

E-LICKTRONIC YOCTO ASSEMBLY MANUAL

Taken from website 14-01-2015.







For assembly you need soldering iron, tin, wire cutters for electronics, multimeter. So much for the essential. Settings for different sounds you'll need either an oscilloscope or [Scope software](#) that allows you to use your computer's sound card as an oscilloscope. Be focused and meticulous during assembly, pay attention to direction of the polarized electrolytic capacitors, diodes, transistors and integrated circuits components. If you are not sure of the place of a component, download the [BRD file YOCTO PCB](#) and the [trial version of Eagle](#). Open the file in Eagle and click the "Show object" function represented by an eye, then type the name of the component you are looking for the location and press Enter. The component will highlight indicating its location. Patience and organization are the key words that will make your YOCTO work the first time.

Power Supply:




Power supply is the first part to be built. Prepare all parts before starting will avoid that you were wrong. Buy transformer before beginning assembly because you need it to test the power supply.

Here is the part list:

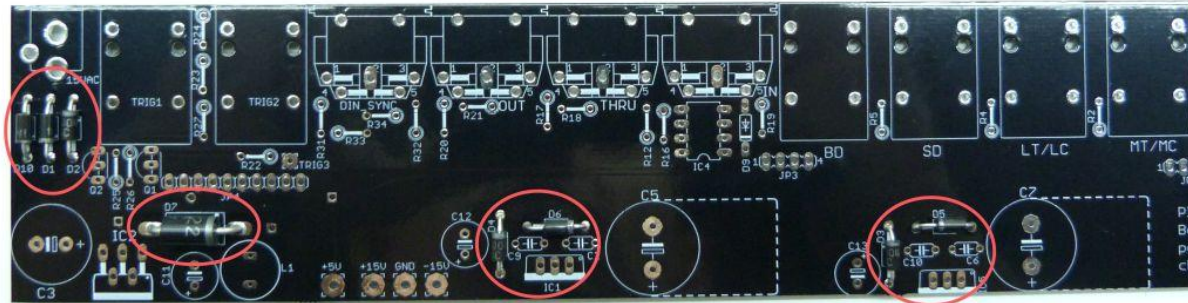
Image	Description	Part	Value	Qty
	Transformer 15VAC 1000mA (not included)			1
	2,1mm power jack	15VAC	Power Jack	1
	Multilayer ceramic capacitor (104)	C2, C6, C9, C10	100n	4
	Electrolytic capacitor	C3	680/35	1
	Electrolytic capacitor	C5, C7	2200/35	2
	Electrolytic capacitor	C11	220/35	1
	Electrolytic capacitor	C12, C13	100/35	2

	Rectifier diode	D1, D2, D3, D4, D5, D6, D10	1N4004	7
	Schottky diode	D7	1N5822	1
	Positive voltage regulator	IC1	7815	1
	Step-Down Voltage Regulator	IC2	LM2596	1
	Negative voltage regulator	IC5	7915	1
	Heatsink			2
	Inductor	L1	33uH	1

And here is the list of Main Board components :

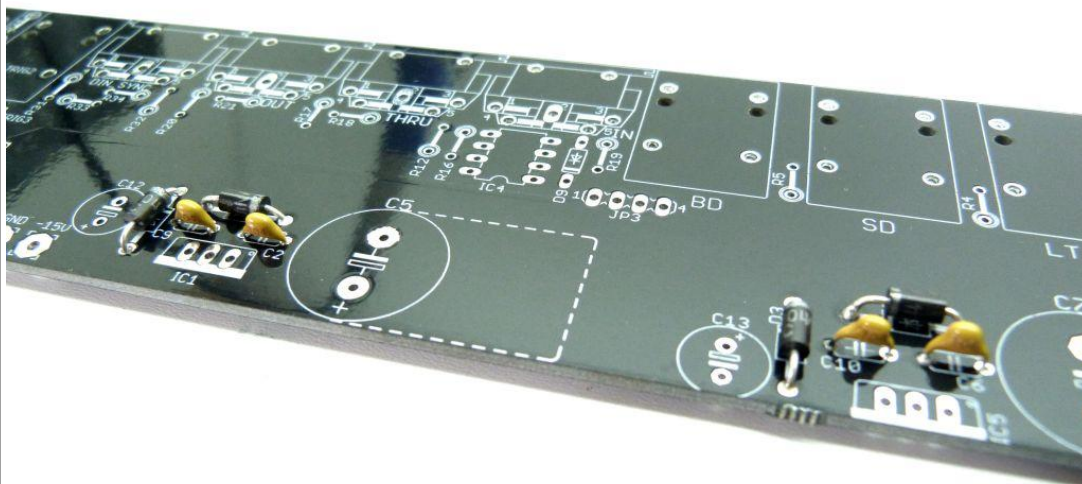
Image	Description	Part	Value	Qty
	Electrolytic capacitor	C16, C18, C20	100/10	3
	Electrolytic capacitor	C24*, C25*, C26*, C27*, C37, C44, C46, C62, C64, C79, C80, C84*, C85*, C86*, C87*, C88*, C89*, C93, C94, C106, C107, C123, C124, C147, C148	47/16	25
	1/4w Carbon resistor	R78*, R79*, R80*, R81*, R151, R164*, R165*, R167*, R168*, R170*, R171*, R178, R179, R208, R209, R236, R237, R264, R265, R292, R293, R328, R329, R379, R380	100R	25

Make it:



We're off on this adventure. Place all the power diodes. They are in red circled in the picture. Click on the picture to enlarge if necessary.

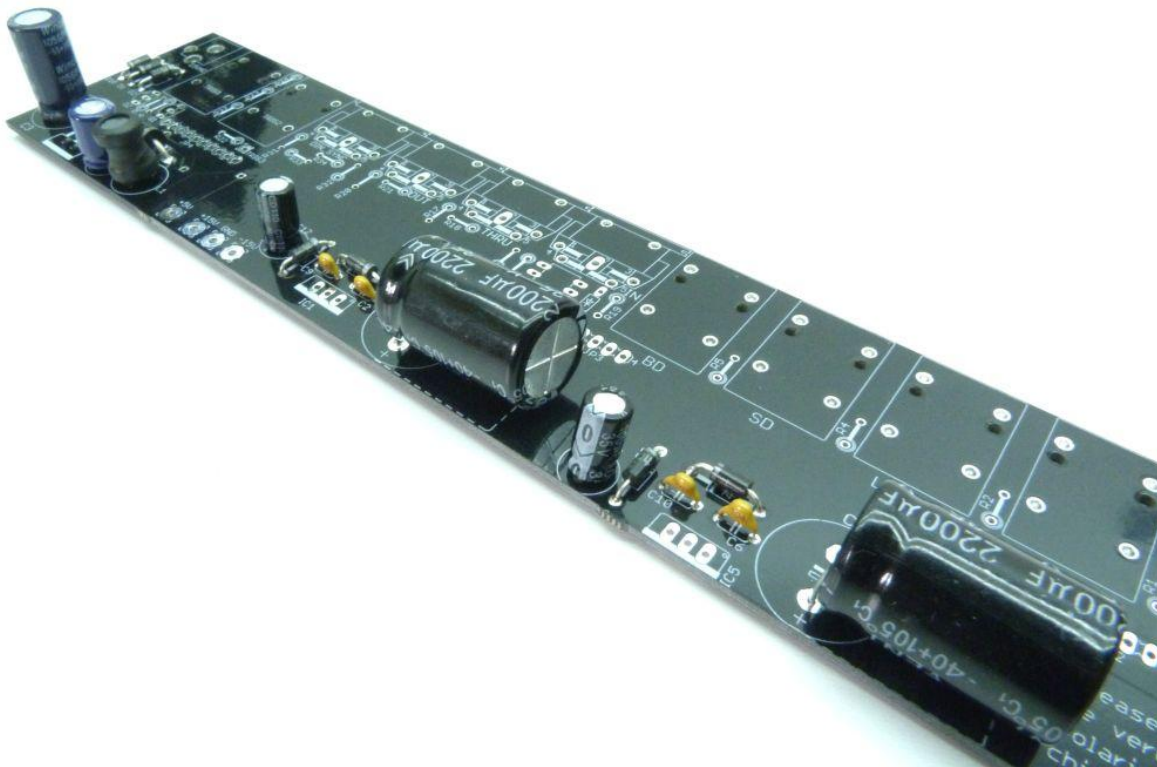
Diodes are directional; make sure the white stripe at the end of each diode matches the silkscreen.



Then comes the turn of multilayer capacitors of 0.1uF

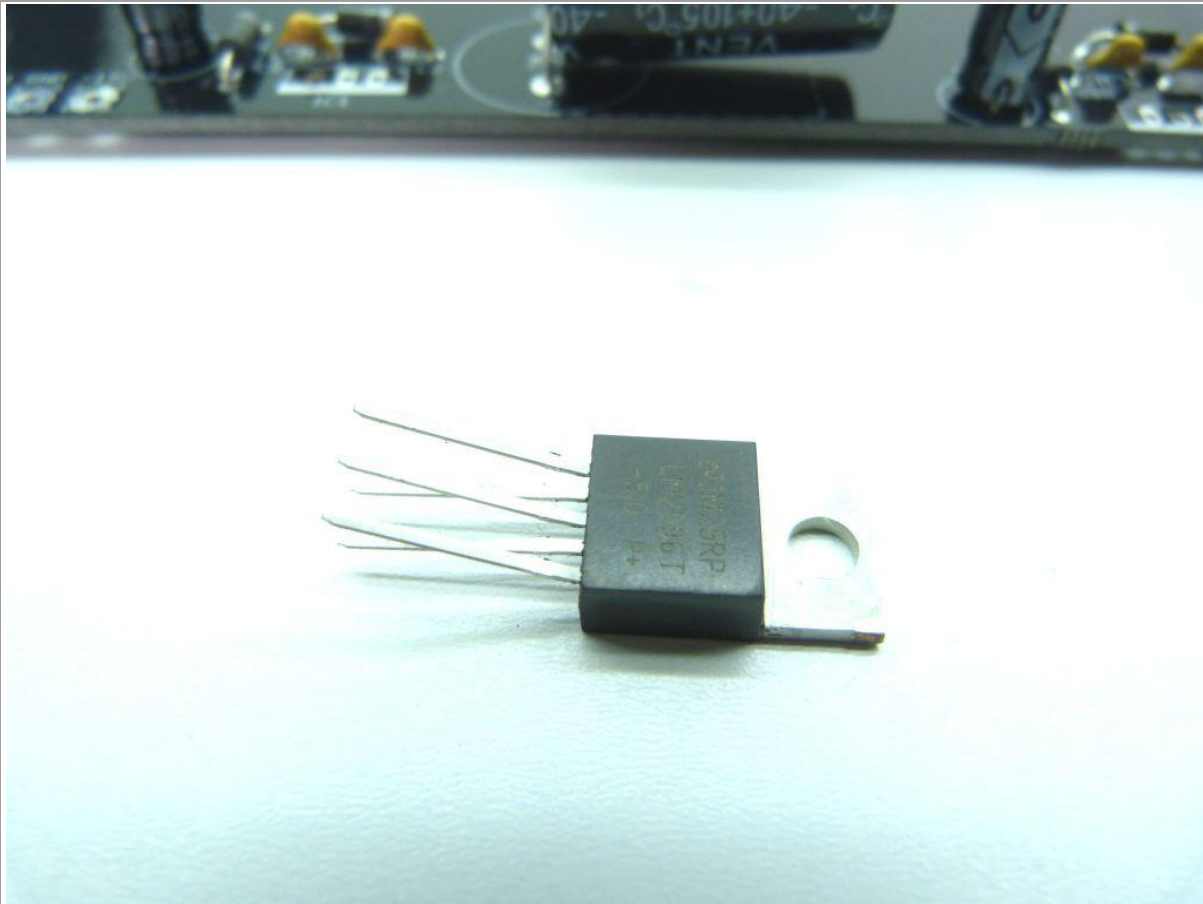


Bend the capacitors 2200uF leads, this so it does not touch the Main Board when you assembly all in the box.

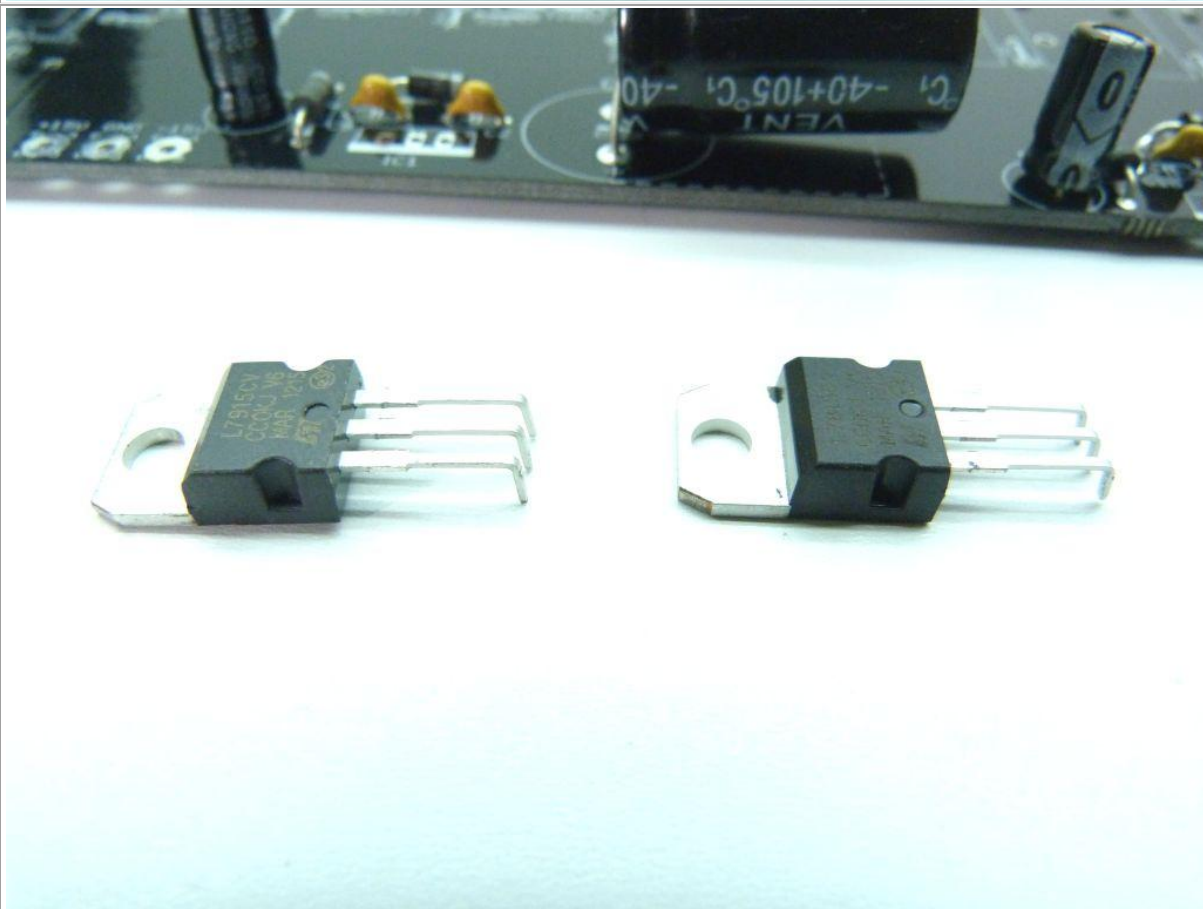


Now solder electrolytic capacitors and inductor L1.

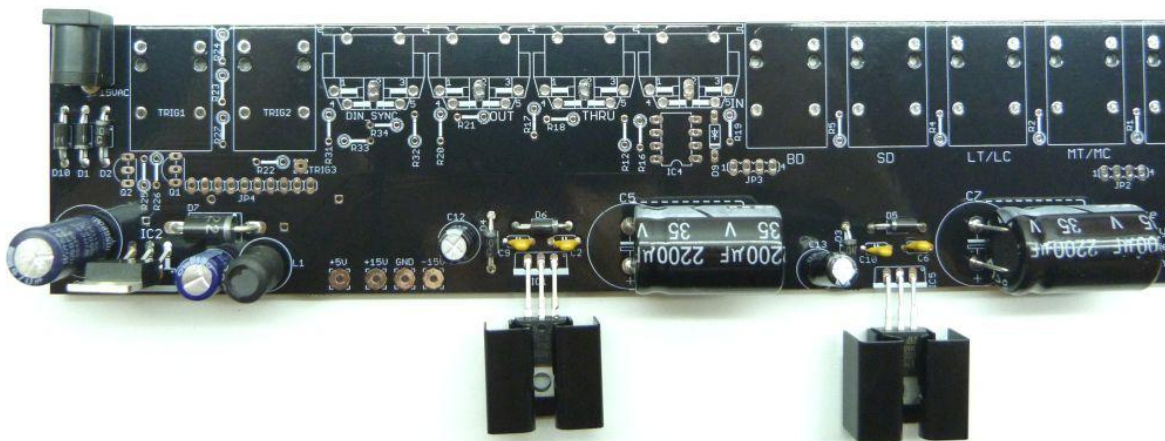
Make sure they are placed correctly, with the negative stripes as shown on silkscreen



Bend LM2596 leads like this

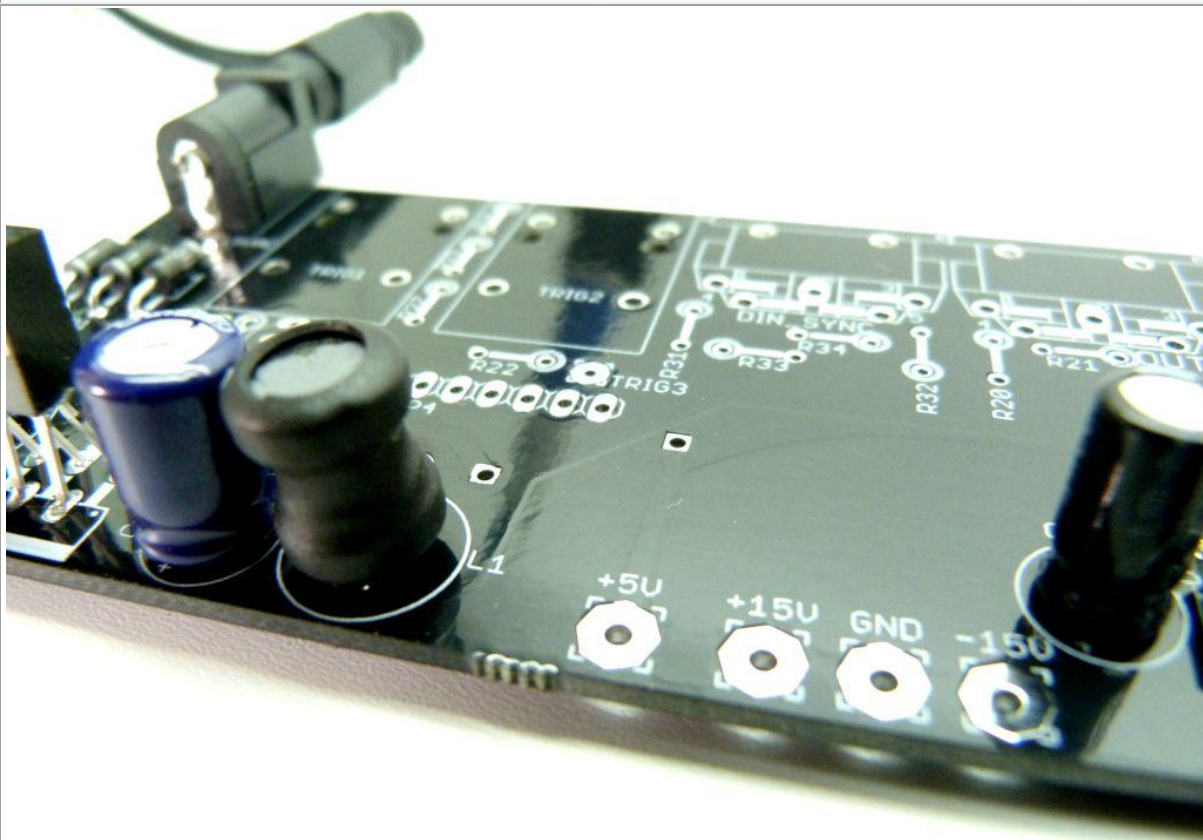


And bend regulators leads like this

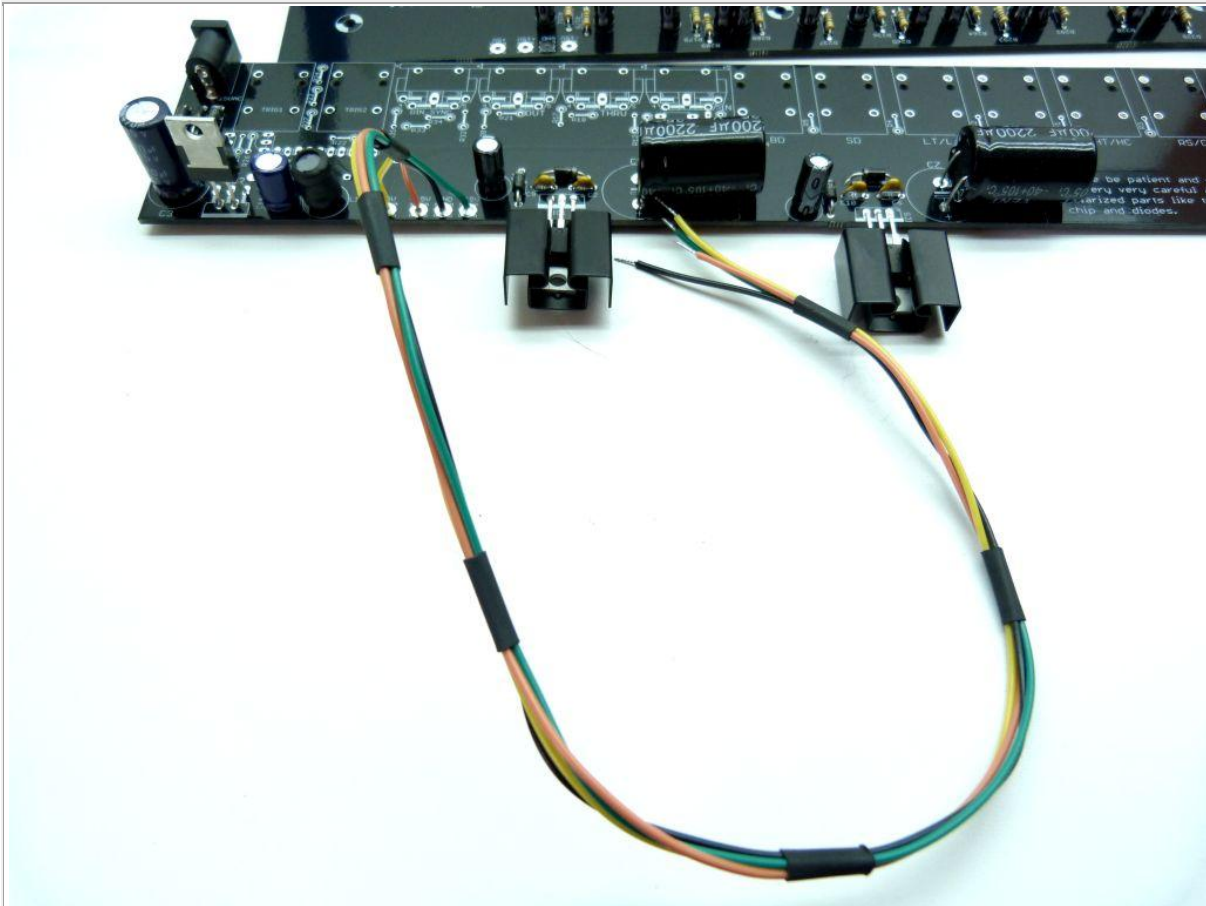


Now solder the power connector and the three regulators. Do not forget to put the radiators on both 7815 and 7915 regulators.

