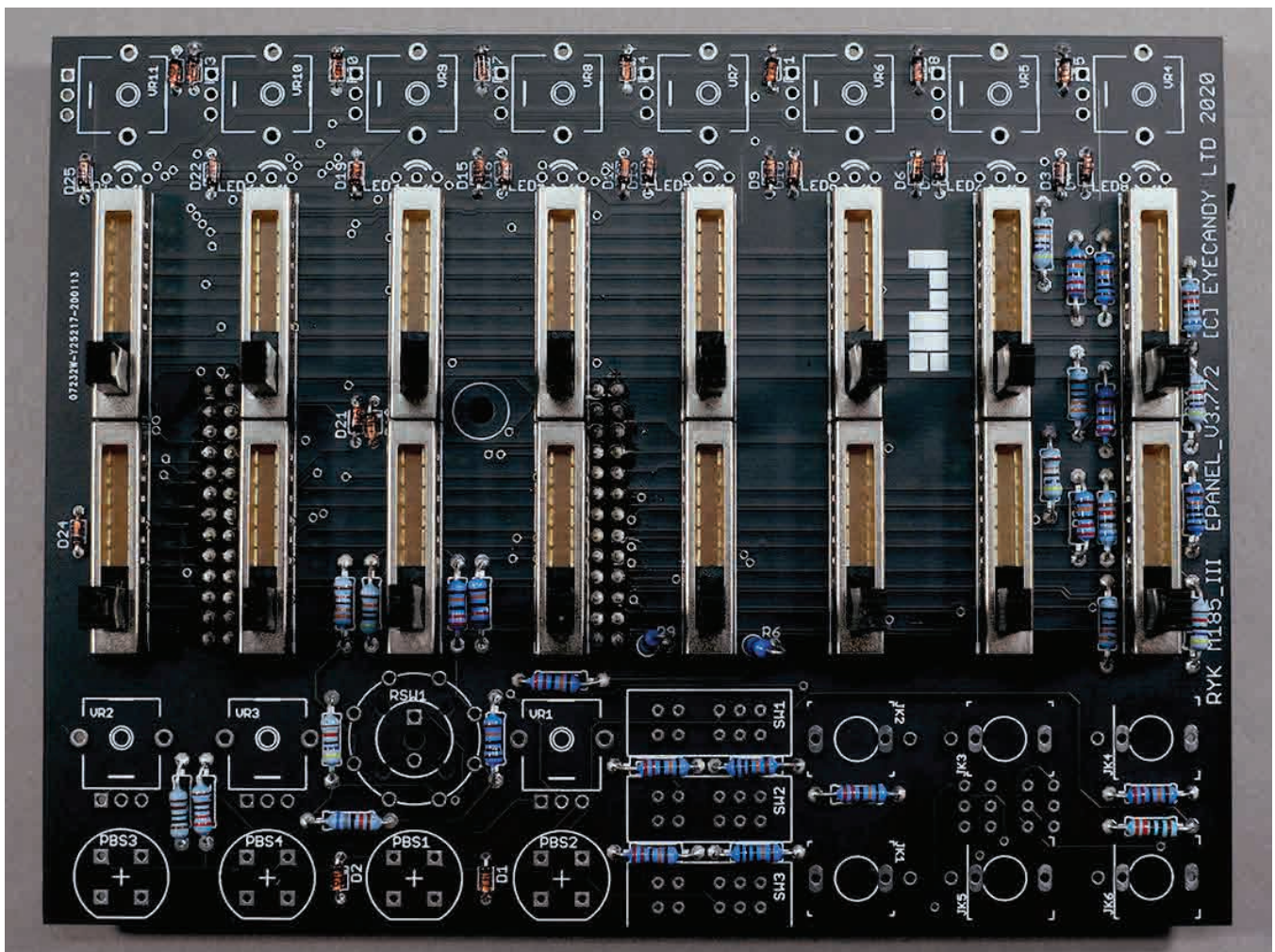
Repeat this for all the switches.

Then turn the board over and check the base metal part of each switch is perpendicular and flush with the PCB. If not then melt the solder on one of the corners you have soldered and press the switch gently from behind, whilst maintaining the soldering iron on the pad.

If all switches look good, then begin soldering all the remaining pins, quickly and carefully. Not too long with the iron on each pad.

After soldering all the pins, inspect carefully all the pins [use a magnifier to help] and check solder joints are good, and that there are no shorts between pins.

NB Do not push the slide switches from the side.
Because we have designed the switches with very tall lever, even a small amount of side force can break the switches.
Once behind the panel they are protected from this problem by the slots in the panel.



STAGE 5 - Bag D

Insert all 3 of the 4-way slide switches onto the PCB, making sure they are firmly seated.

Flip the PCB over, and push a switch from behind to make sure it is firmly seated onto the PCB.

Whilst pushing the switch against the PCB from behind, solder all the pins, making sure there are no shorts between pins.