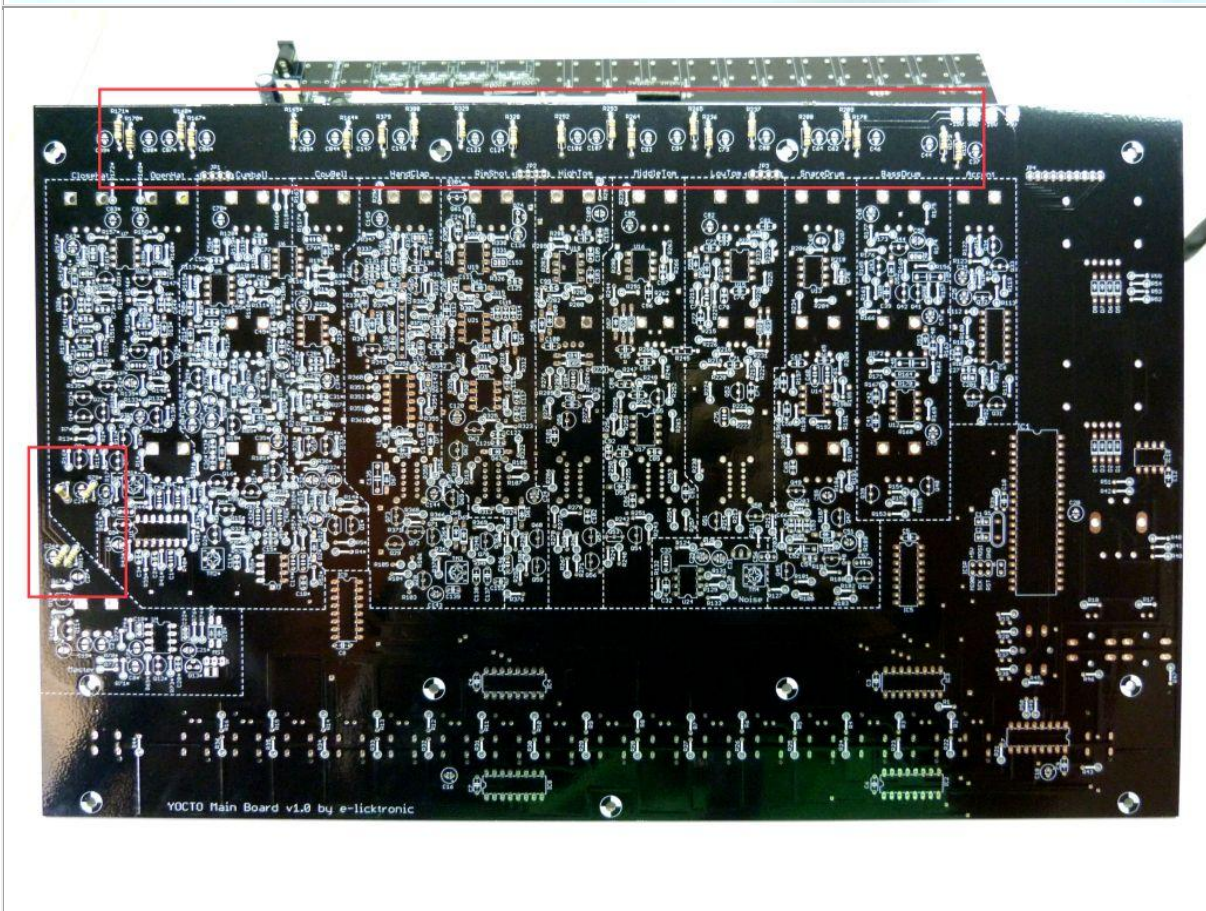
BEWARE OF PLACE EACH REGULATOR ON HIS RIGHT PLACE



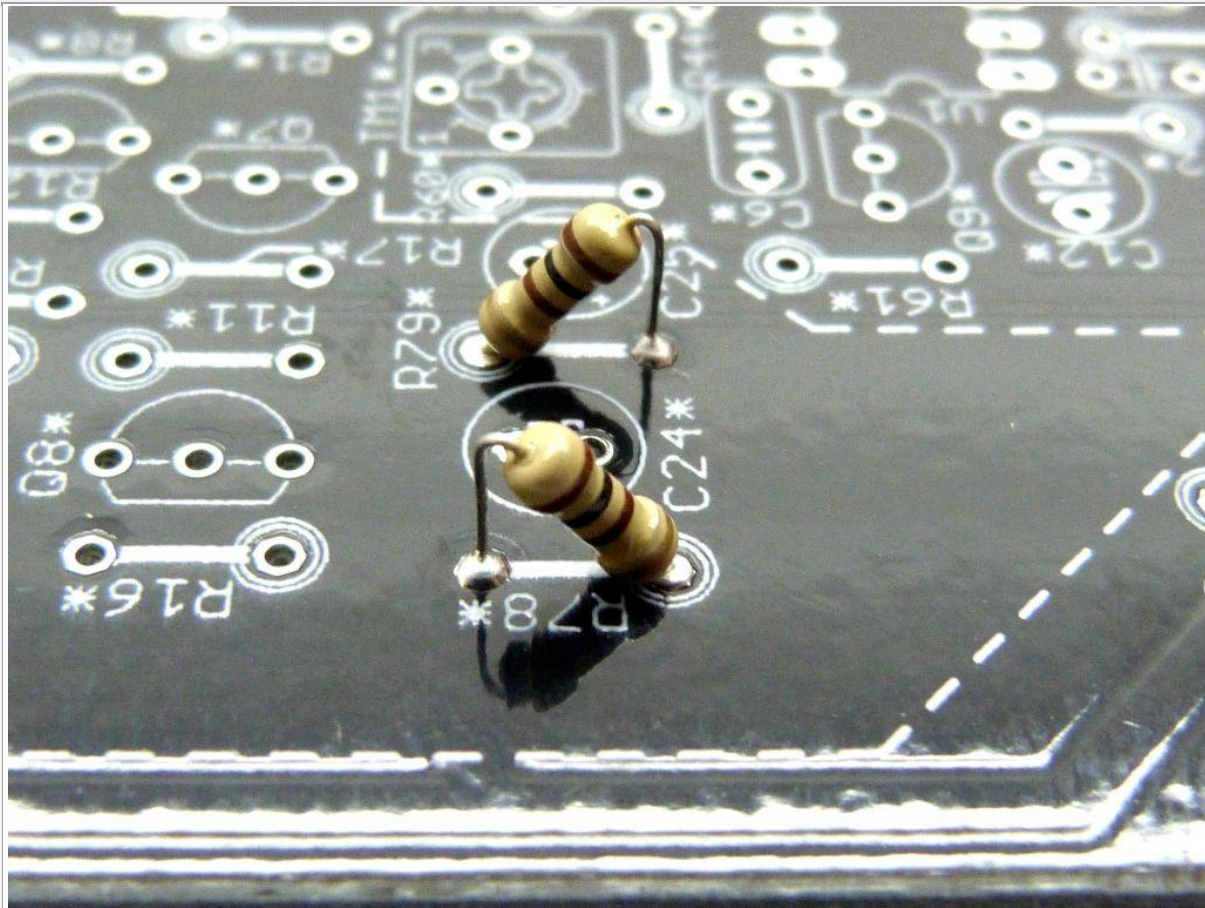
Connect power supply to the IO_board and test voltage on pads +5 v, +15 v, -15v. The value may vary by plus or minus 5%. Example, if you measure 14.6V on the +15 v pad is OK.



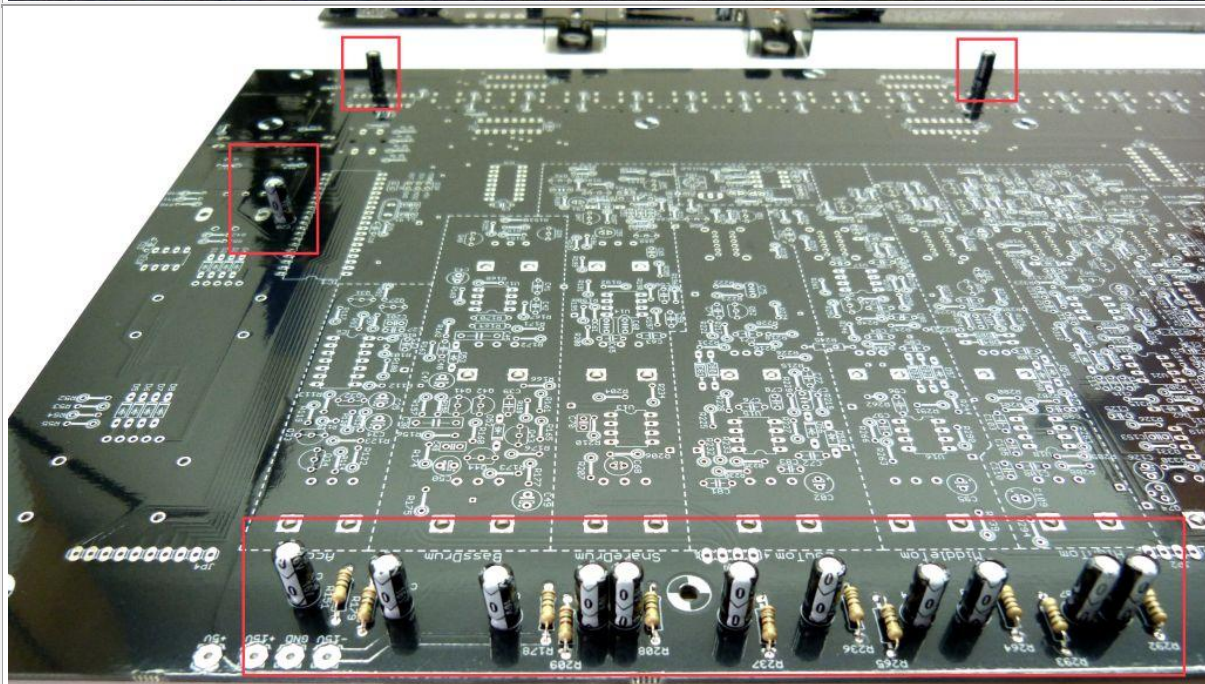
Cut four wire long enough to turn the Main_Board during assembly and solder to the pads.



Now to the Main_Board. Start by soldering all the resistors 100ohms framed in red in the picture.

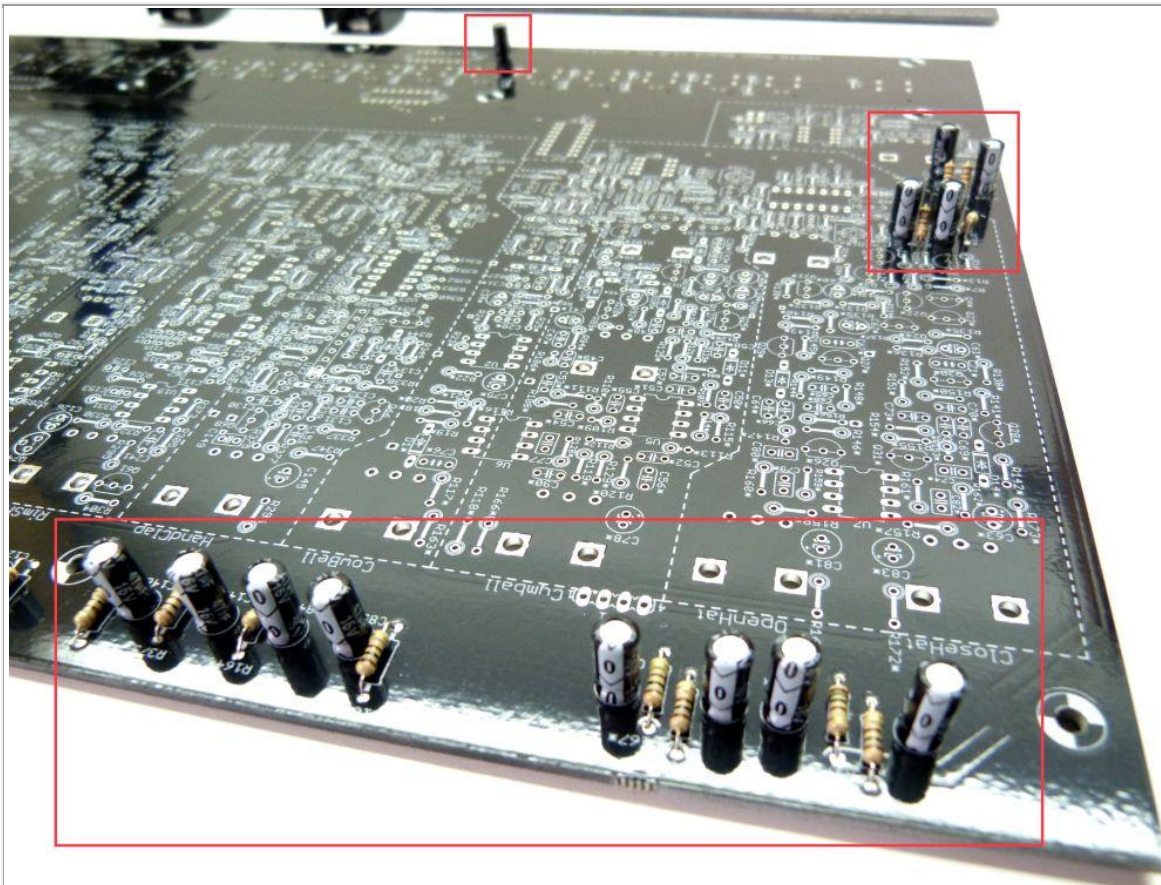


Solder the vertical resistors like this. Always put the body of the resistor on the side where there is the circle on the silkscreen.

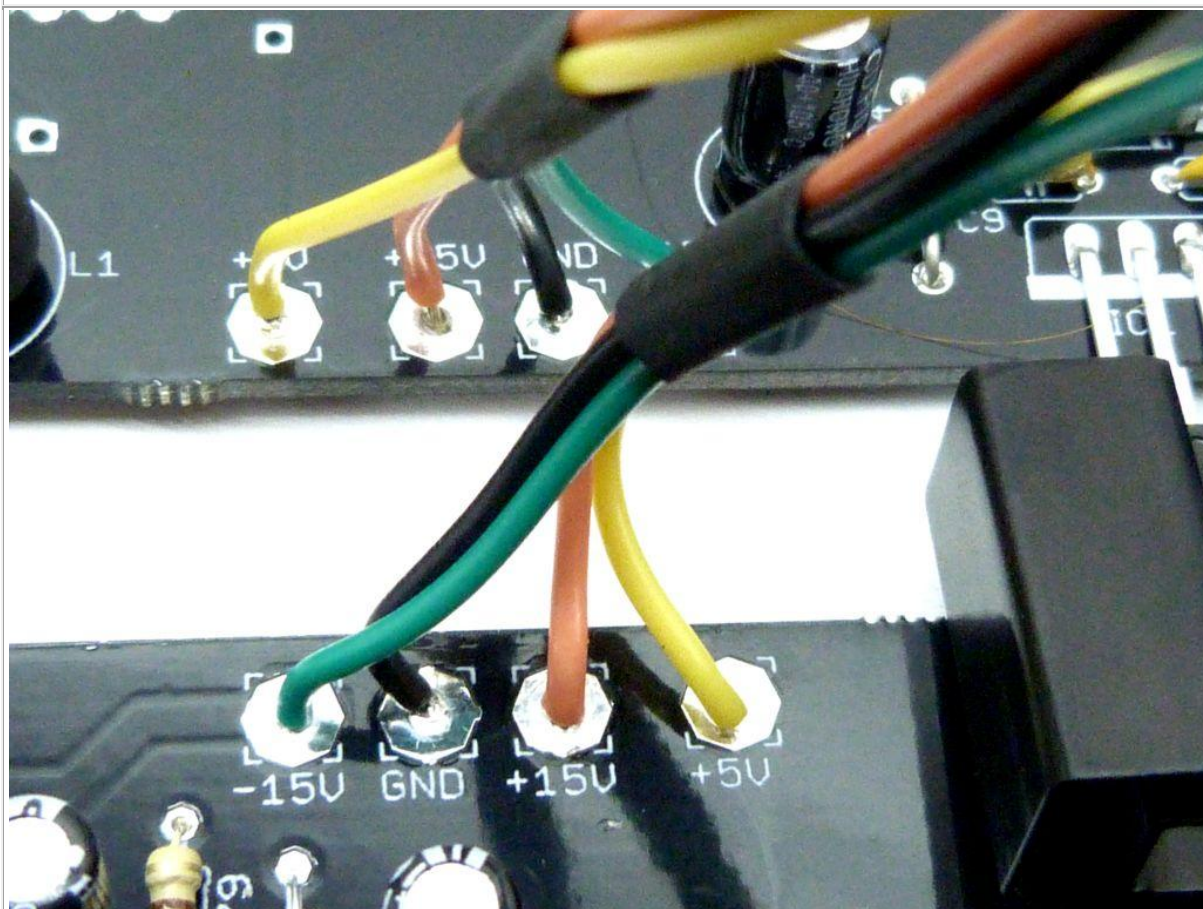


Solder the electrolytic capacitors.

PAY ATTENTION TO THE POLARITY! PICTURE IS WRONG FOLLOW THE SILKSCREEN

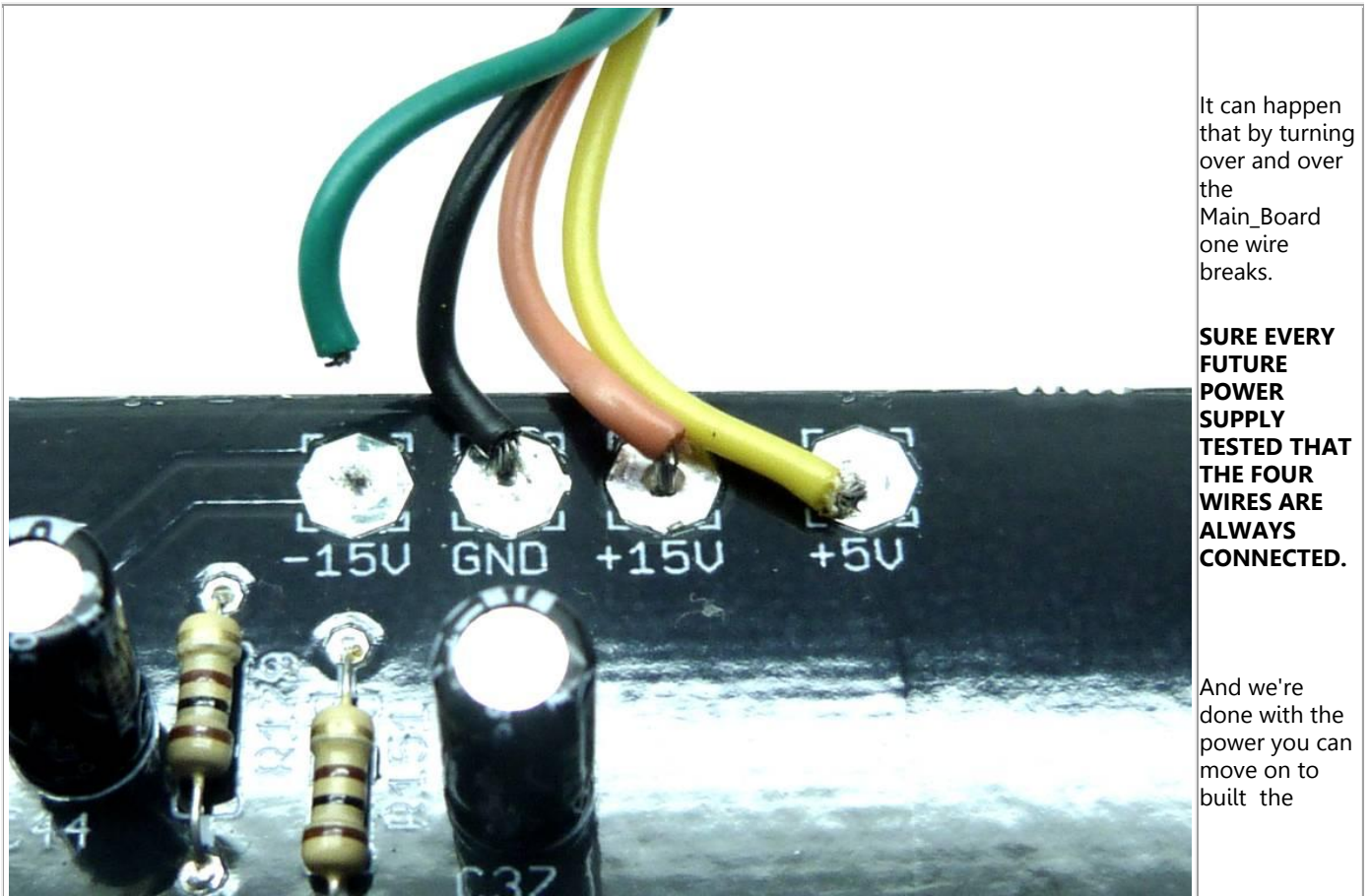


The red boxes show you where the capacitors are placed



Connect the two boards with four wire.




CONNECT WELL IN +15 V TO +15 V, -15V TO THE-15V, GND TO GND AND THE +5 V TO +5 V.



NOISE:

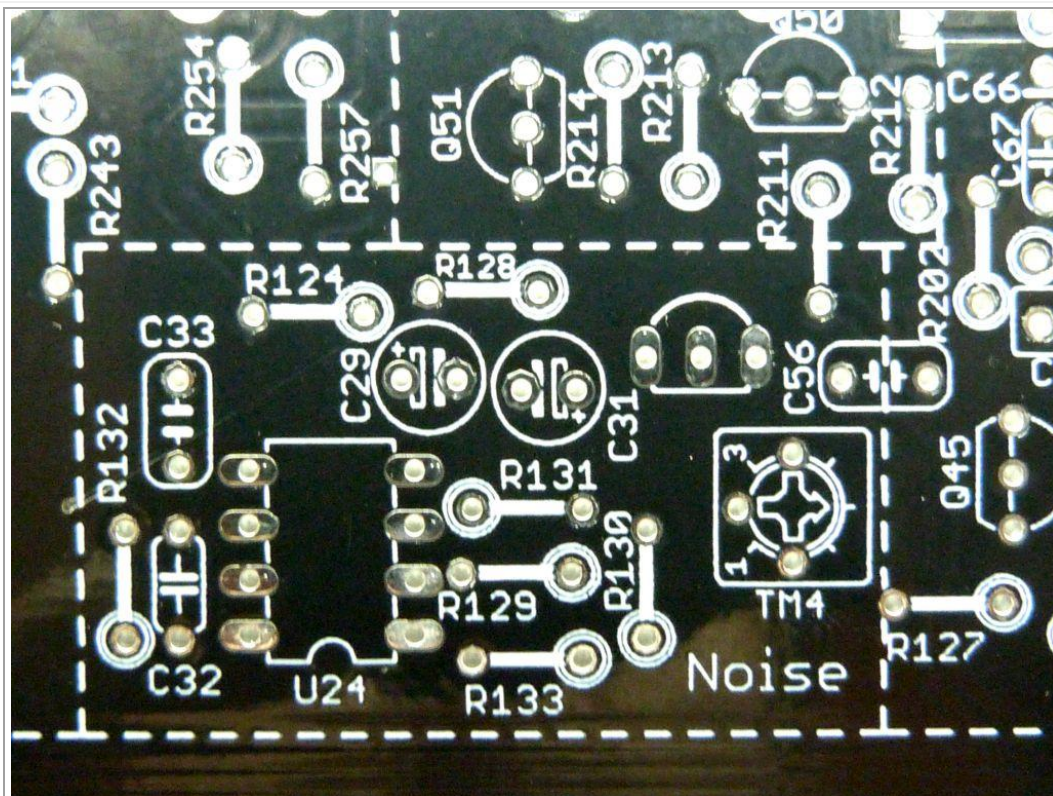
This part concerns the Noise generator of Yocto. First prepare all the components before you start assembly.

Here is the part list:

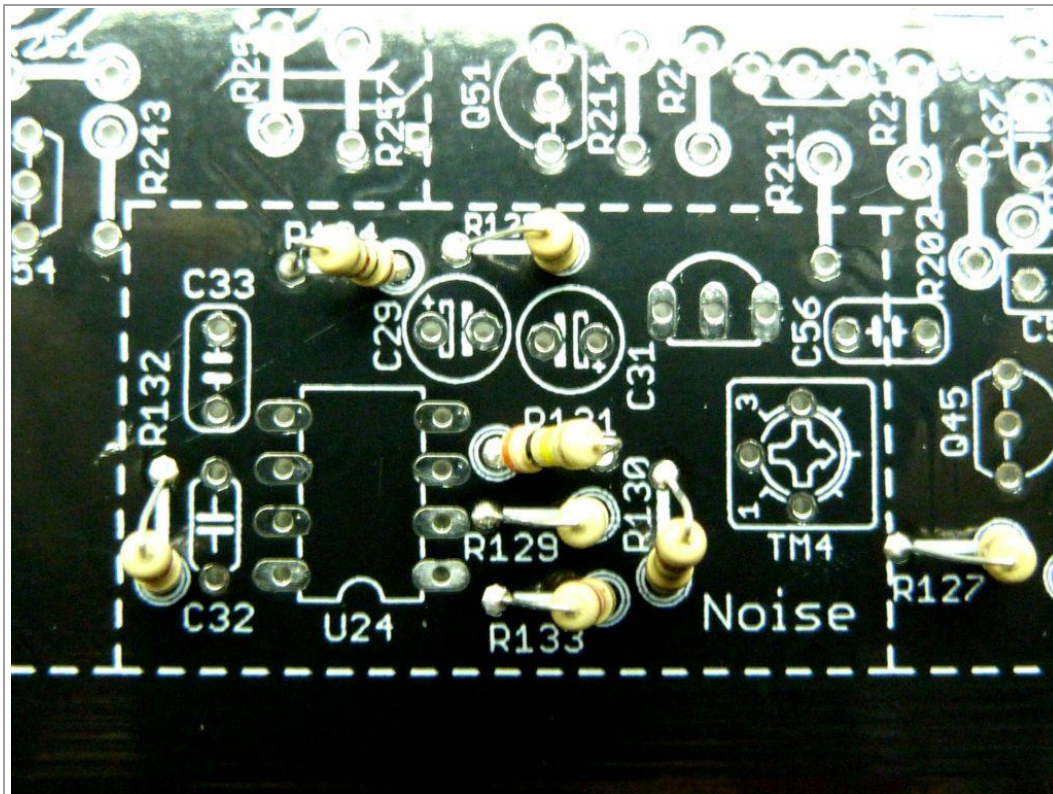
Image	Description	Part	Value	Qty
	Polyester capacitor (393K)	C32	39n	1
	Polyester capacitor (2A183J)	C33	18n	1
	Electrolytic capacitor	C29	47/16	1

	Electrolytic capacitor	C31	1/50	1
	NPN general purpose transistor	Q35	2SC828	1
	1/4w Carbon resistor	R124	100R	1
	1/4w Carbon resistor	R127	4K7	1
	1/4w Carbon resistor	R128, R130	1M	2
	1/4w Carbon resistor	R129	330K	1
	1/4w Carbon resistor	R131	300K	1
	1/4w Carbon resistor	R132, R133	22K	2
	Trim potentiometer (P253)	TM4	25KB	1
	Dual Operational Amplifier	U24	μPC4558C	1

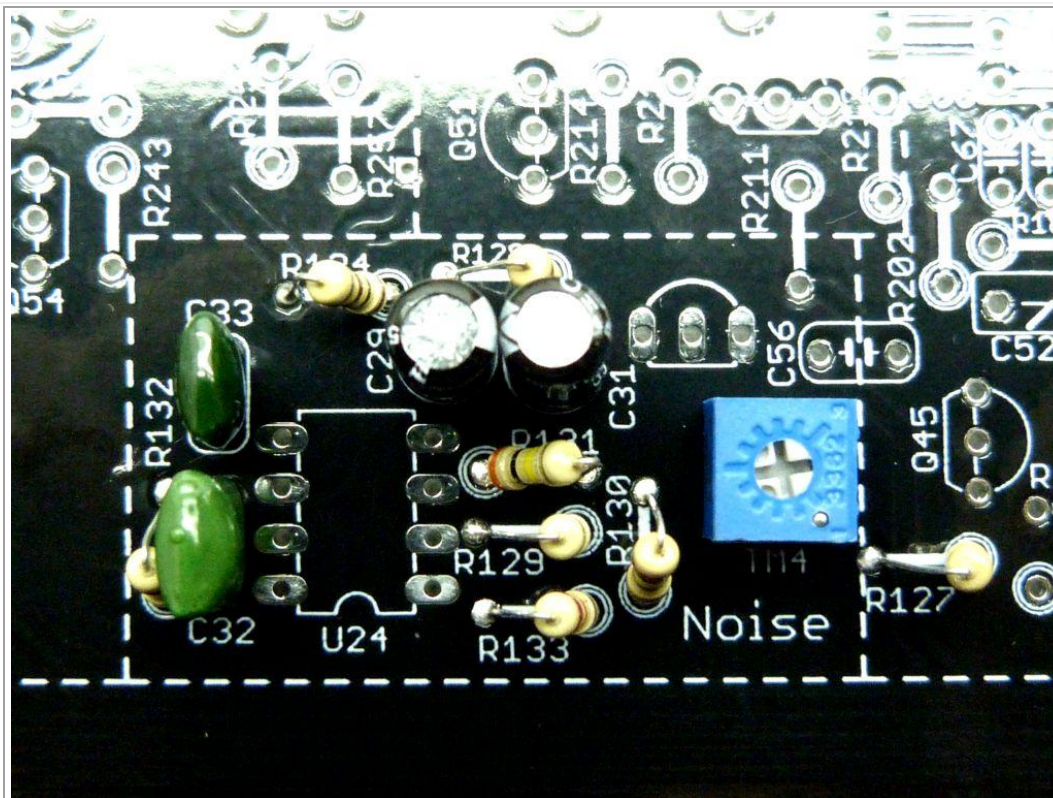
Make it:



Here is the
Noise

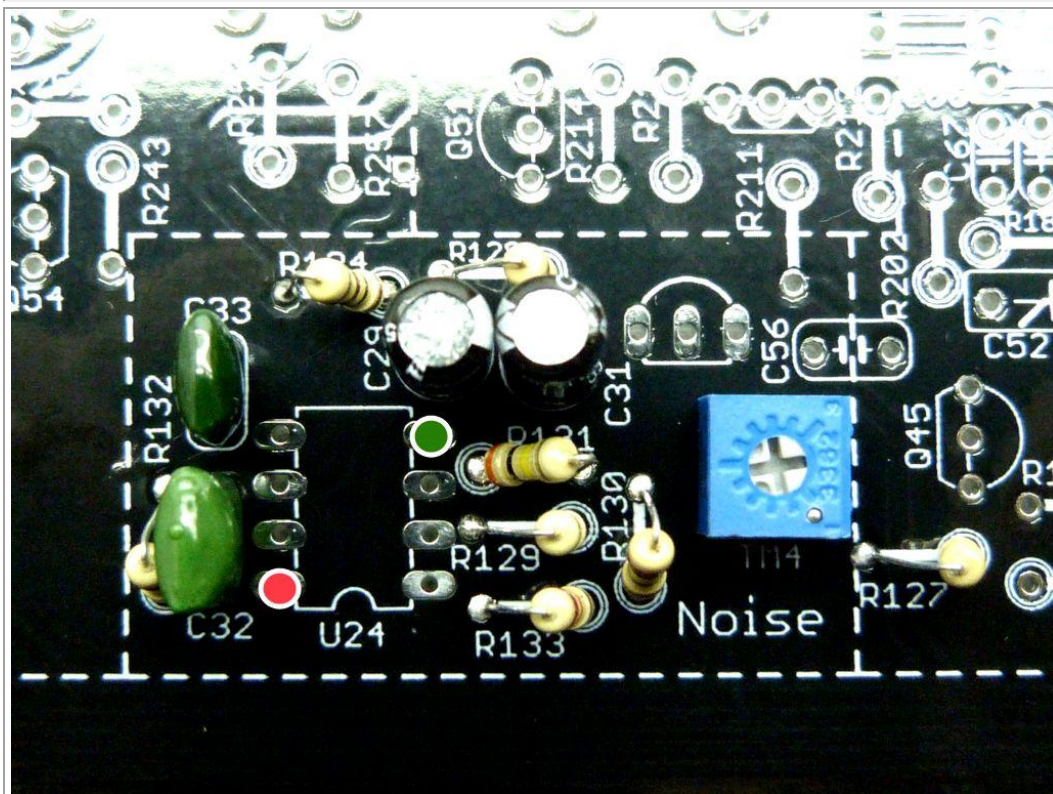


Place and
solder all
resistors



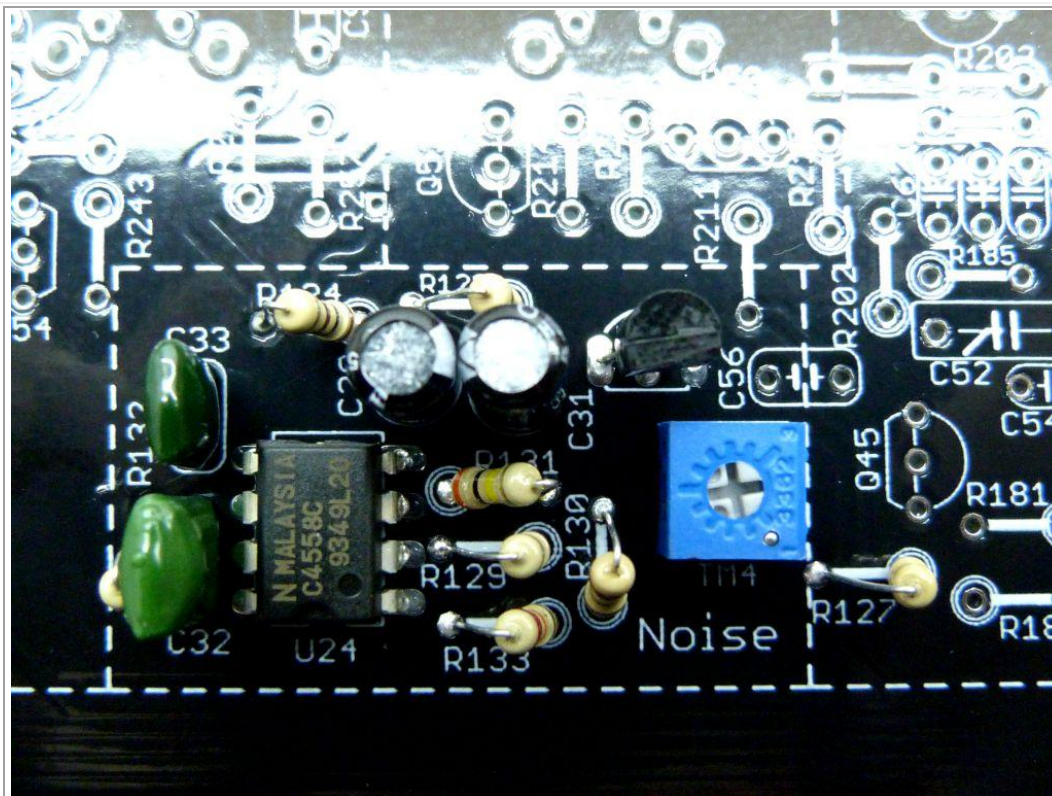
Place TM4 , polyester capacitors and electrolytic capacitors. Solder them.

MAKE SURE ELECTROLYTIC CAPACITOR ARE IN THE RIGHT WAY



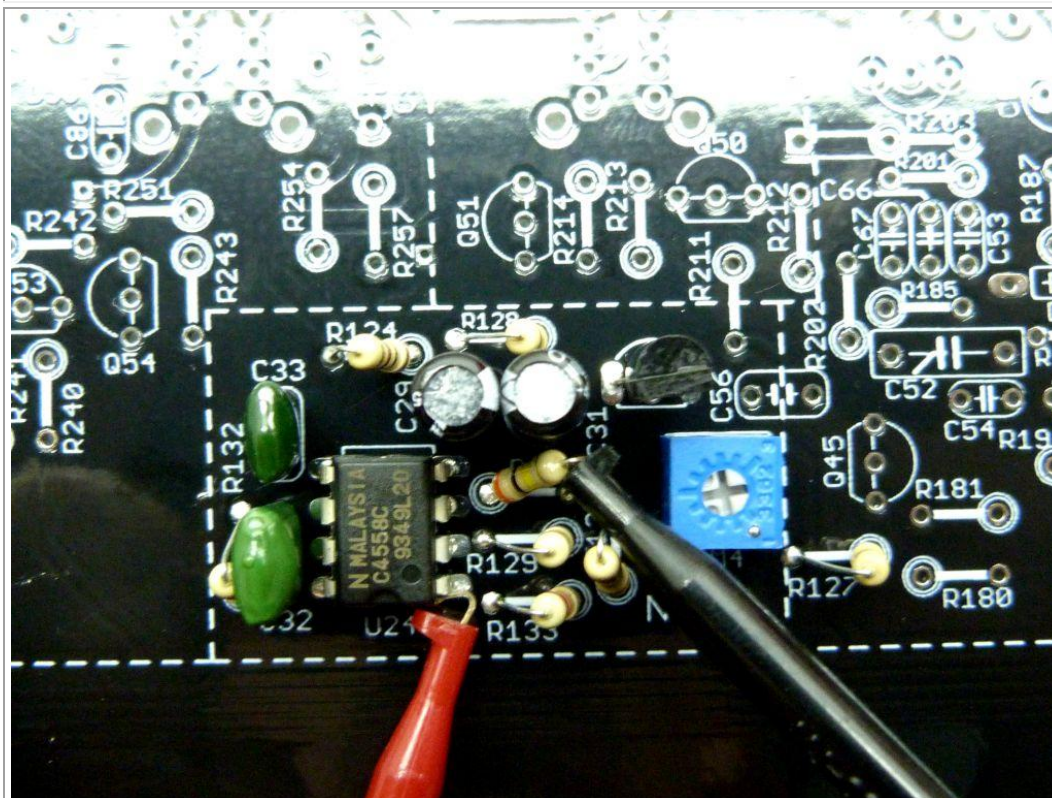
Test 4558 power. The red dot +15 V and green dot -15V (roughly 5%). Ground is on square pad of all potentiometers

WARNING BEFORE POWER TEST ENSURE THAT FOUR WIRES ARE STILL CONNECT BETWEEN IO BOARD AND MAIN BOARD



Solder the 4558 and the transistor. The silkscreen of the transistor Q35 is absent but the transistor that you see on the picture is Q35.

MAKE SURE THE 4558 AND Q35 ARE IN THE RIGHT WAY



Adjust the TM4 trimmer for 130mV on pin 1 of 4558.