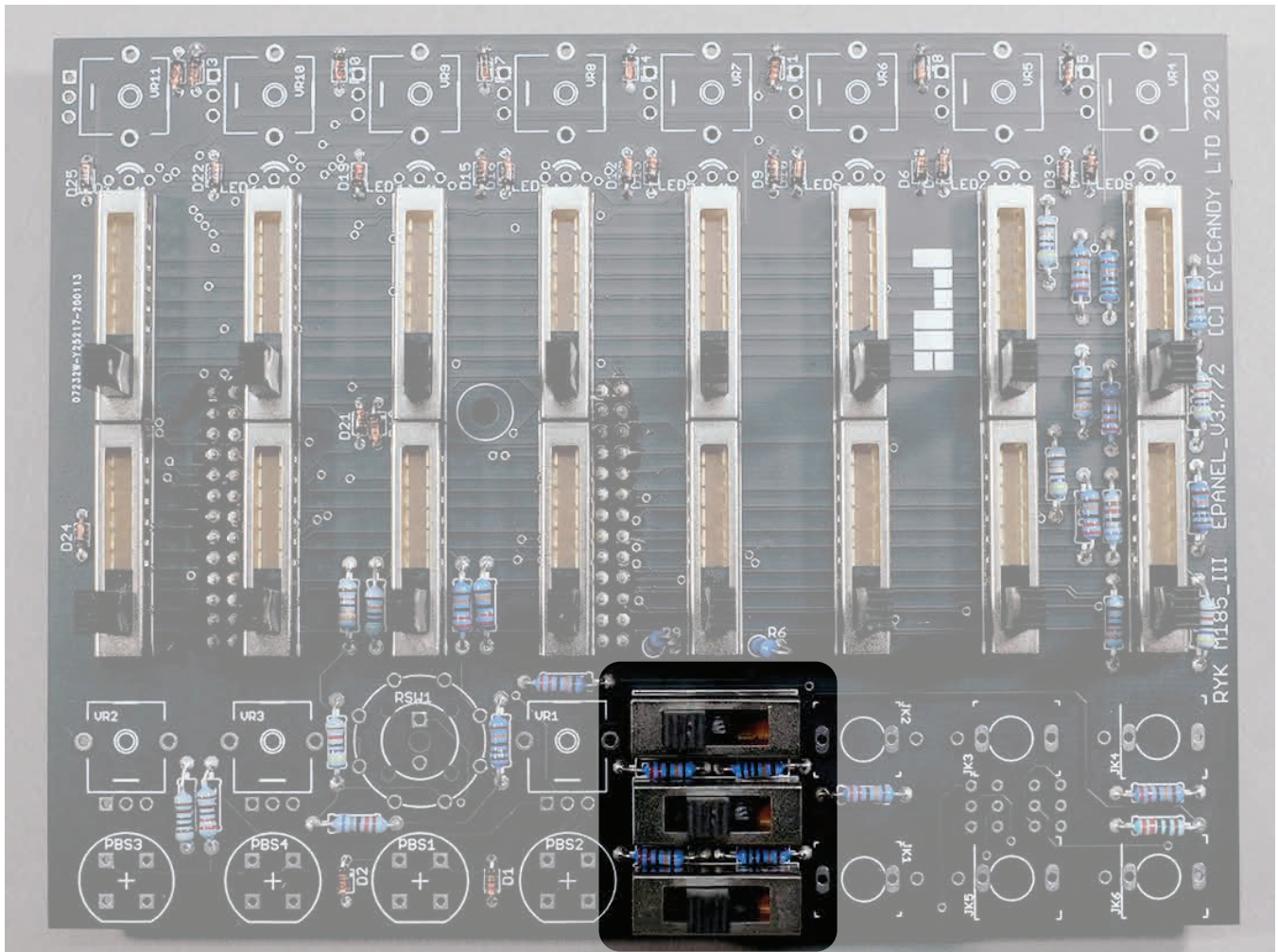
Repeat this for each switch.

NB Do not push the slide switches from the side.

Because we have designed the switches with very tall lever, even a small amount of side force can break the switches.

Once behind the panel they are protected from this problem by the slots in the panel.