To measure, use a voltmeter in AC mode (AC)

Here is the complete Noise you can go to the [Accent assembly](#)

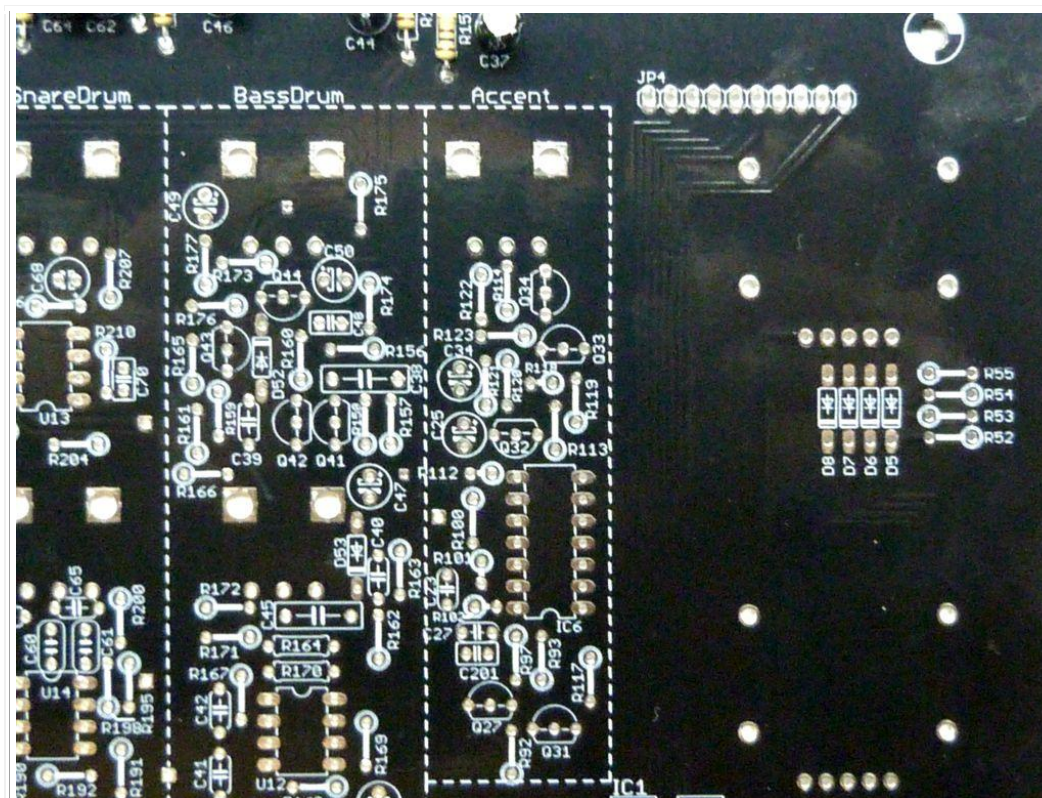
Accent:

Here is the part list:

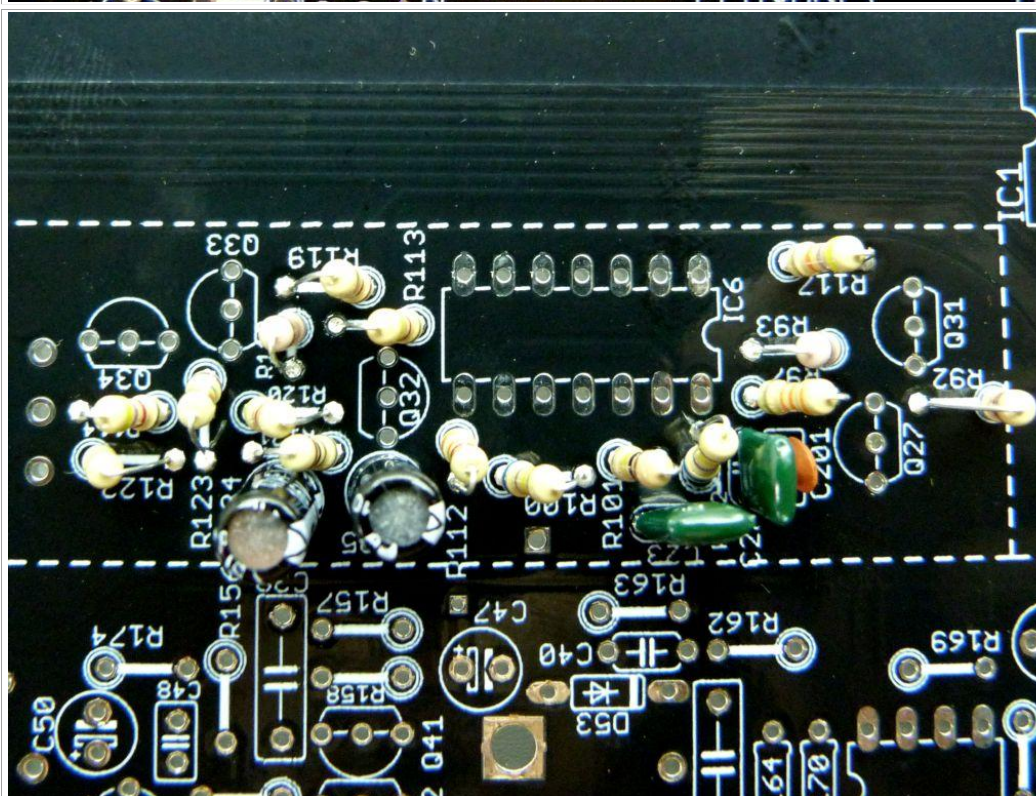
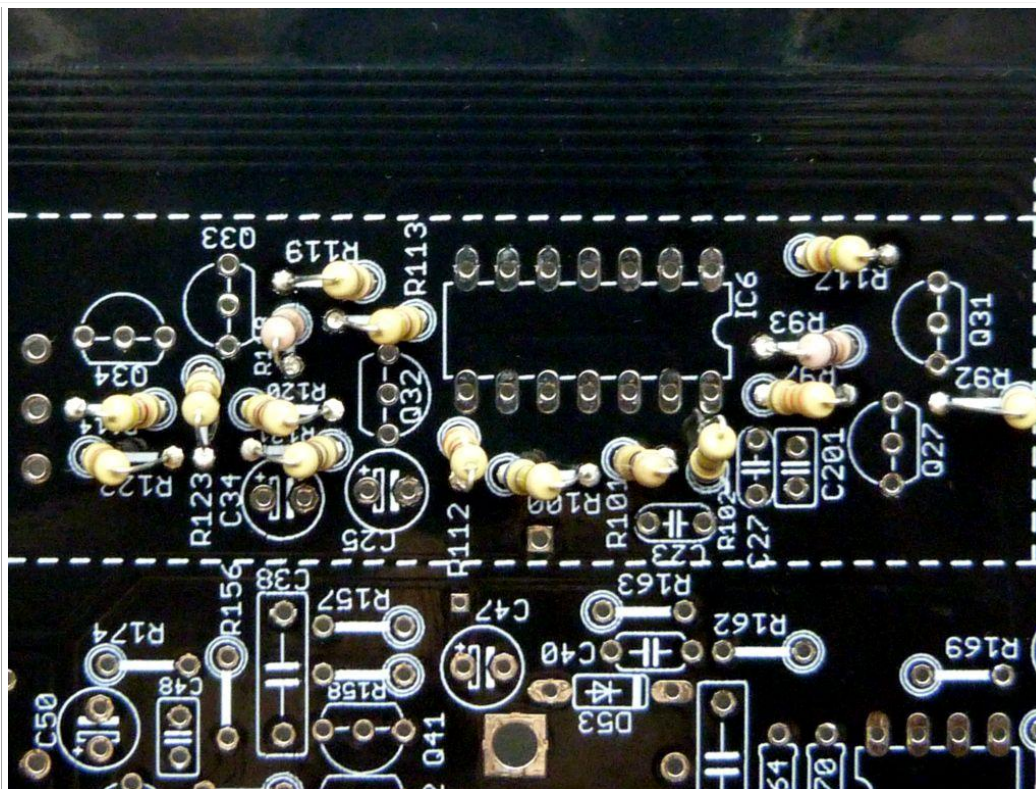
Image	Description	Part	Value	Qty
	Ceramic capacitor (22)	C201	22p	1
	Polyester capacitor (2A102J)	C23, C27	1n	2
	Electrolytic capacitor	C25, C34	47/16	2
	Quad 2-input NAND	IC6	4011N	1
	NPN Silicon Transistor	Q27, Q31, Q32, Q33, Q34	2SC945	5
	1/4w Carbon resistor	R92, R119	22K	2
	1/4w Carbon resistor	R93, R118	10K	2
	1/4w Carbon resistor	R97, R122	33K	2
	1/4w Carbon resistor	R100, R102	680K	2
	1/4w Carbon resistor	R101	100K	1
	1/4w Carbon resistor	R112	3K3	1

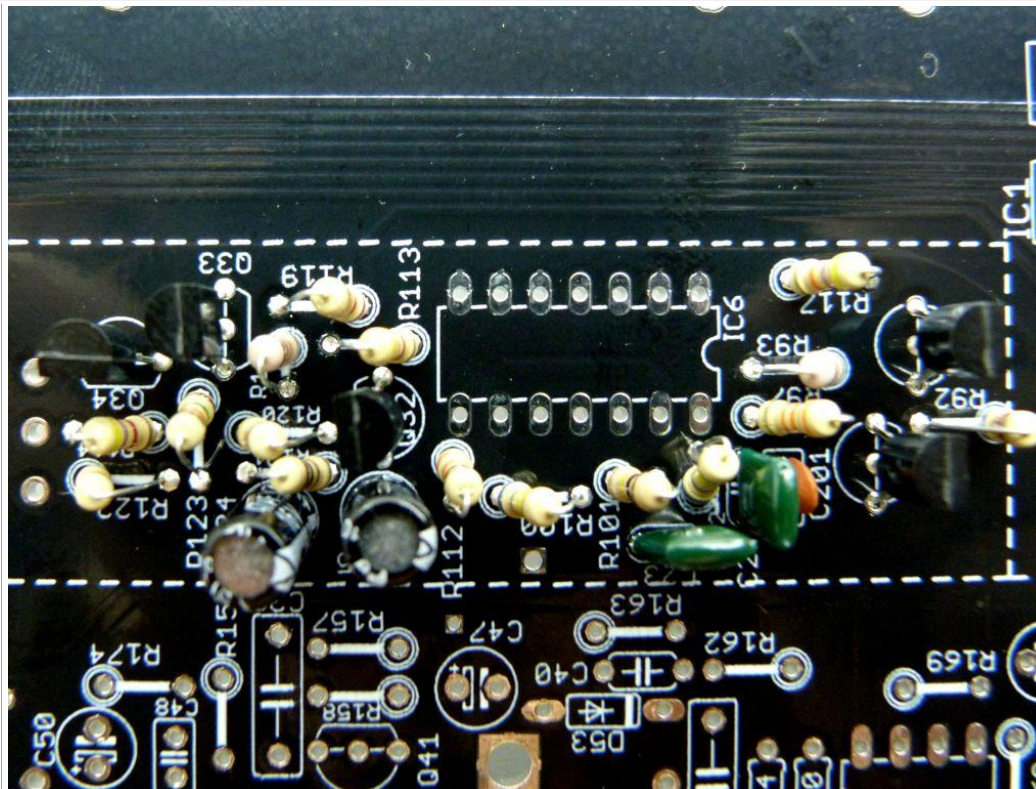
	1/4w Carbon resistor	R113, R114, R120	4K7	3
	1/4w Carbon resistor	R117	47K	1
	1/4w Carbon resistor	R121	100R	1
	1/4w Carbon resistor	R123	15K	1
	Potentiometer (B103)	VR3	10KB	1

Make it:



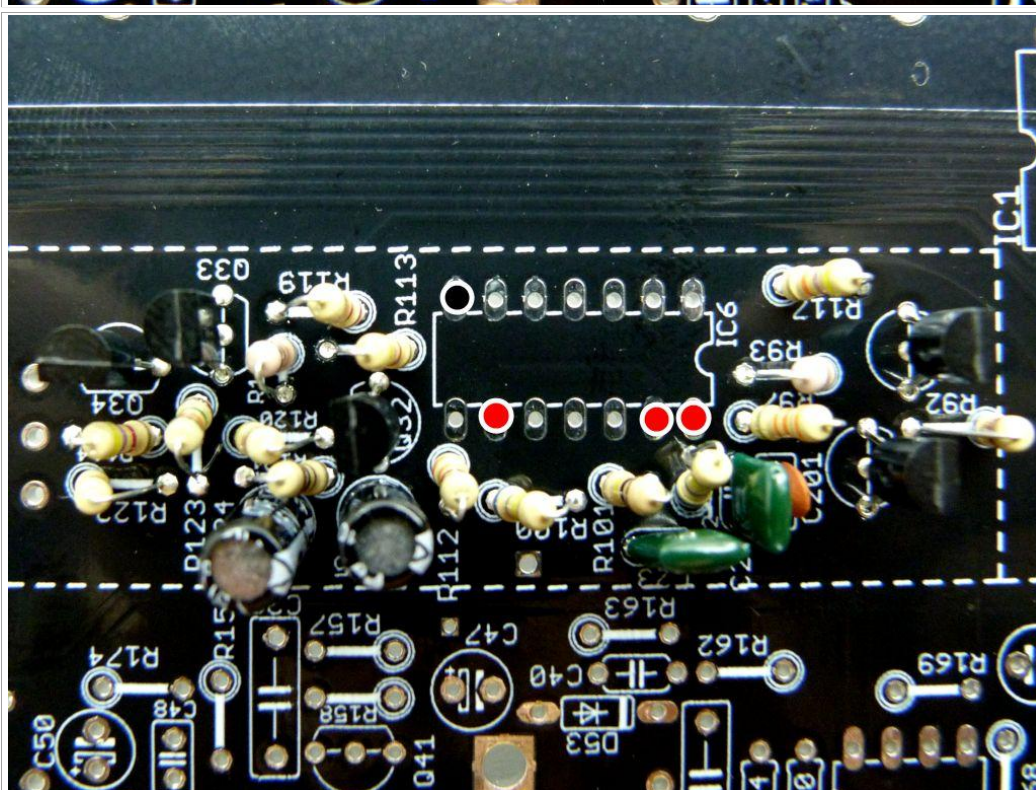
Here is the part about the Accent. Each instrument is defined by a dotted box.





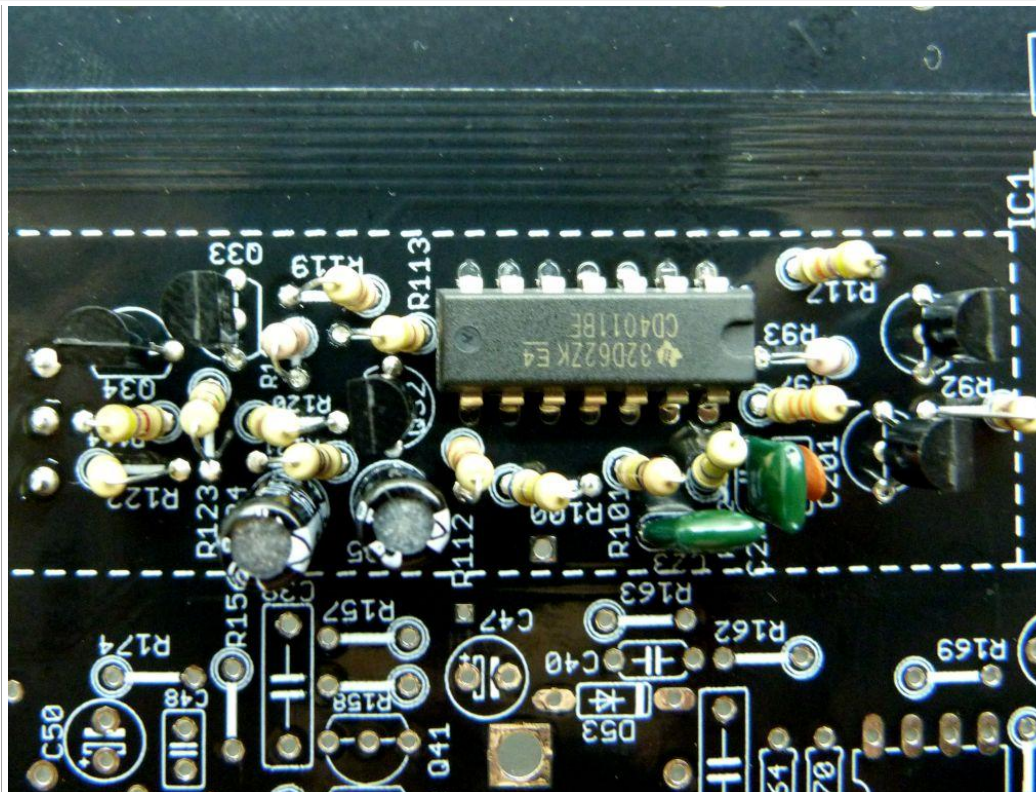
Place transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY

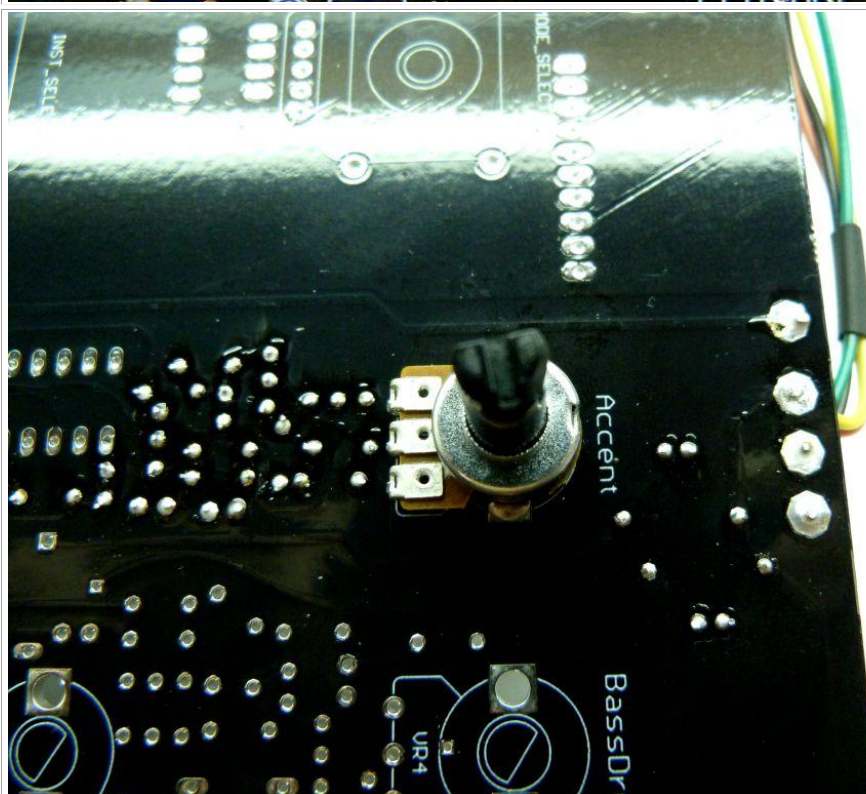


Test 4011 power supply . The black dot is the ground, the red dots are +15 V (plus or minus 5%). Always check that the four power wires are well connected.

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER . DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4011. To insert it into the PCB you have to bend the leads a little.



Finally return the PCB and solder potentiometer on the opposite side of components.

DO NO WRONG IN THE VALUE OF POT, MARK MUST BE ABOVE: B103


You can then go to [BassDrum](#) assembly






Bass Drum:

We start the serious stuff. It becomes a bit more difficult because of the number of components. Be really careful about what you are doing. If you do not make a mistake when assembly your Yocto work on first power, so patience and attention to details are important.

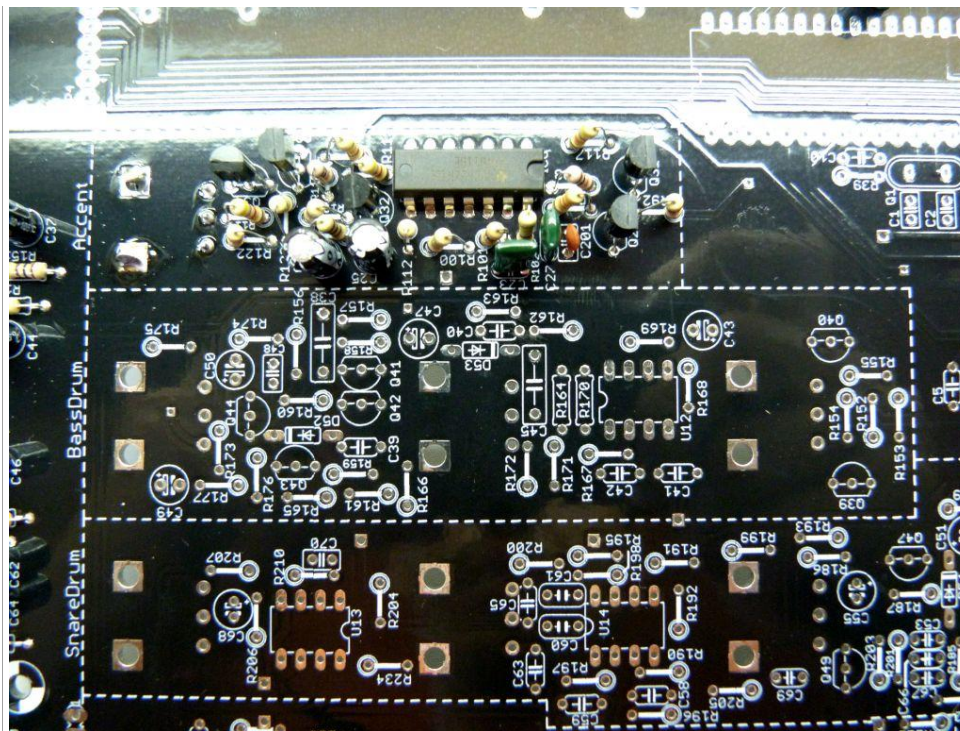
Here is the part list:

Image	Description	Part	Value	Qty
	Ceramic Capacitor (221)	C48	220p	1
	Polyester capacitor (104J)	C38, C45	100n	2
	Polyester capacitor (A333J)	C39	33n	1
	Polyester capacitor (153J)	C40, C41, C42	15n	3
	Electrolytic capacitor	C43	33/25	1
	Electrolytic capacitor	C47, C49	0.47/50	2
	Electrolytic capacitor	C50	1/50	1
	Diode	D52, D53	1N4148	2
	NPN Silicon Transistor	Q39, Q41, Q42, Q43, Q44	2SC945	5

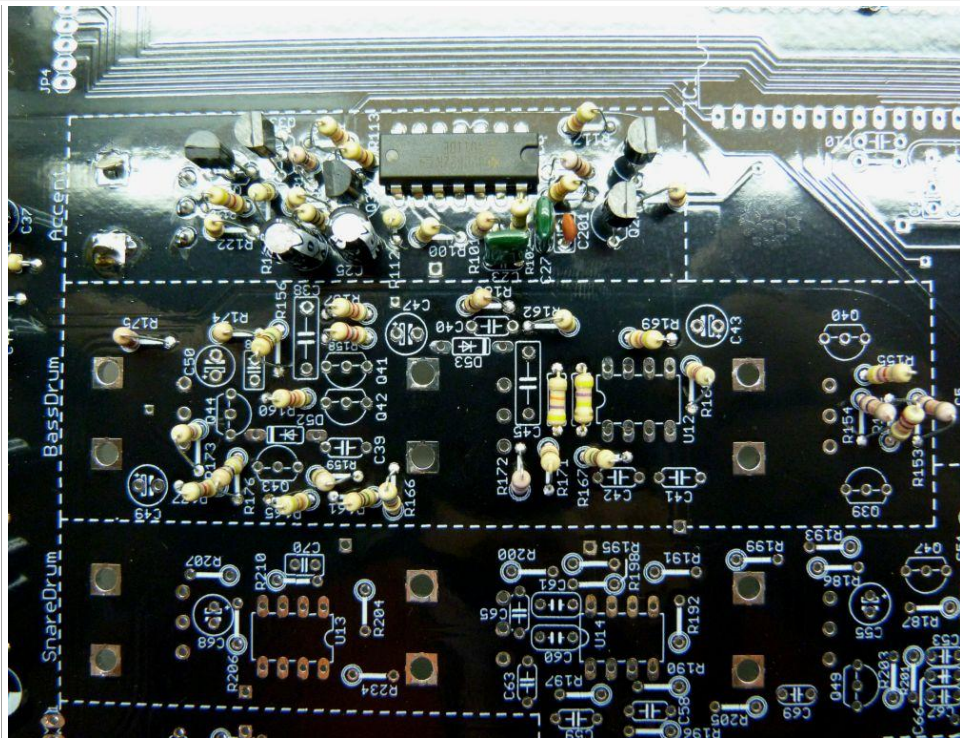
	PNP Silicon Transistor	Q40	2SA733	1
	1/4w Carbon resistor	R152, R160, R168	22K	3
	1/4w Carbon resistor	R153, R154, R172	10K	3
	1/4w Carbon resistor	R155, R162	4K7	2
	1/4w Carbon resistor	R156, R161, R167	1M	3
	1/4w Carbon resistor	R157	8K2	1
	1/4w Carbon resistor	R158	2K7	1
	1/4w Carbon resistor	R159, R163, R174, R176	100K	4
	1/4w Carbon resistor	R164, R165, R169	47K	3
	1/4w Carbon resistor	R166, R173	6K8	2
	1/4w Carbon resistor	R170	470K	1
	1/4w Carbon resistor	R171	220R	1
	1/4w Carbon resistor	R175	1K	1

	1/4w Carbon resistor	R177	82K	1
	Dual Operational Amplifier	U12	μPC4558C	1
	Potentiometer (A104)	VR4	100KA	1
	Potentiometer (C103)	VR5	10K(C)	1
	Potentiometer (B504)	VR6	500K(B)	1

Make it:

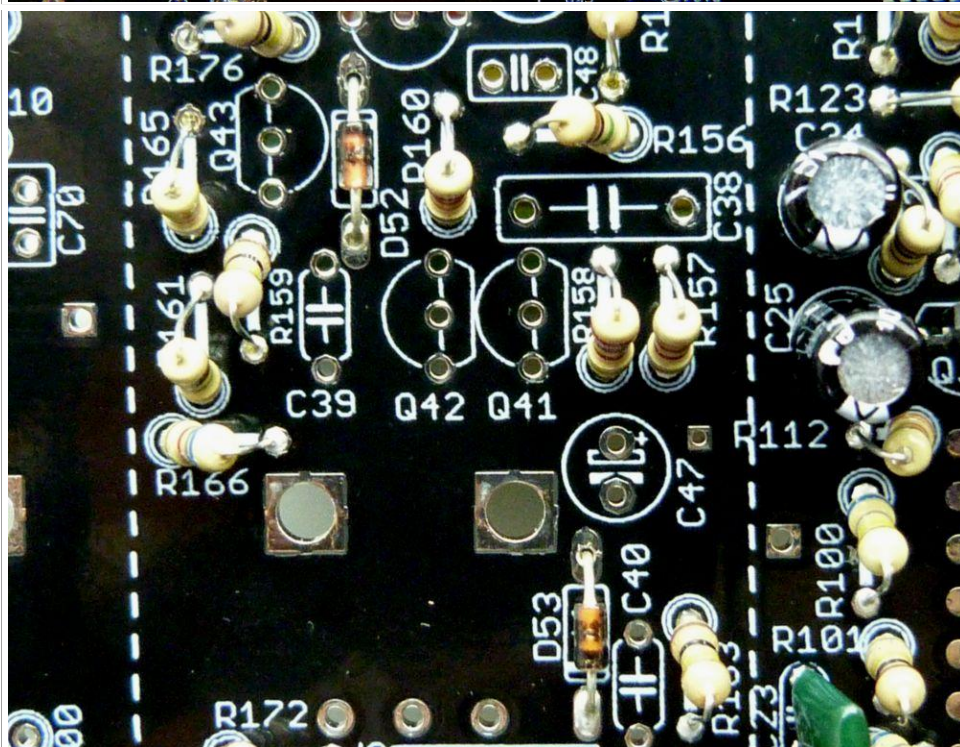


Here is the BassDrum. You see that there are more components than in the previous section, this is why you must be careful that you do.



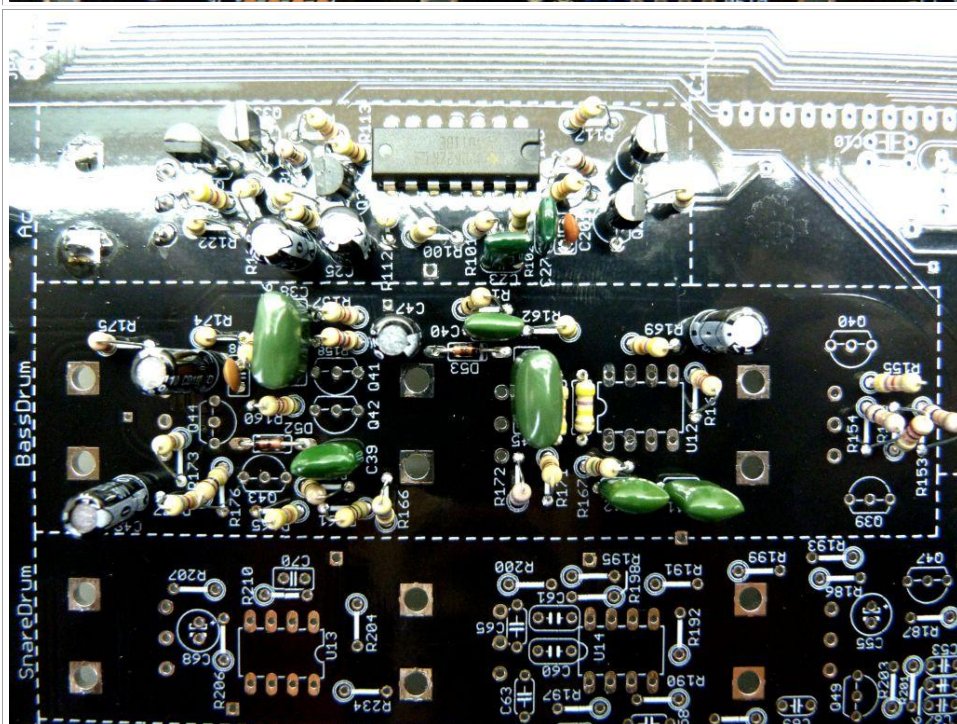
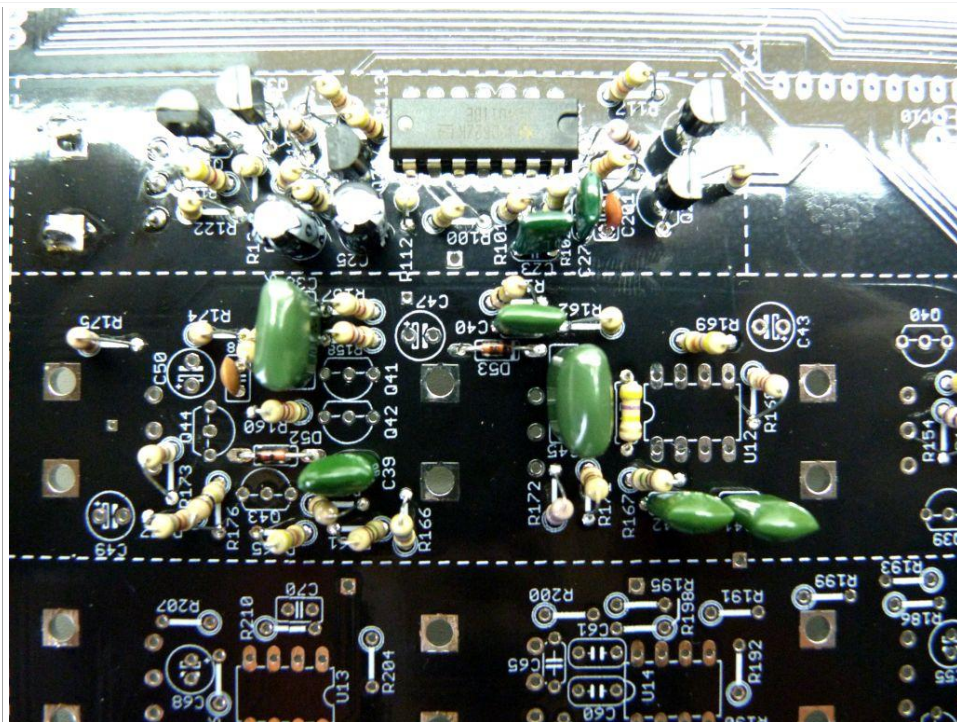
Solder all resistors.

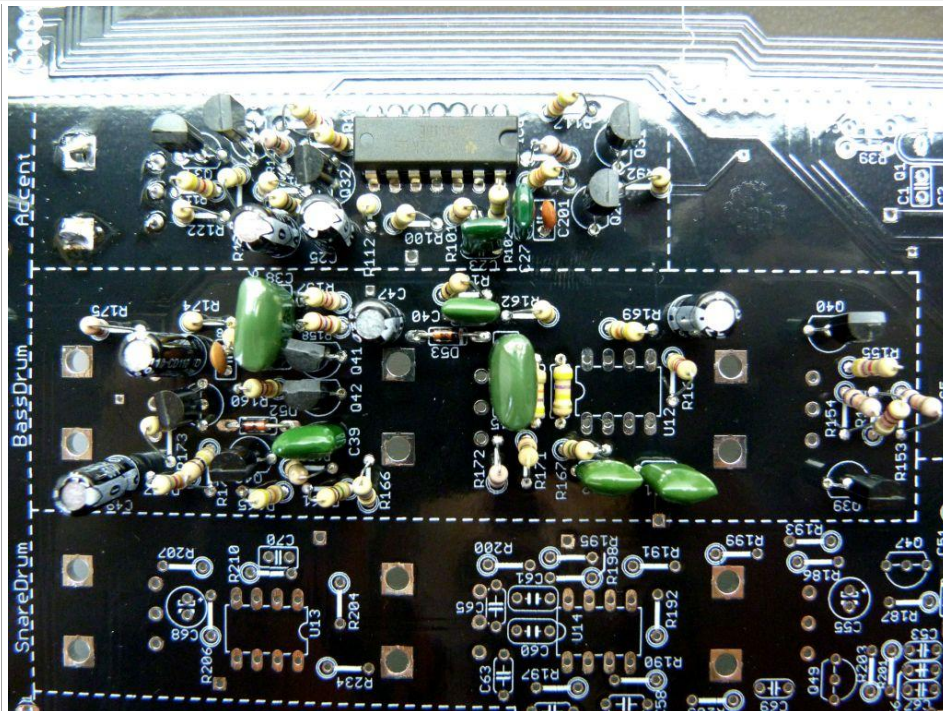
Solder each value one after the other.



Solder both diodes
1N4148

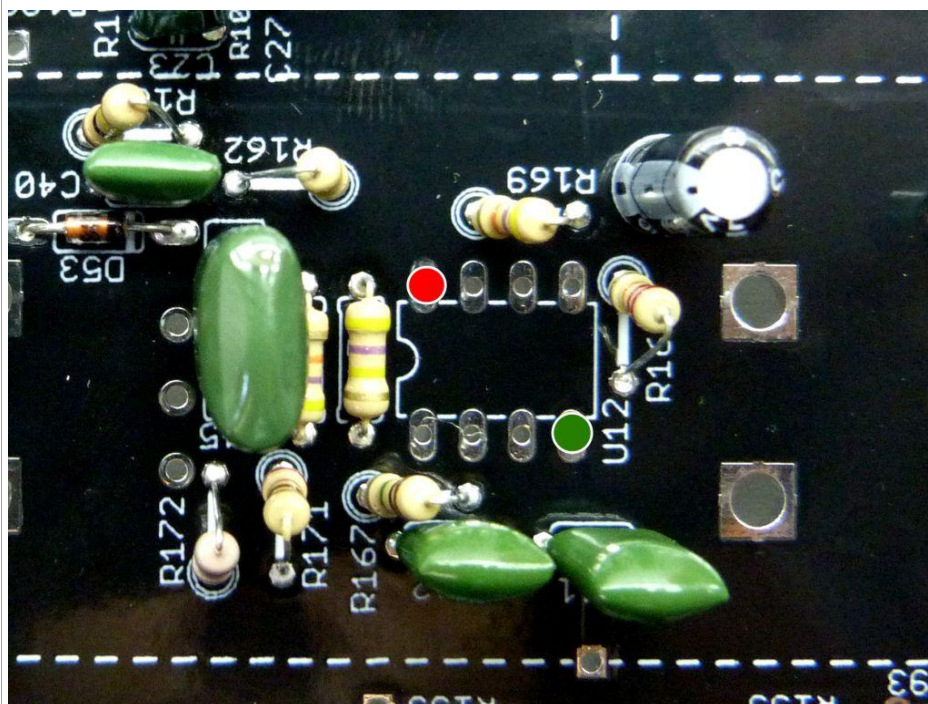
**MAKE SURE DIODES
ARE IN THE RIGHT
WAY**





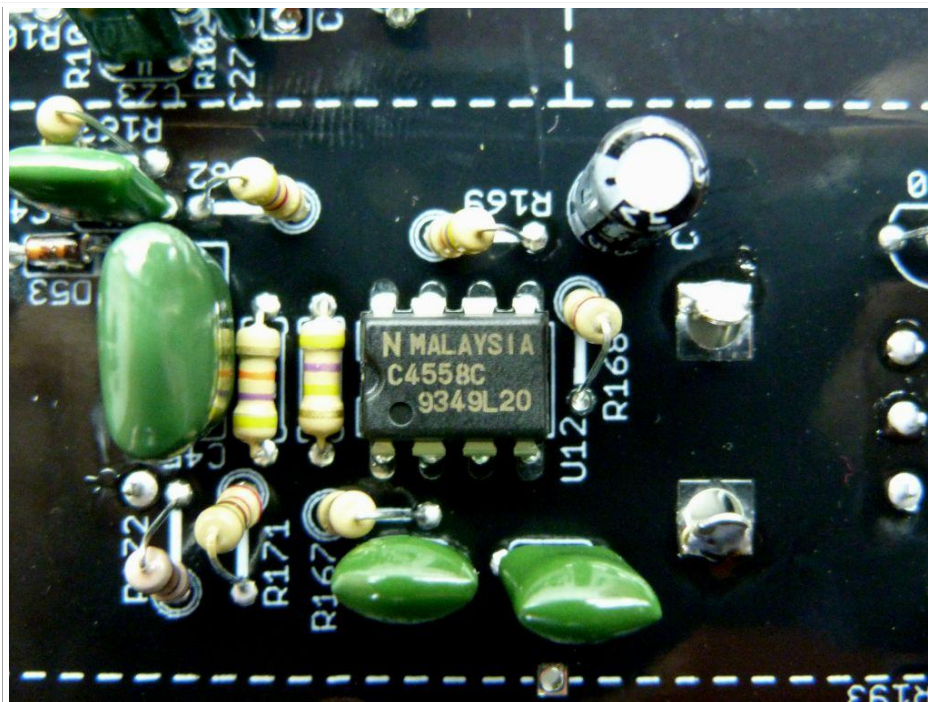
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY

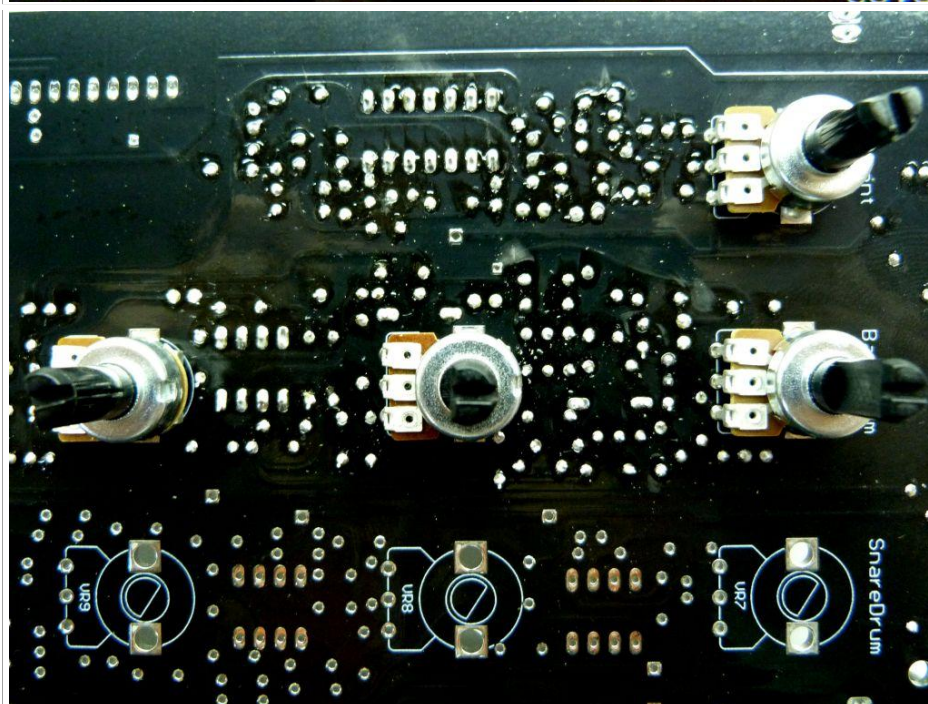


Connect the power transformer. Test 4558 power supply. The green dot is -15V, the red dot is 15 V (plus or minus 5%). You have the ground on the potentiometer big square pad. Always check that the four wires from the power supply is well connected.

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558. To insert it into the PCB you have to bend the leads a little.



Finally return the PCB and solder potentiometers on the opposite side of components.