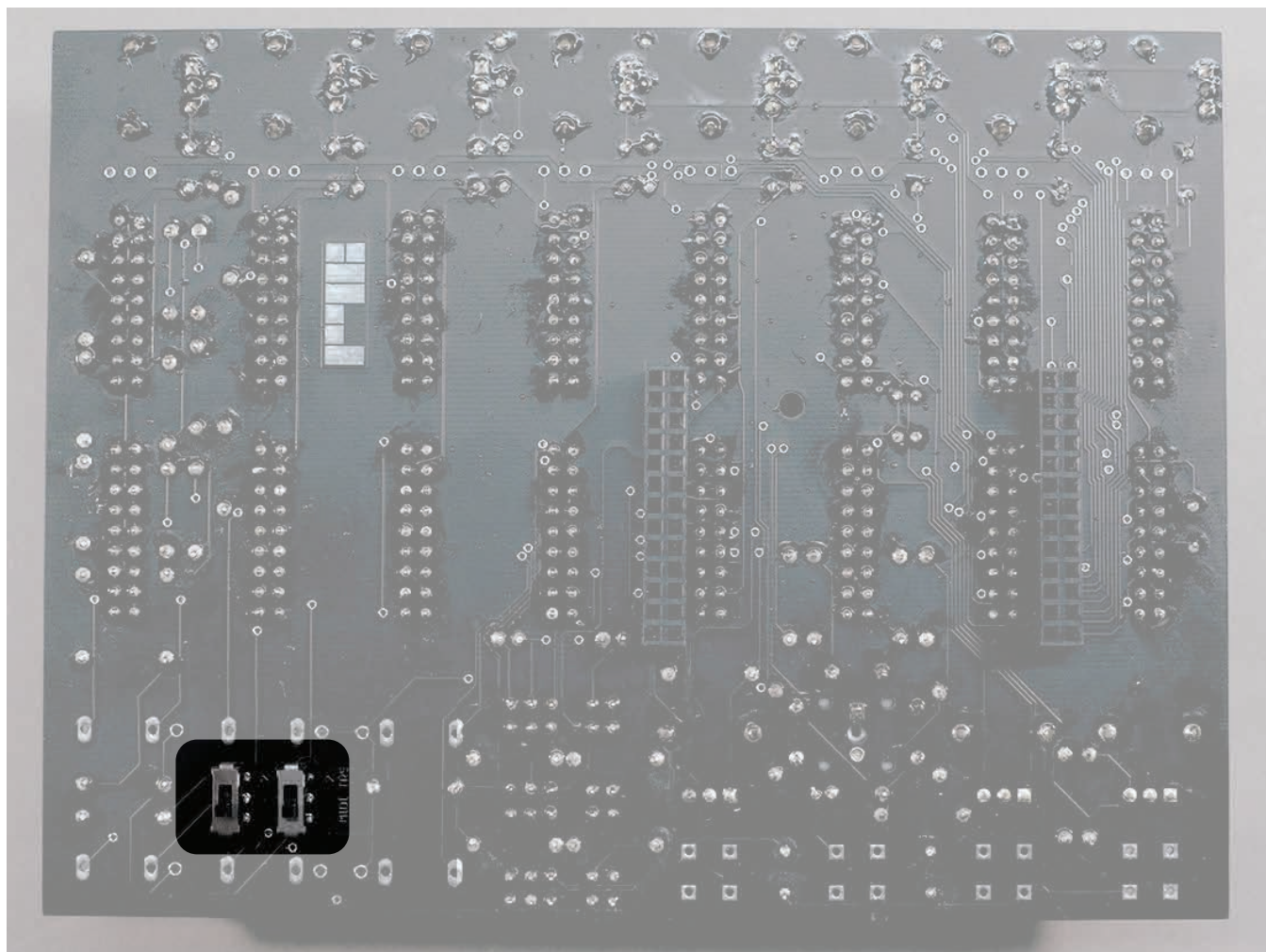
NB Do not use a flux removal wash after installing the slide switches. These switches are not sealed, and the flux wash will get in-side of the switches leaving them sticky and possibly stuck.



STAGE 6 - Bag D

Insert the two micro 2-way slide switches onto the underside of the PCB.

Make sure they are seated well, then flip the PCB over and solder from the top side.