DO NOT GET THE VALUES OF POTENTIOMETERS, ALL THREE POTENTIOMETERS ARE DIFFERENT.

You can then go to [Snaredrum assembly](#)







Snare Drum:

Here is the part list of Snare drum, prepare all components before assembly:

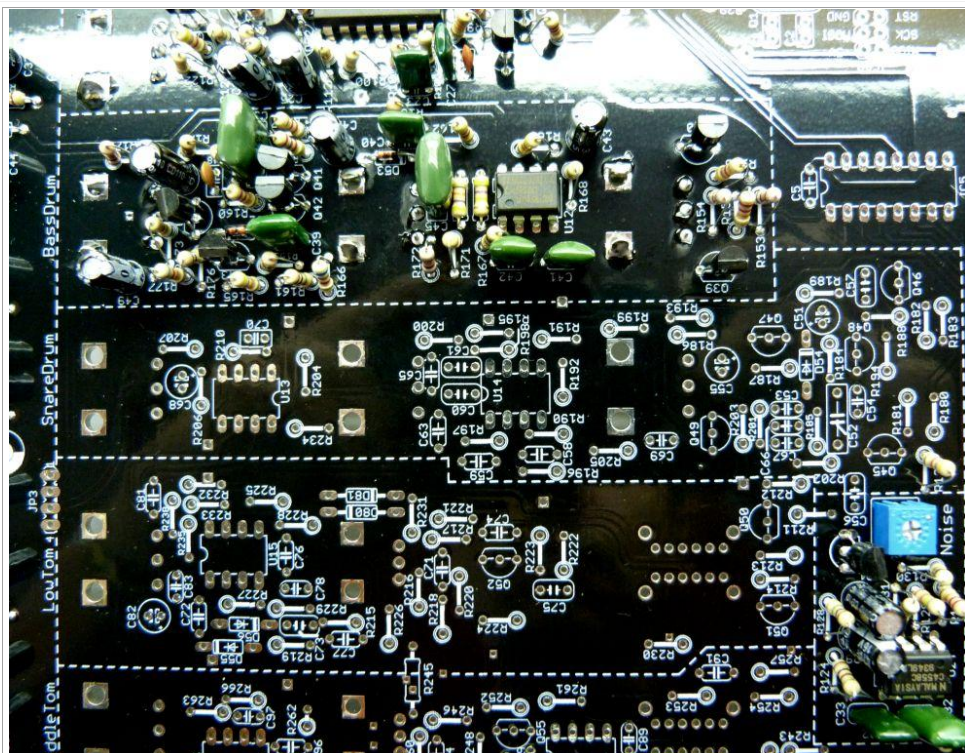
Image	Description	Part	Value	Qty
	Ceramic capacitor (221)	C70	220p	1
	Polyester capacitor (2A103J)	C69	10n	1
	Polyester capacitor (104J)	C52	100n	1
	Polyester capacitor (2A102J)	C53	1n	1
	Polyester capacitor (2A272J)	C54	2.7n	1
	Polyester capacitor (2A223J)	C56	22n	1
	Polyester capacitor (153J)	C61	15n	1
	Polyester capacitor (A682J)	C57, C60	6.8n	2
	Polyester capacitor (A563J)	C58	56n	1
	Polyester capacitor (2A273J)	C59	27n	1

	Polyester capacitor (2A473J)	C63, C65	47n	2
	Polyester capacitor (1n8J)	C66, C67	1.8n	2
	Electrolytic capacitor	C55	47/16	1
	Electrolytic capacitor	C51	0.47/50	1
	Electrolytic capacitor	C68	33/25	1
	Diode	D54	1N4148	1
	NPN Silicon Transistor	Q45, Q47, Q48, Q49	2SC945	4
	PNP Silicon Transistor	Q46	2SA733	1
	1/4w Carbon resistor	R180, R201, R203	22K	3
	1/4w Carbon resistor	R181, R182, R191	10K	3
	1/4w Carbon resistor	R183	4K7	1
	1/4w Carbon resistor	R184, R185	15K	2

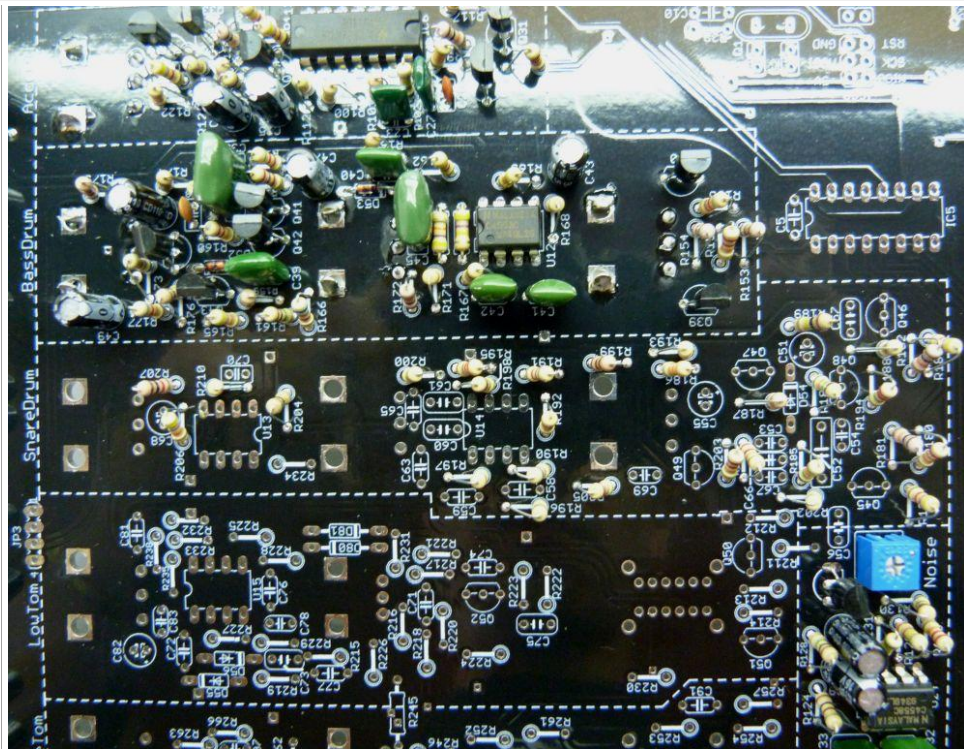
	1/4w Carbon resistor	R186	33K	1
	1/4w Carbon resistor	R187	330	1
	1/4w Carbon resistor	R188, R193	100	2
	1/4w Carbon resistor	R189, R204	100K	2
	1/4w Carbon resistor	R190, R196	680	2
	1/4w Carbon resistor	R192	220	1
	1/4w Carbon resistor	R194	2.2M	1
	1/4w Carbon resistor	R195	2K2	1
	1/4w Carbon resistor	R197	820K	1
	1/4w Carbon resistor	R198	1M	1
	1/4w Carbon resistor	R199, R207	1K	2
	1/4w Carbon resistor	R202, R206	47K	3
	Wire or resistor leg	R200	0 ohm	1

	1/4w Carbon resistor	R205	27K	1
	1/4w Carbon resistor	R210	470K	1
	Dual Operational Amplifier	U13, U14	μPC4558C	2
	Potentiometer (A104)	VR7	100K(A)	1
	Potentiometer (B104)	VR8	100K(B)	1
	Potentiometer (B103)	VR9	10K(B)	1

Make it:

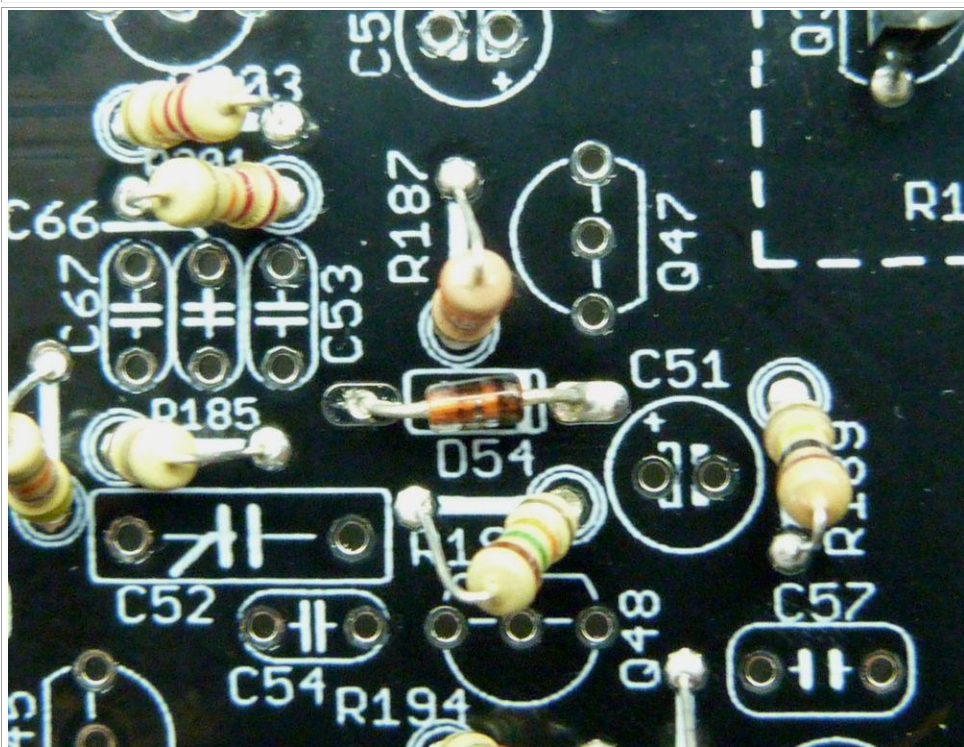


Here is the Snaredrum



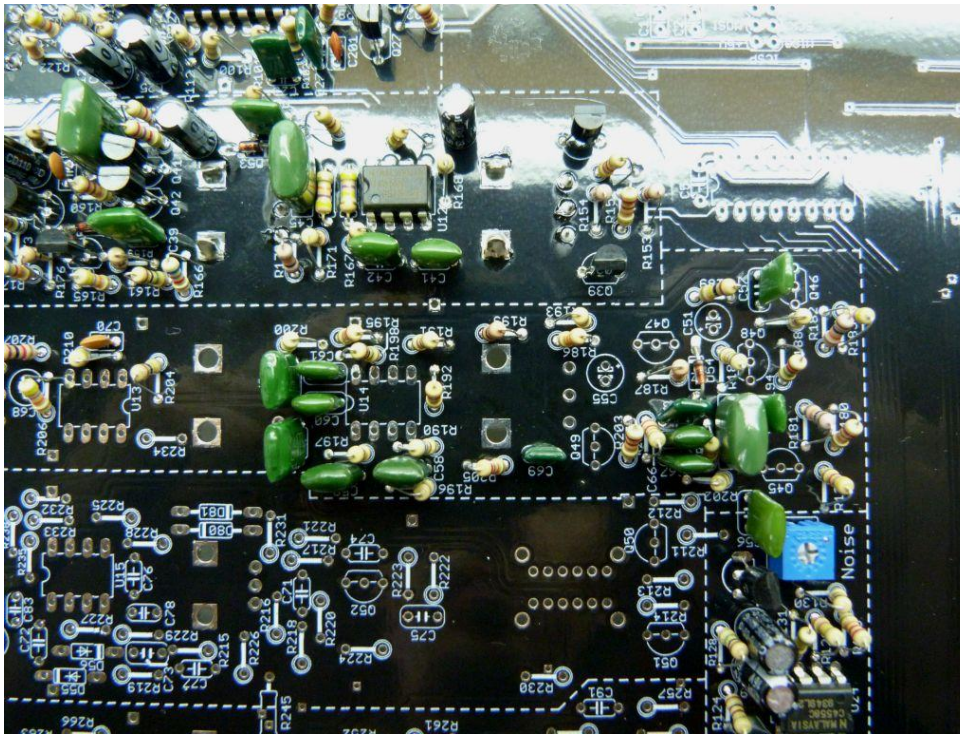
Solder all resistors.

Solder each value one after the other.

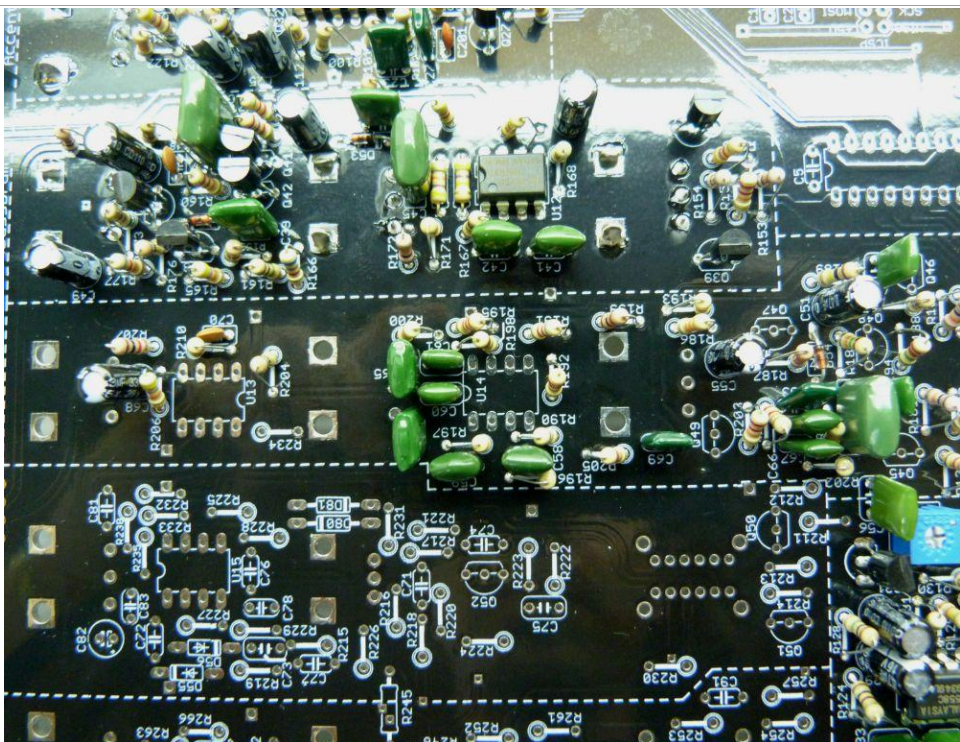


Solder D54 diode
1N4148

**MAKE SURE DIODE IS
IN THE RIGHT WAY**

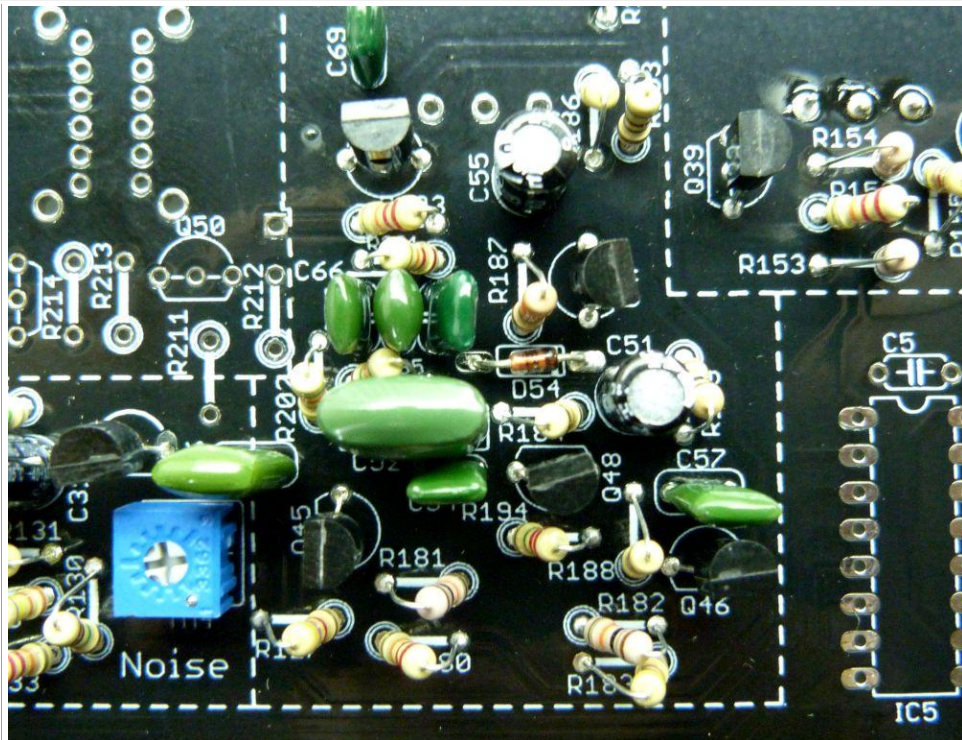


Solder polyesters capacitors



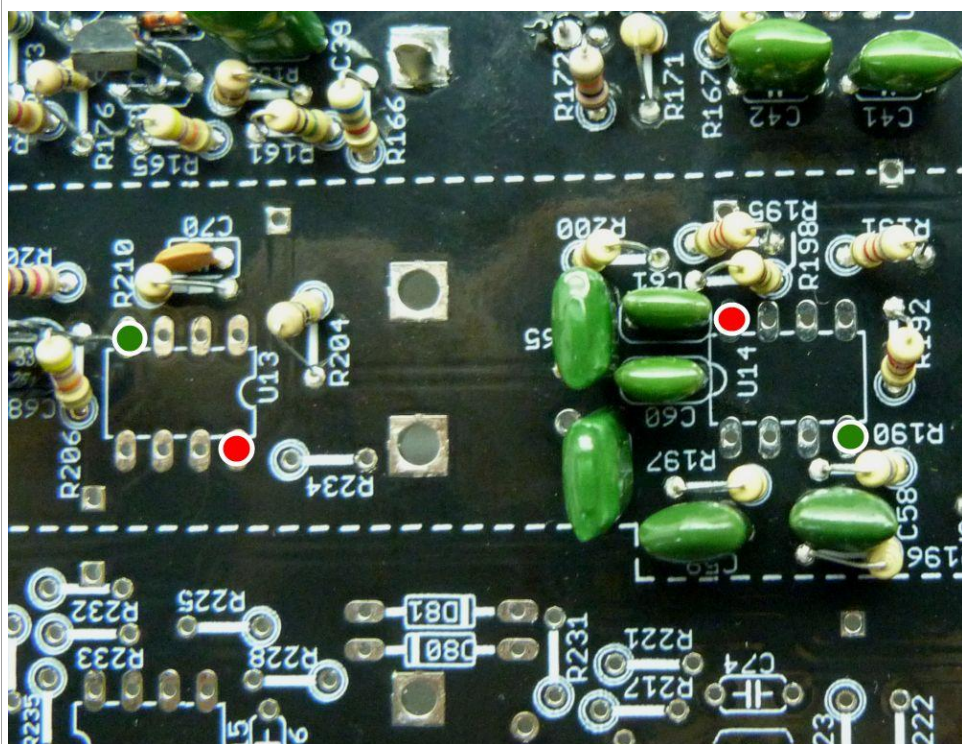
Solder electrolytic capacitors

**MAKE SURE
ELECTROLYTICS
CAPACITORS ARE IN
THE RIGHT WAY**



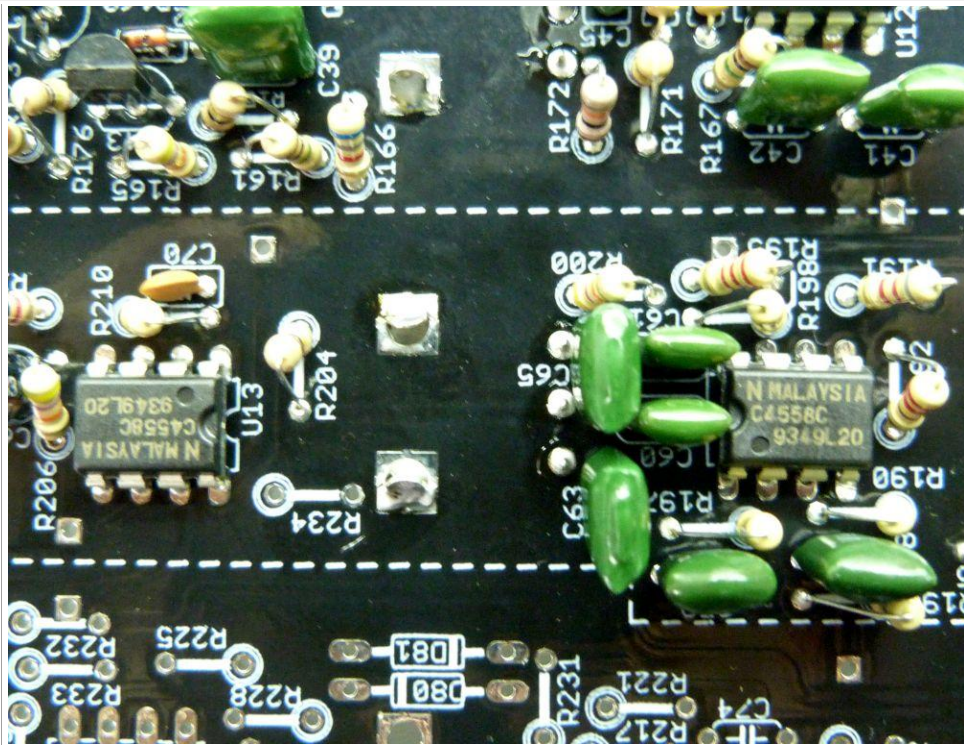
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY

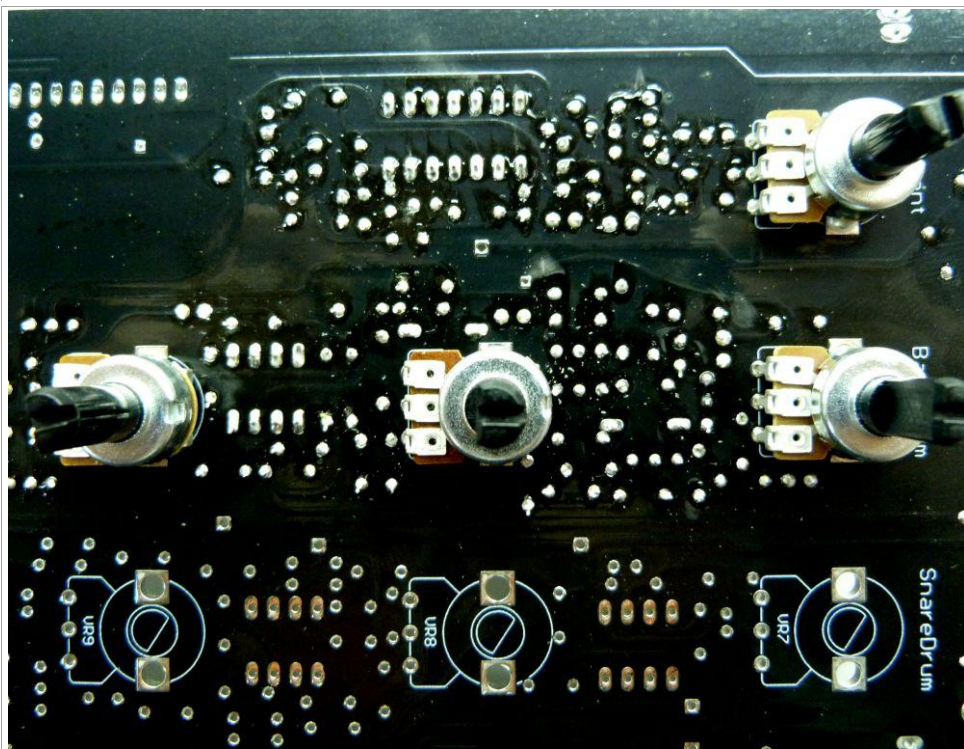


Connect the power transformer. Test 4558s power supply. The green dot is -15V, the red dot is 15 V (plus or minus 5%). You have the ground on the potentiometer big square pad. Always check that the four wires from the power supply is well connected.

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558. To insert it into the PCB you have to bend the leads a little.



Finally return the PCB and solder potentiometers on the opposite side of components.

DO NOT GET THE VALUES OF POTENTIOMETERS, ALL THREE POTENTIOMETERS ARE DIFFERENT.







You can then go to [LowTom assembly](#).

Low Tom:

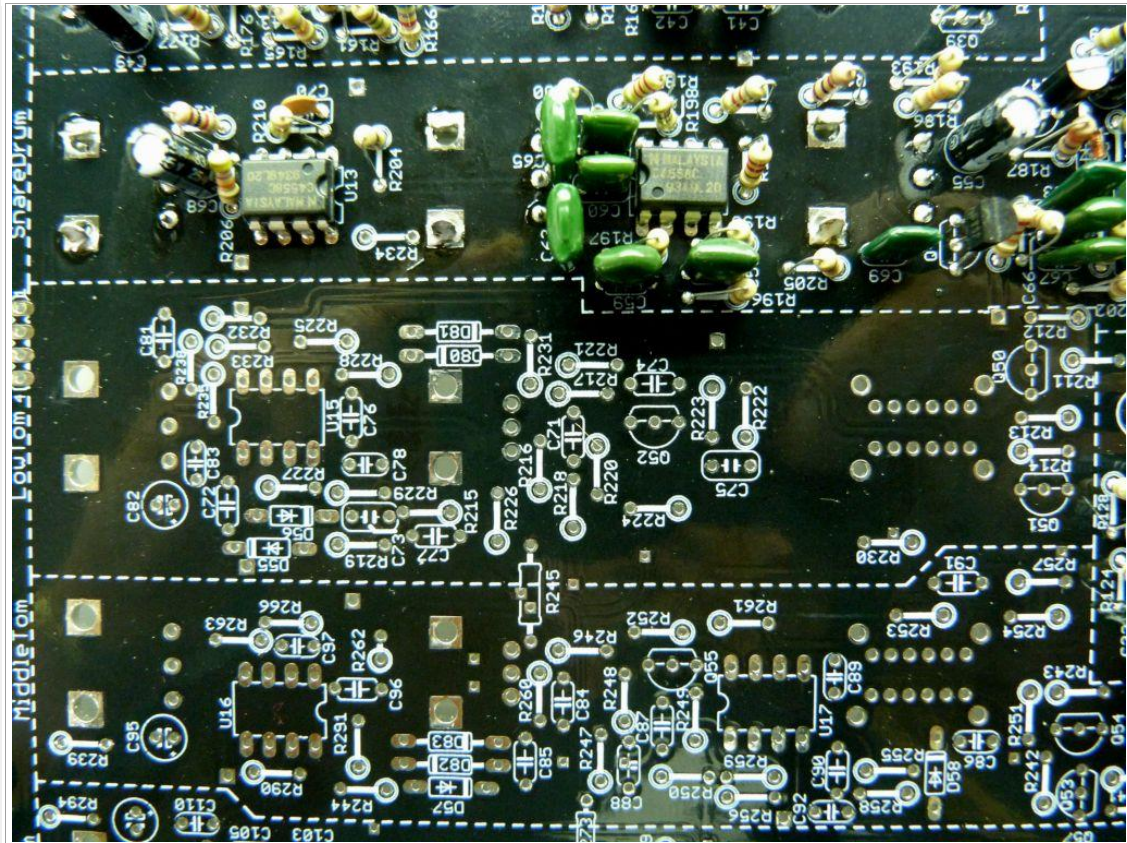
Here is the part list of Low tom, prepare all components before assembly:

Image	Description	Part	Value	Qty
	Polyester capacitor (2A473J)	C71, C74, C77, C81	47n	4
	Polyester capacitor (393K)	C72	39n	1
	Polyester capacitor (A682J)	C73	6.8n	1
	Polyester capacitor (2A183J)	C75	18n	1
	Polyester capacitor (2A563J)	C76	56n	1
	Polyester capacitor (2A123J)	C78	12n	1
	Polyester capacitor (2A102J)	C83	1n	1
	Electrolytic capacitor	C82	33/25	1
	Diode	D55, D56	1N4148	2
	Germanium Diode	D80, D81	1N60	2

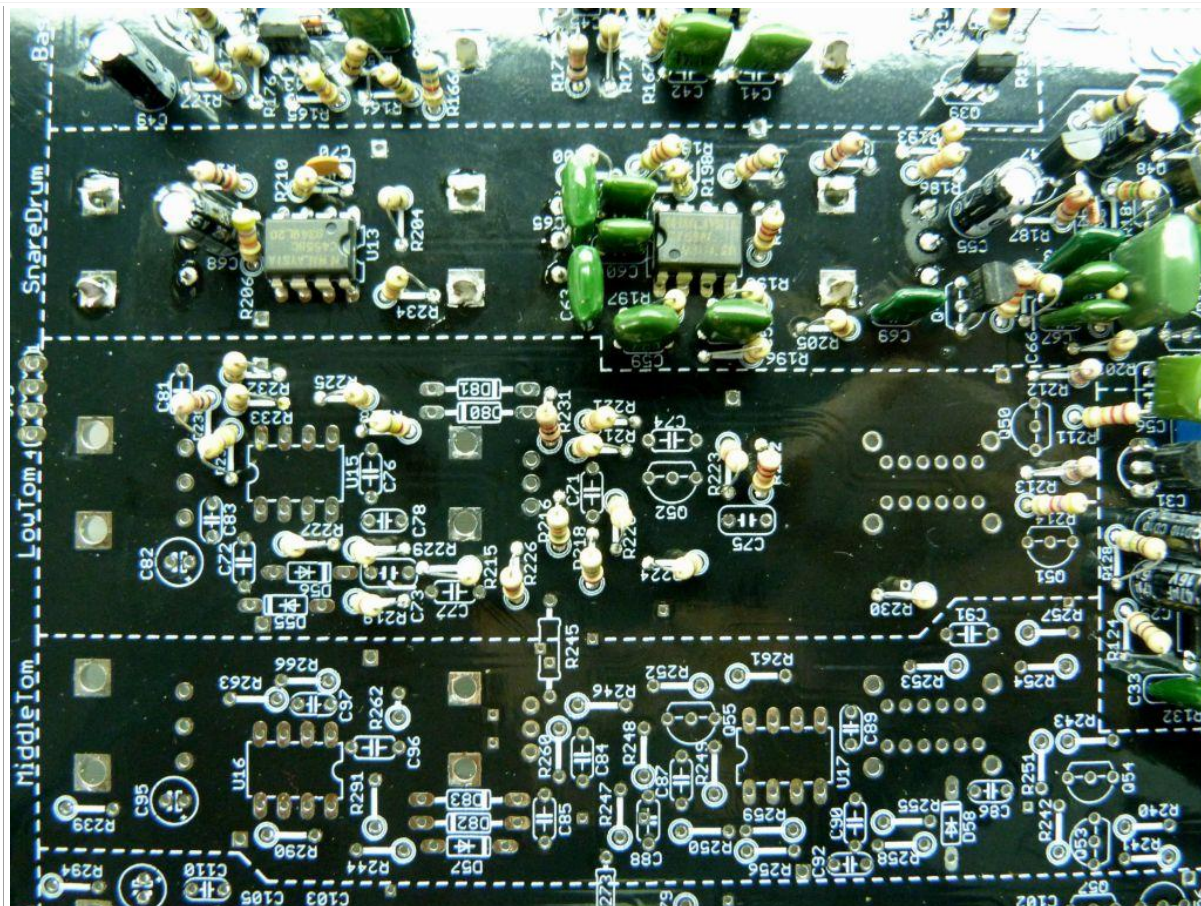
	NPN Silicon Transistor	Q50, Q52	2SC945	2
	PNP Silicon Transistor	Q51	2SA733	1
	1/4w Carbon resistor	R211, R222, R223, R226	22K	4
	1/4w Carbon resistor	R212, R213	10K	2
	1/4w Carbon resistor	R214, R215, R219, R221, R225	4K7	5
	1/4w Carbon resistor	R216	15K	1
	1/4w Carbon resistor	R217	3K3	1
	1/4w Carbon resistor	R218	2M2	1
	1/4w Carbon resistor	R220, R227, R229	33K	3
	1/4w Carbon resistor	R224	1K5	1
	1/4w Carbon resistor	R228, R230	820K	2
	1/4w Carbon resistor	R231, R238	1K	2
	1/4w Carbon resistor	R232, R233	100K	2

	1/4w Carbon resistor	R234	47K	1
	1/4w Carbon resistor	R235	470K	1
	4PDT switch	SW8		1
	Dual Operational Amplifier	U15	μPC4558C	1
	Potentiometer (A104)	VR10	100KA	1
	Potentiometer (501)	VR11	500R	1

Make it:

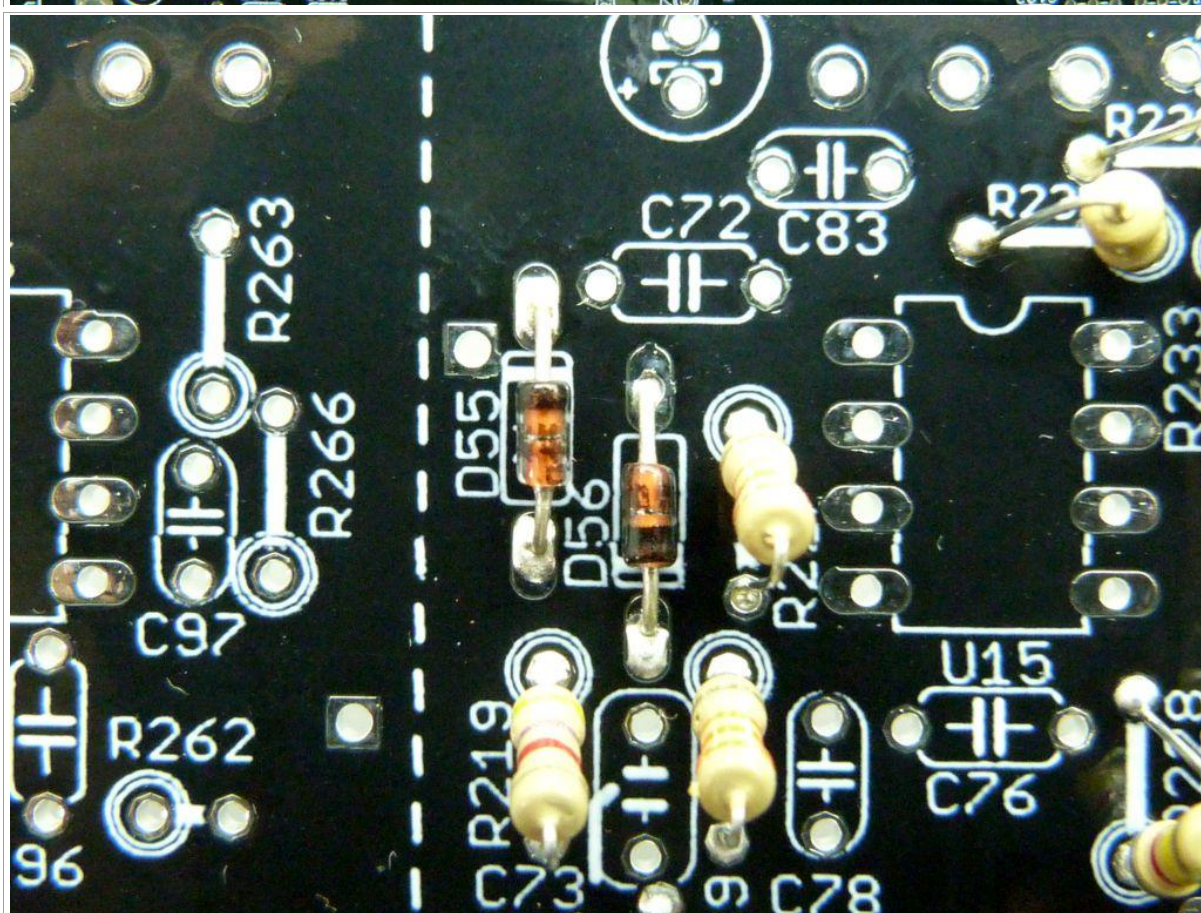


Here is the LowTom



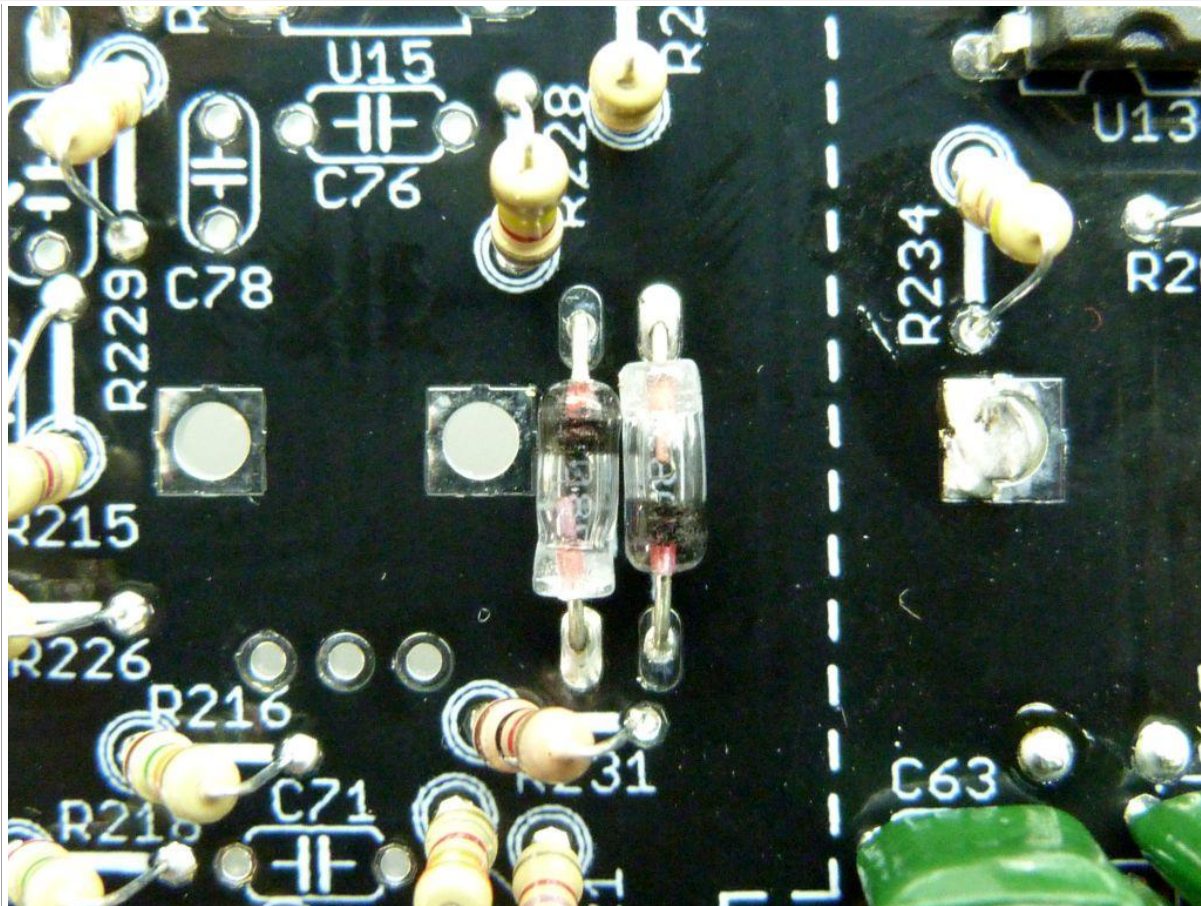
Solder all resistors.

Solder each value one after the other.