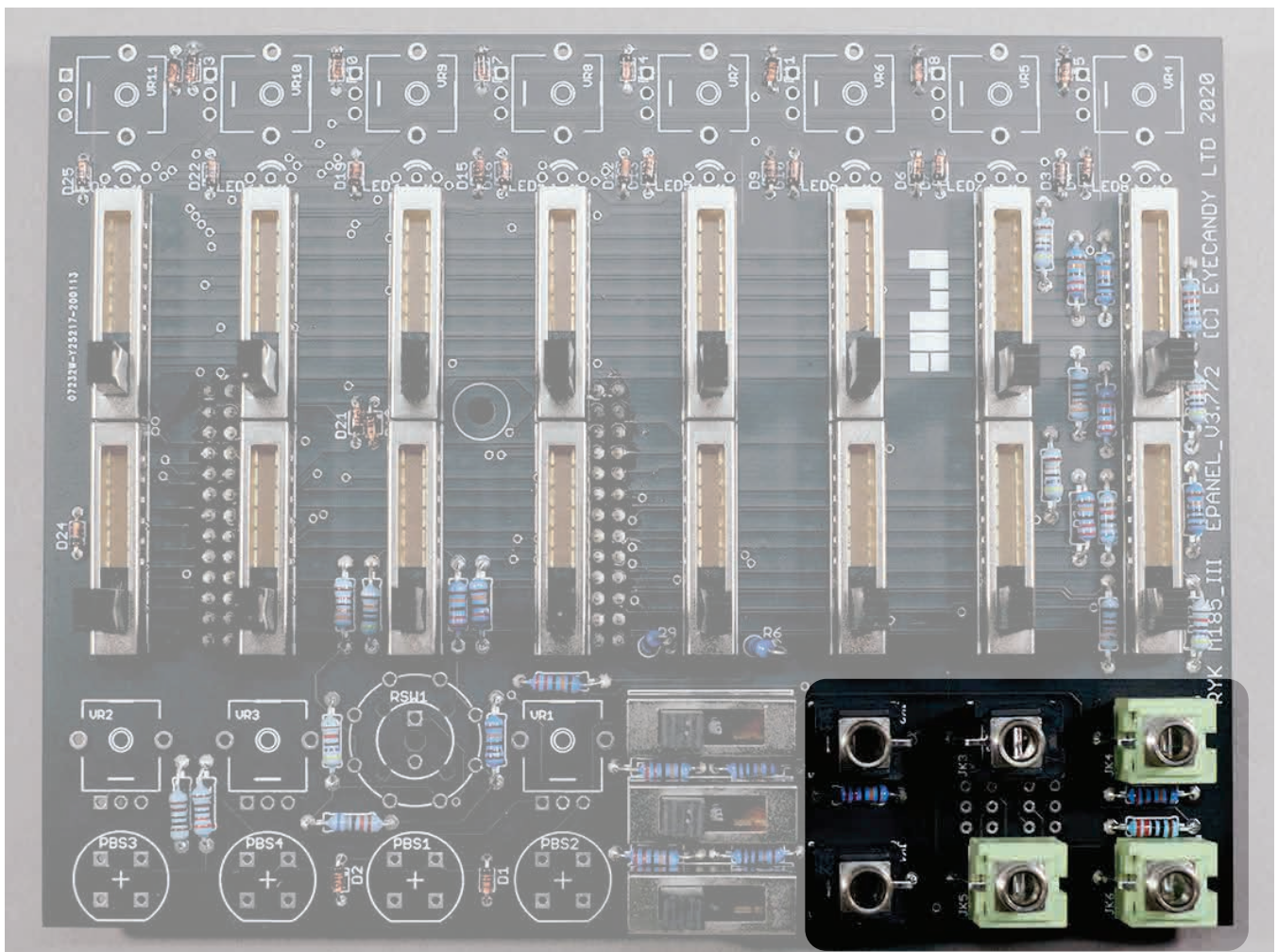
STAGE 7 - Bag C

Next are the 6 jack sockets. There are two types; 3x stereo [green] and 3 x xmono [black]. Please make sure you use the correct jacks in the each place. JK1, JK2,JK3 are black type, JK4, JK5, JK6 are green type.

Check the legs of the jack sockets, make sure they are straight and perpendicular, making any adjustment if necessary.

Insert the black jack sockets into the PCB. One by one, push them flush against the PCB with one hand, whilst soldering on the underside, making sure the jacks are square and perpendicular to the PCB.

Next, insert the green jack sockets into the PCB. One by one, push them flush against the PCB with one hand, whilst soldering on the underside, making sure the jacks are square and perpendicular to the PCB.



STAGE 8 - Bag D

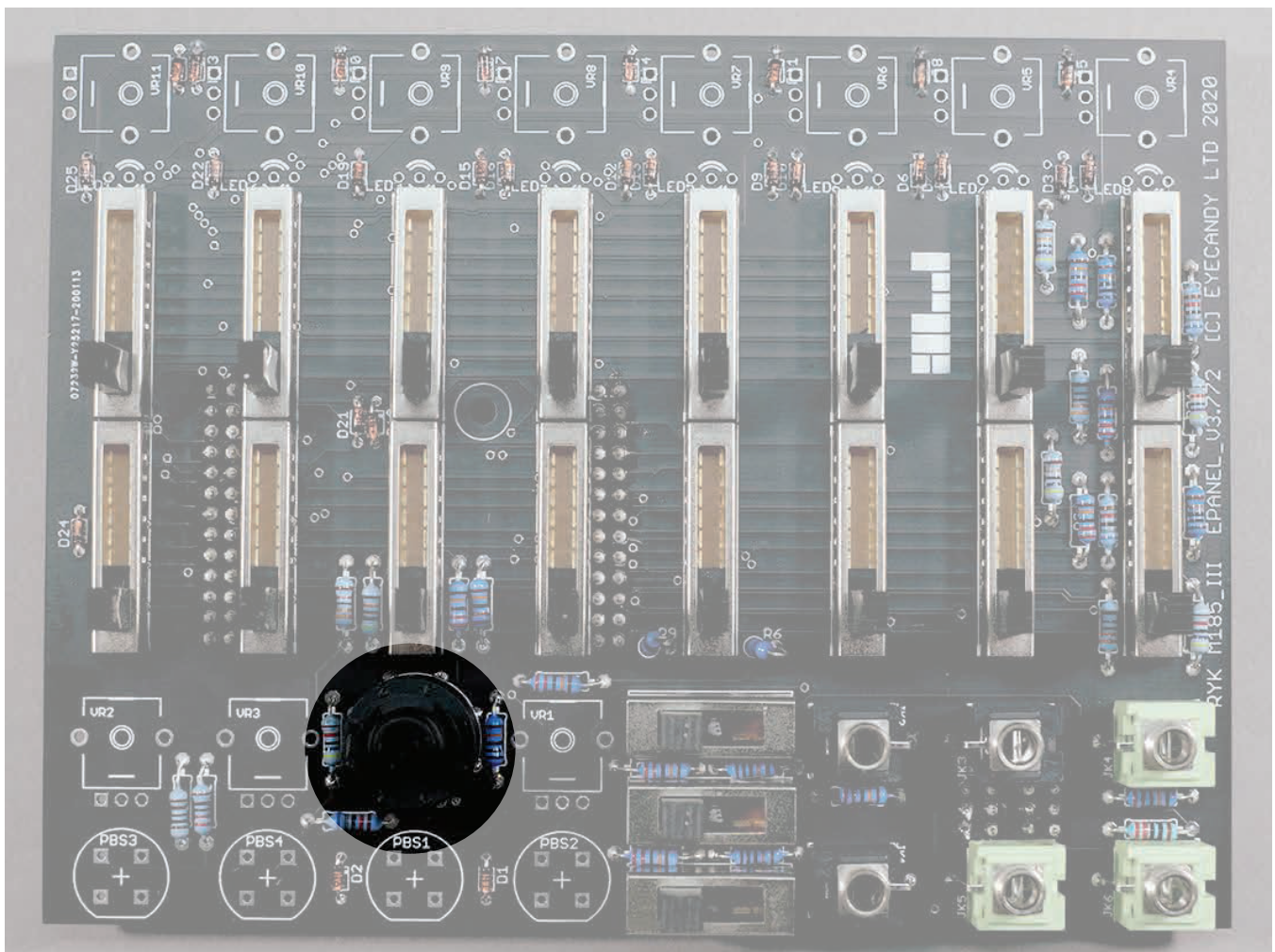
Next check the legs of the rotary 8-way switch, make sure they are straight and perpendicular, making any adjustment if necessary. Using sharp scissors/clippers make sure to **cut off the plastic tab** on the top edge of the rotary 8-way switch.

Before inserting the rotary 8-way switch into the PCB, make sure the orientation is correct, so that the center pin is located in the upper hole with the square PCB pad.

This is very important, as once this switch is soldered, it will not come out !

Insert the switch into the PCB, and push it flush against the PCB with one hand, making sure all the little plastic studs line up with the holes in the PCB. If they do not, give the switch a wiggle to align them correctly.

Once you have checked, and doubled checked the switch is sitting correctly, then solder the pins on the underside of the PCB.



STAGE 9 - Bag E

There are 11 potentiometers to solder onto the PCB. Of which there are two types.

10 x 50K [marked 503] and 1 x 1M [marked 105].

Please make sure you place the correct potentiometer in the correct place Pot3 is 1M all the others are 50K

Insert all the potentiometers into the board, they should 'snap' into place with a small amount of force.

Check they are all flush, and perpendicular to the board.

At this point you can put on the panel, over the potentiometer shafts and jack sockets, then tighten up some of the nuts on the middle and side potentiometers, and the corner jack socket.

This is a useful way to make sure all the potentiometers are aligned.

Check the potentiometers are still flush with the PCB, by pushing the panel from the top.

Turn over the board, and begin to solder each potentiometer into place, whilst applying some pressure from behind to make sure each potentiometer is flush with the PCB.

PRO TIP See Page 11

If you have some clamps, you can place all the potentiometers and jack sockets into the PCB at once.

Make sure all pots and jacks are firmly in place.

You can also place the push-button switches into place, but these will need to be pushed gently against the PCB when soldering.

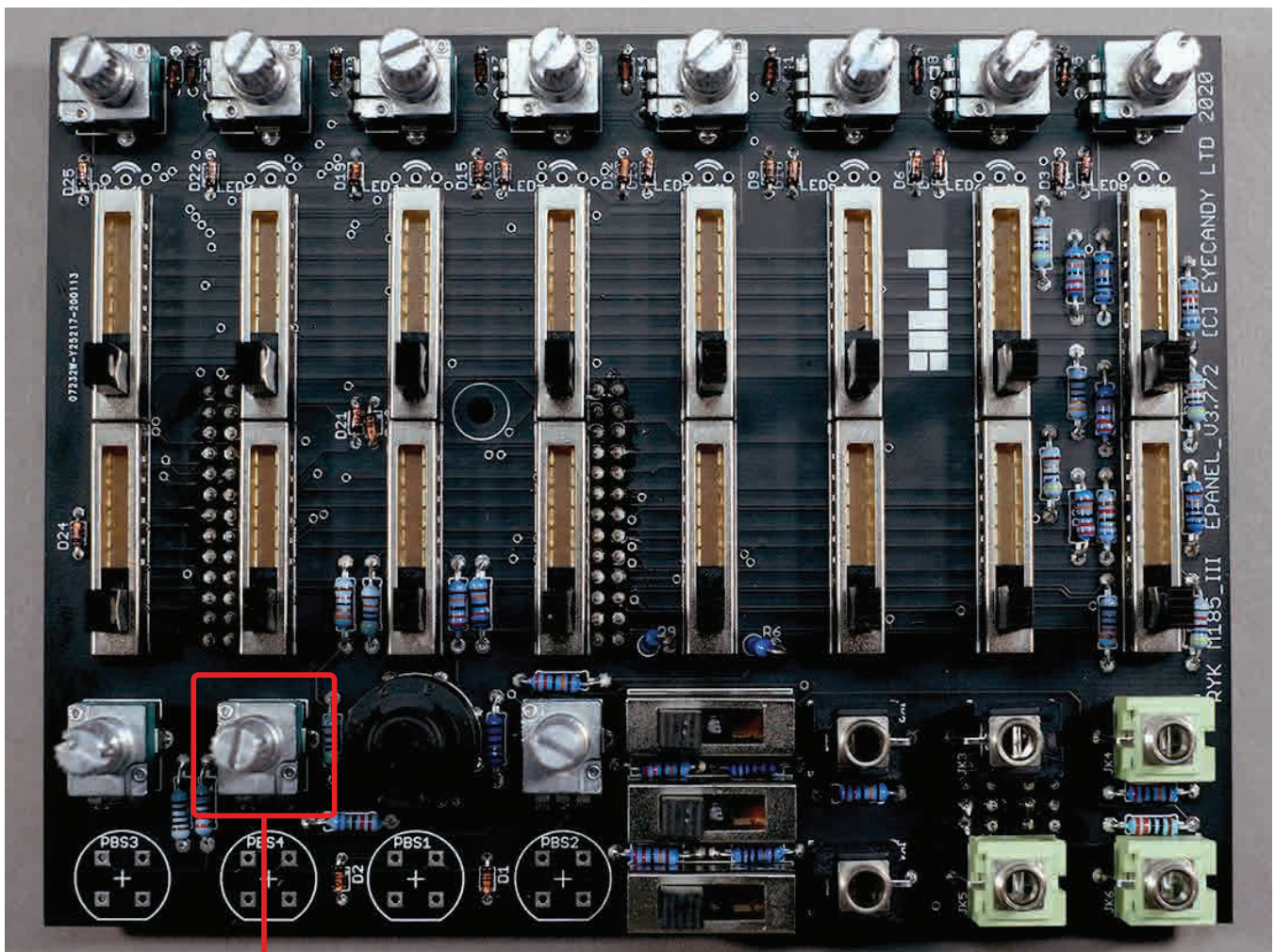
Carefully place the panel over all the components.

Make sure the clamps are clean, so as not to damage the panel.

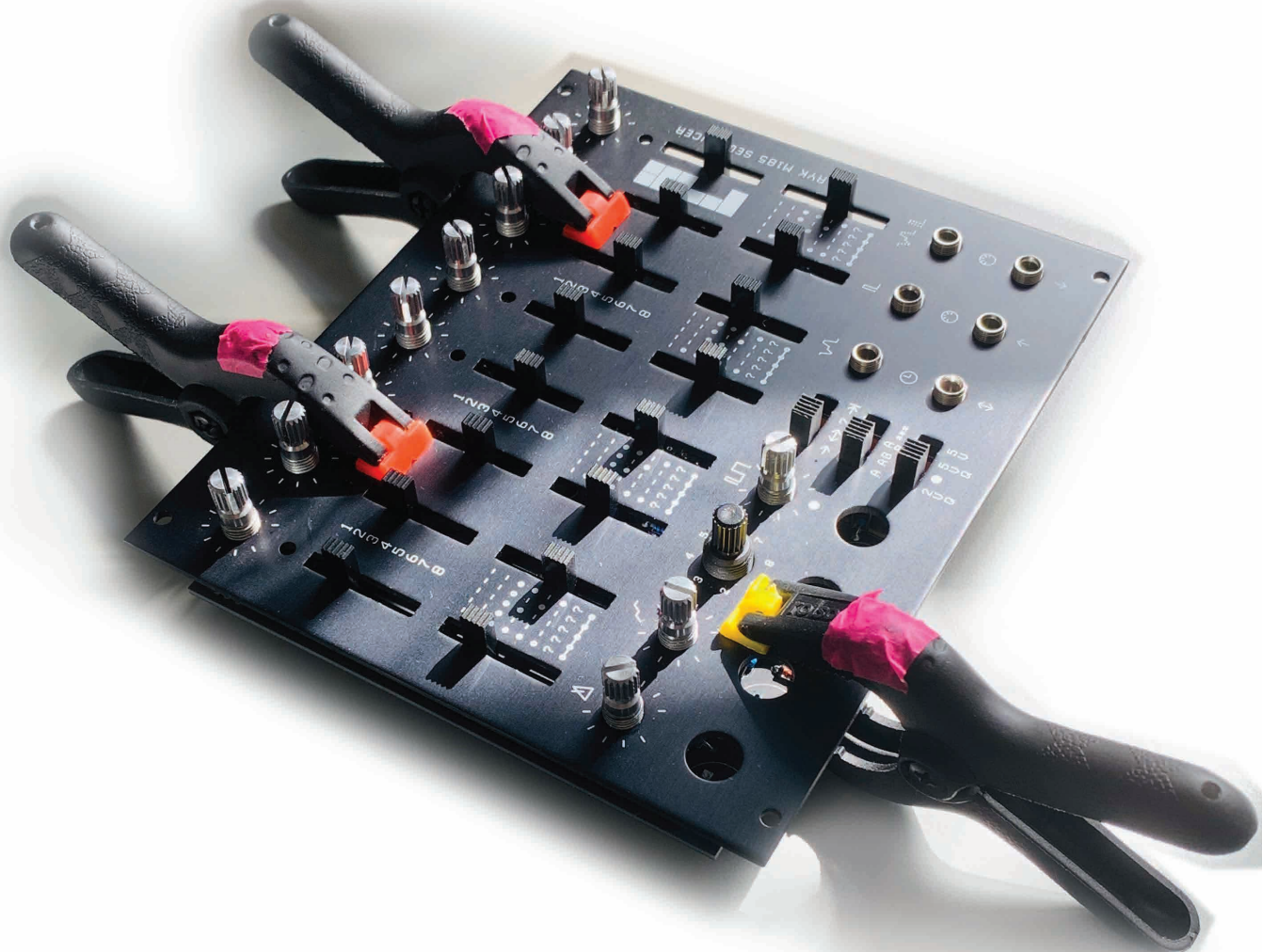
Then clamp on the panel to hold them all securely in place.

Check all the pots and jacks are still correctly seated.

Turn over, and solder everything into place, gently pressing the push switches against the PCB.



1M Potentiometer [marked 105]



STAGE 10 - Bag C, Bag D

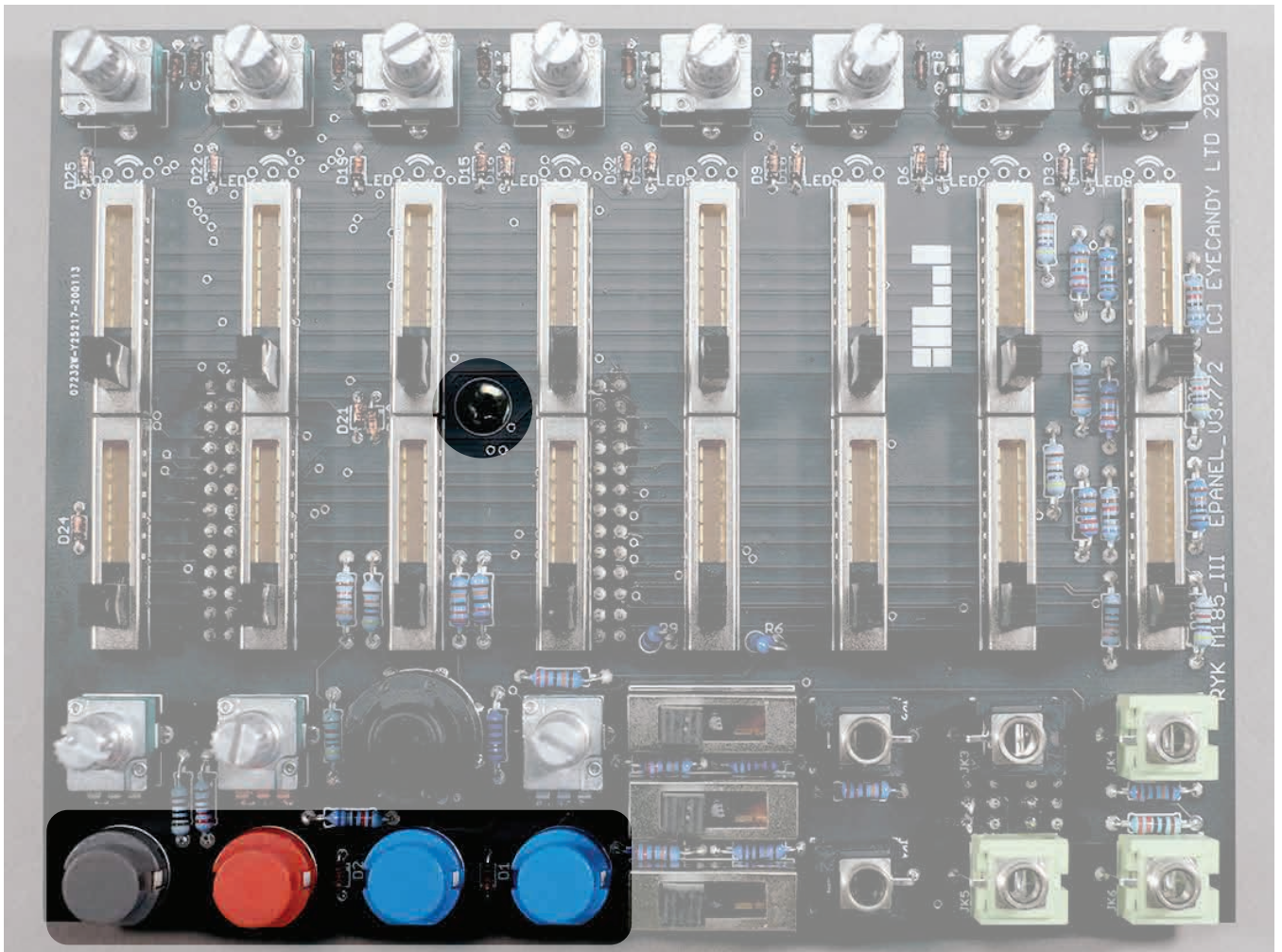
Now take off the panel.

Place the 10mm white PCB spacer on the under-side of the PCB, and using the short M3 screw secure it to the PCB from the top side. Make sure this is very tightly secured. Apply some locktight or nail-varnish to the screw head.

Insert the push buttons into the PCB, noting the correct colour of each switch. Also check that their are orientated so the flat side is towards the bottom edge of the PCB.

Whilst holding each switch from the top-side of the PCB apply some gentle pressure to keep the switch flush against the PCB, whilst soldering the pins on the under-side of the PCB.

DO NOT PUSH SO HARD THAT THE SWITCH ENGAGES OR CLICKS



STAGE 11 - Bag B

Familiarise yourself with the LEDs, they have 3 legs. One central Long, one Medium, and one Short.

The orientation of the LEDs is important. On the PCB where LED is indicated there are small letters surrounding the solder pads that indicate the orientation of the LED legs.

L = Long leg, M = Medium leg, [the central leg is the longest]

Insert all the leds in their positions, double checking that they are correctly orientated, as per above.

DO NOT SOLDER YET, LEAVE THE LEDS LOOSELY IN THE HOLES.

Assemble the panel onto the PCB, taking care to line up over the Potentiometers and switch handles. Lower the panel flat onto the controls, do not try and put on at an angle.

It is a good idea to line up all the 8-way switch levers to the bottom position, which makes fitting the panel easier.

The push buttons can be difficult to line up with the panel, try wiggling them with a small finger. If the slide switch handles are a problem, use a toothpick or non metallic object to line them up with the panel cut-outs.

Once the panel is in place, tighten up some nuts on the corner potentiometers and jack sockets.

Now begin to push through from behind the LEDs so they sit firmly in the panel holes.

Turn over the module, and check again, pushing the LED legs from behind that the LEDs are sitting in the panel holes.

When you are sure they are all lined up, begin to solder the LED legs to the pads.

To be extra cautious, only solder one leg of each LED first. When done flip over the module to check all LEDs are evenly positioned in the panel holes.

If not, apply the soldering iron to the already soldered leg, whilst gently pushing the LED forward towards the panel to make sure it is positioned correctly in the panel hole.

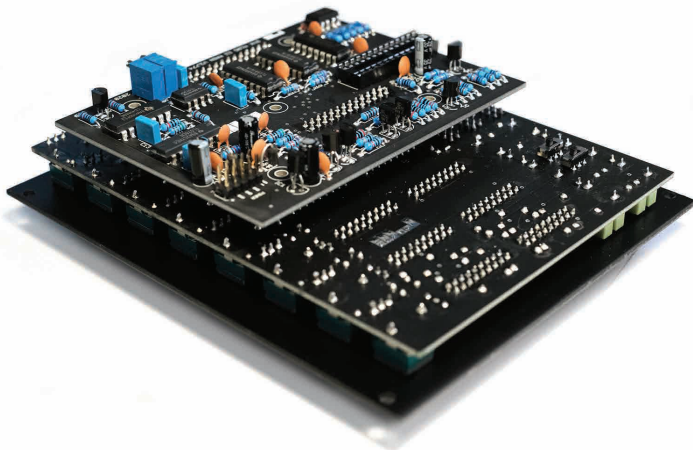
Then carefully solder the remaining LED legs, and check their are not shorts etc between pins.

Afterwards carefully inspect all LED solder pads, making sure there are no shorts between the pins.

STAGE 12 - Final Assembly

When the Panel PCB AND the Main PCB are finished, please double check the PCBs pads carefully [use a magnifier to help] looking at the joints and making sure there are no solder-bridges.

Now connect the Main PCB onto the Panel PCB. Orientate the Main PCB so the Euro power header is at the top side of the Panel PCB [where the LEDs are located]. Carefully line up the pins with the headers and push gently so that the two boards are firmly connected. Screw the boards together with the short M3 screw through the center hole of the MAIN PCB.



Before putting on the knobs it is a good idea to check everything is working. Connect the Euro power cable [lining up the red stripe with the line on the PCB].

HARDWARE TEST

Switch on the power to the M185 whilst holding down the Grey [start/stop] button.

If all is working you should see Red and Green LEDs animate from Left to Right in both directions.

After the animation, release the button, and one Red LED 'cursor' should remain lit.

Move the cursor LED to position "8" with the blue buttons, then press Reset [red button] to enter the Hardware Test and Calibration mode.

In Hardware test mode, you can check the values read by the stage CV pots and switches, to test if they are functioning correctly.

Turn the Max Stages switch to select the desired stage to test [1- 8]. This will be indicated by a flashing green LED. Using the Sequencer MODE CONTROL switch you can select which type of pot or switch to check.

To check the CV potentiometers. [set MODE to ->] Rotate the Pot, if it is functioning correctly the red LED display will light up from left to right indicating the value of the potentiometer. If not, check the solder joints for this

To check the Stage Count switches [set MODE to <->] Move the Stage Count switch up and down, If it is functioning correctly the red LED display will light up across from left to right indicating the value of the switch. If not then check the solder joints for this switch.

To check the Gate Mode switches. [set MODE to ?] Move the Gate Mode switch up and down, If it is functioning correctly the red LED display will light up across from left to right indicating the value of the switch. If not then check the solder joints for this switch.

Next you will need to calibrate the CV outputs for 1V/Oct scaling.

Set the VOLTAGE MODE CONTROL switch on the panel to the 5VQ position.

Connect a patch cable from the CH1 CV output socket, and connect the other end to a digital multimeter. [ring of the patch cable to black lead on meter, tip of patch cable to red lead of meter]

Set the meter to measure DC volts, in a range of 10V

Turn the Max Stages switch and the LED should move to indicate the switch position [1-8].

Check the voltage on the multimeter, in setting 1 it should read 1V, setting 2 =2V, setting 3=3V and so on, but will probably not to start with.

To adjust the CV range for CH1, set the Max Stage switch to 5, and adjust preset trimmer VR1 on the Main PCB, until the multimeter reads 5V. When set, change the Max Stage switch to check the other readings are correct from 1V to 5V.

When complete, connect the patch cable to the CH2 CV out socket, and follow the same procedure as above, this time adjusting preset trimmer VR2 on the Main PCB.

If all is working well, then finish the module by fixing all remaining nuts, and knobs.

Please note the rotary switch does not require a fixing nut, and it also has its own special knob which has a shorter base extrusion than the others.

Please use the knob with the orange pointer dot for the Gate Time control pot.

To align the knobs correctly, turn the pot shaft counter anti-clockwise until it stops. Line the pointer dot of the knob at the '7 o'clock' position, and push on firmly.

Please refer to the User Manual for instructions to use the sequencer.

Have fun !!