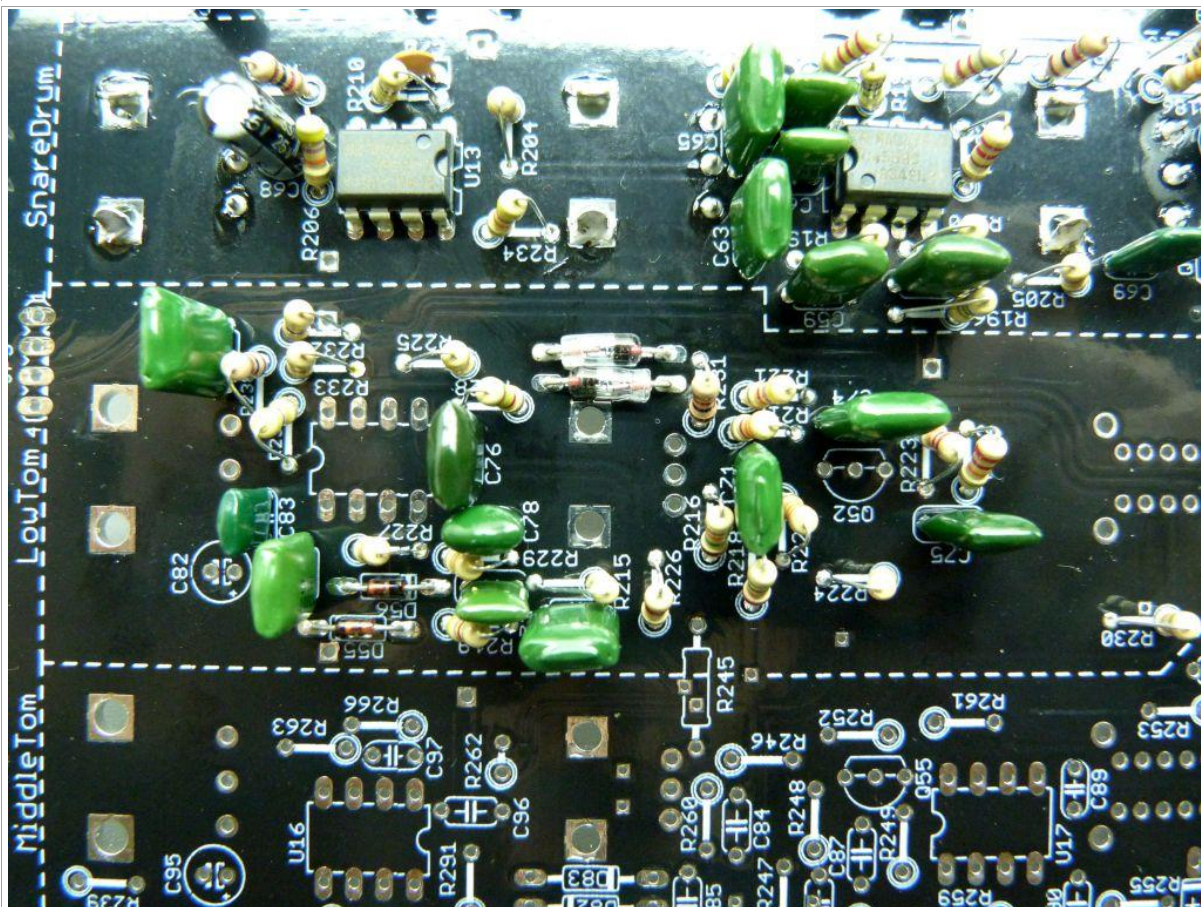
Solder D55,D56 diode 1N4148

MAKE SURE DIODES ARE IN THE RIGHT WAY



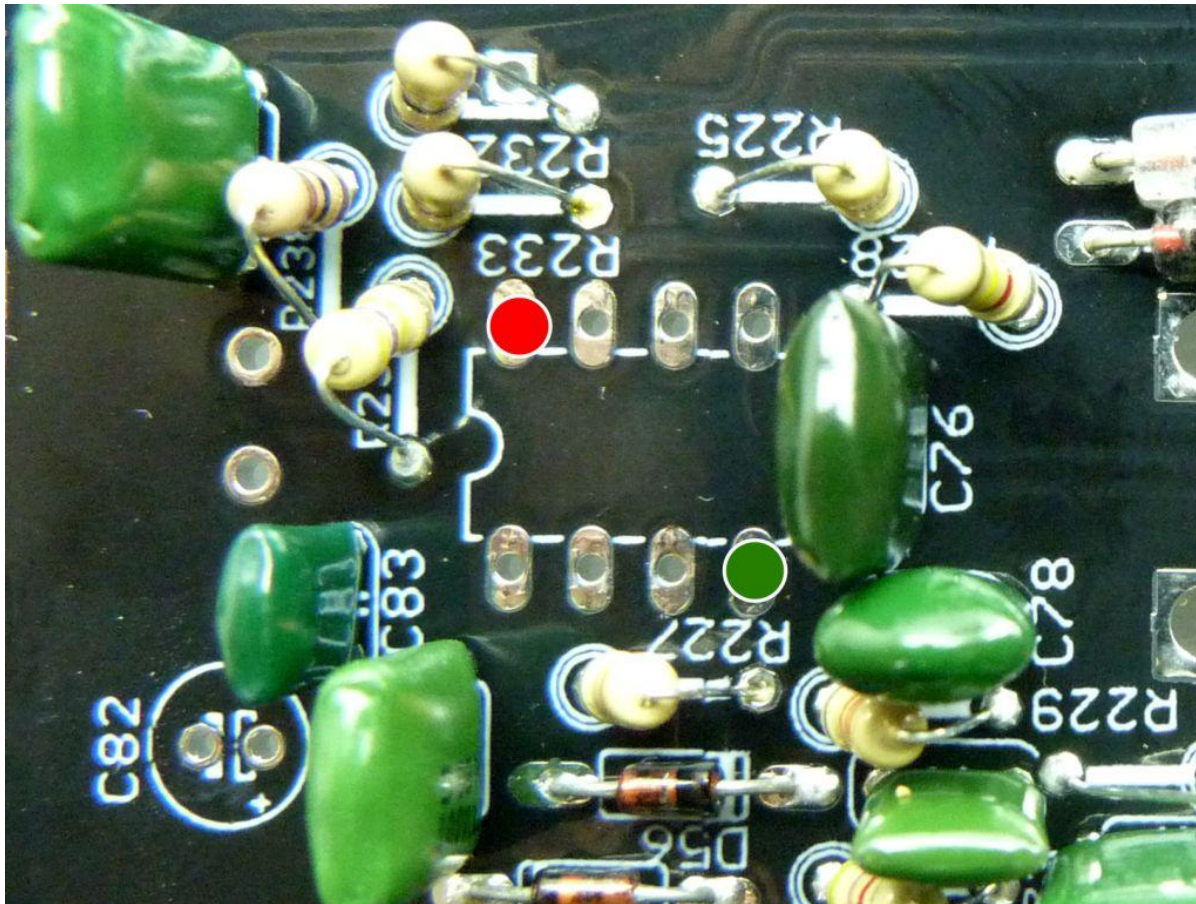
Solder both germanium diodes.

MAKE SURE DIODES ARE IN THE RIGHT WAY



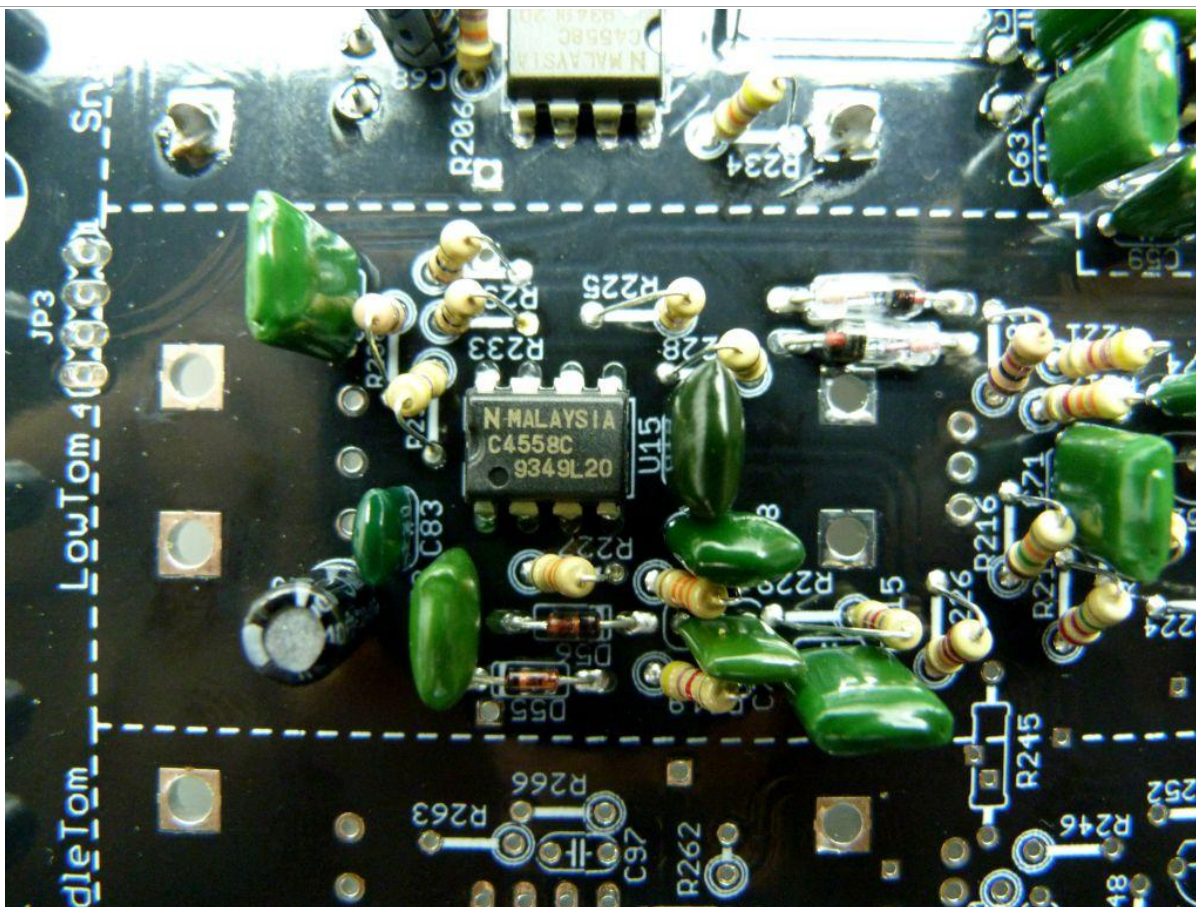
Solder polyesters capacitors



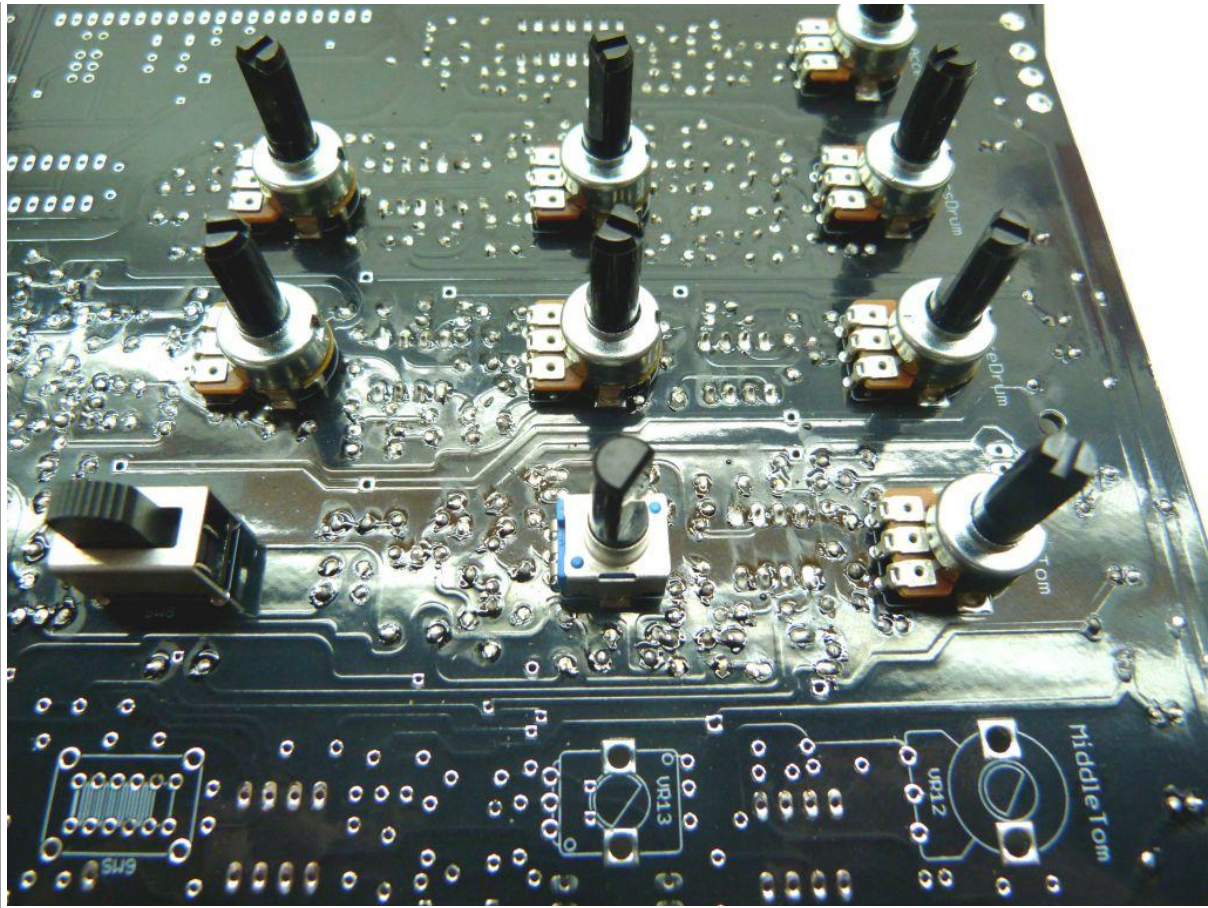


Connect the power transformer. Test 4558 power supply. The green dot is -15V, the red dot is 15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . Always check that the four wires from the power supply is well connected.

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558. To insert it into the PCB you have to bend the leads a little.



Finally return the PCB and solder potentiometers on the opposite side of components.





To assembly the switch, solder one lead of the switch and before soldering the other check that it is well pressed against the PCB.

DO NO WRONG IN THE VALUES OF POTENTIOMETERS, BOTH POTENTIOMETERS ARE DIFFERENT.

You can then go to [MiddleTom](#) assembly

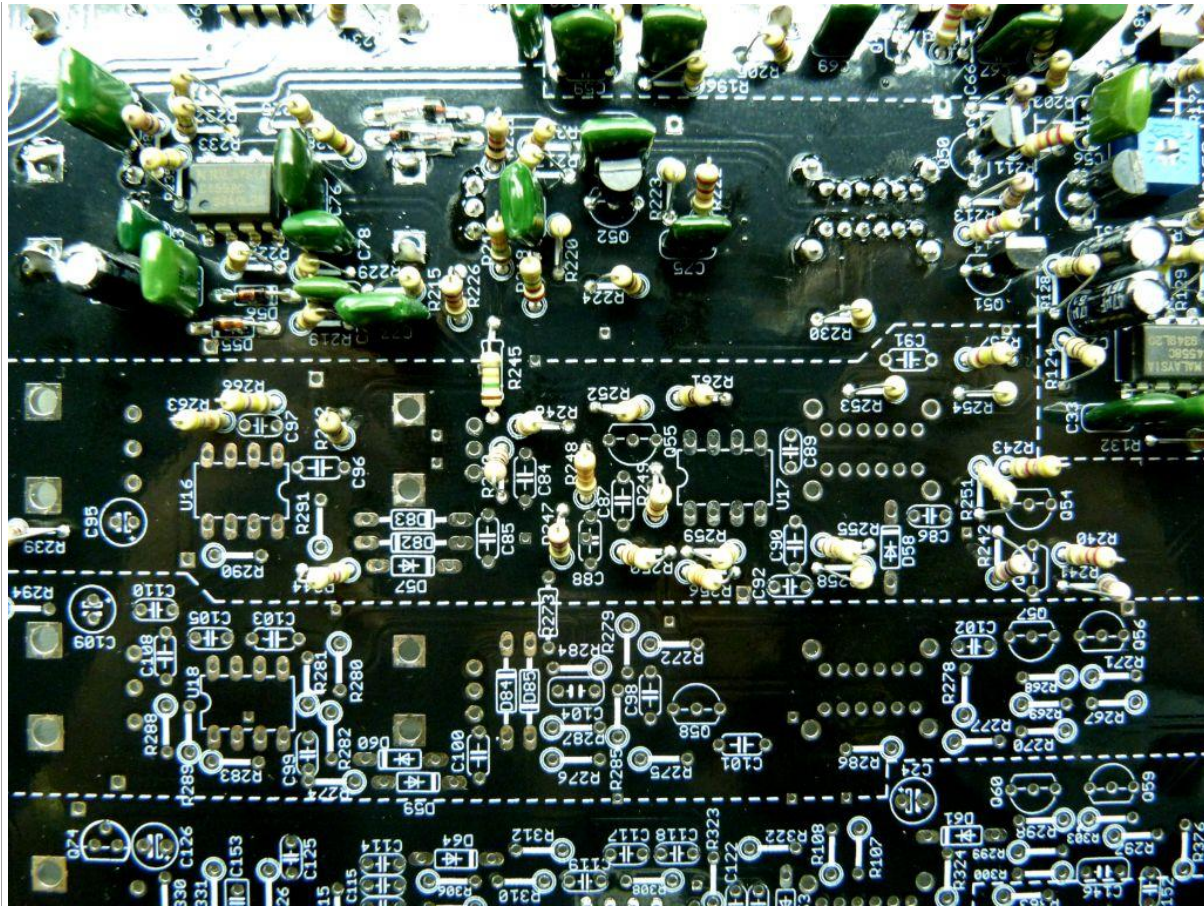
Middle Tom:

Here is the part list of Middleton, prepare all components before assembly:

Image	Description	Part	Value	Qty
	Polyester capacitor (2A473J)	C84	47n	1
	Polyester capacitor (2A333J)	C85, C87	33n	2
	Polyester capacitor (2A272J)	C86	2.7n	1
	Polyester capacitor (153J)	C88	15n	1

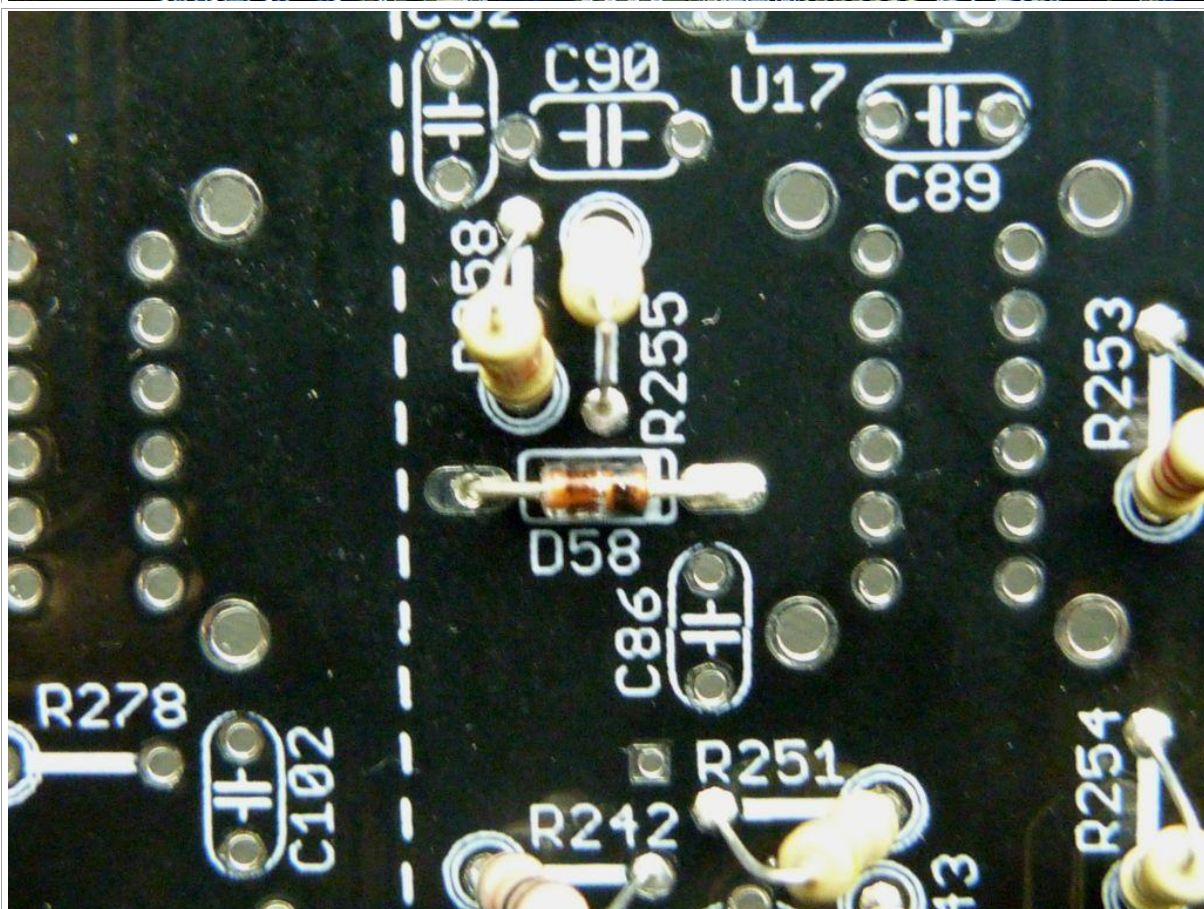
	Polyester capacitor (2A822J)	C89	8.2n	1
	Polyester capacitor (2A273J)	C90, C91	27n	2
	Polyester capacitor (2A123J)	C92	12n	1
	Polyester capacitor (393K)	C96	39n	1
	Polyester capacitor (2A102J)	C97	1n	1
	Electrolytic capacitor	C95	33/25	1
	Diode	D57, D58	1N4148	2
	Germanium diode	D82, D83	1N60	2
	NPN Silicon Transistor	Q53, Q55	2SC945	2
	PNP Silicon Transistor	Q54	2SA733	1
	1/4w Carbon resistor	R239, R260	1K	2
	1/4w Carbon resistor	R240, R249, R250, R255	22K	4

	1/4w Carbon resistor	R241, R242	10K	2
	1/4w Carbon resistor	R243, R244, R251, R252	4K7	4
	1/4w Carbon resistor	R245	15K	1
	1/4w Carbon resistor	R246	3K3	1
	1/4w Carbon resistor	R247	2M2	1
	1/4w Carbon resistor	R248, R256, R258	33K	3
	1/4w Carbon resistor	R253	2K2	1
	1/4w Carbon resistor	R254	6K8	1
	1/4w Carbon resistor	R257, R259	820K	2
	1/4w Carbon resistor	R261, R262	100K	2
	1/4w Carbon resistor	R263	47K	1
	1/4w Carbon resistor	R266	470K	1
	4PDT switch	SW9		1



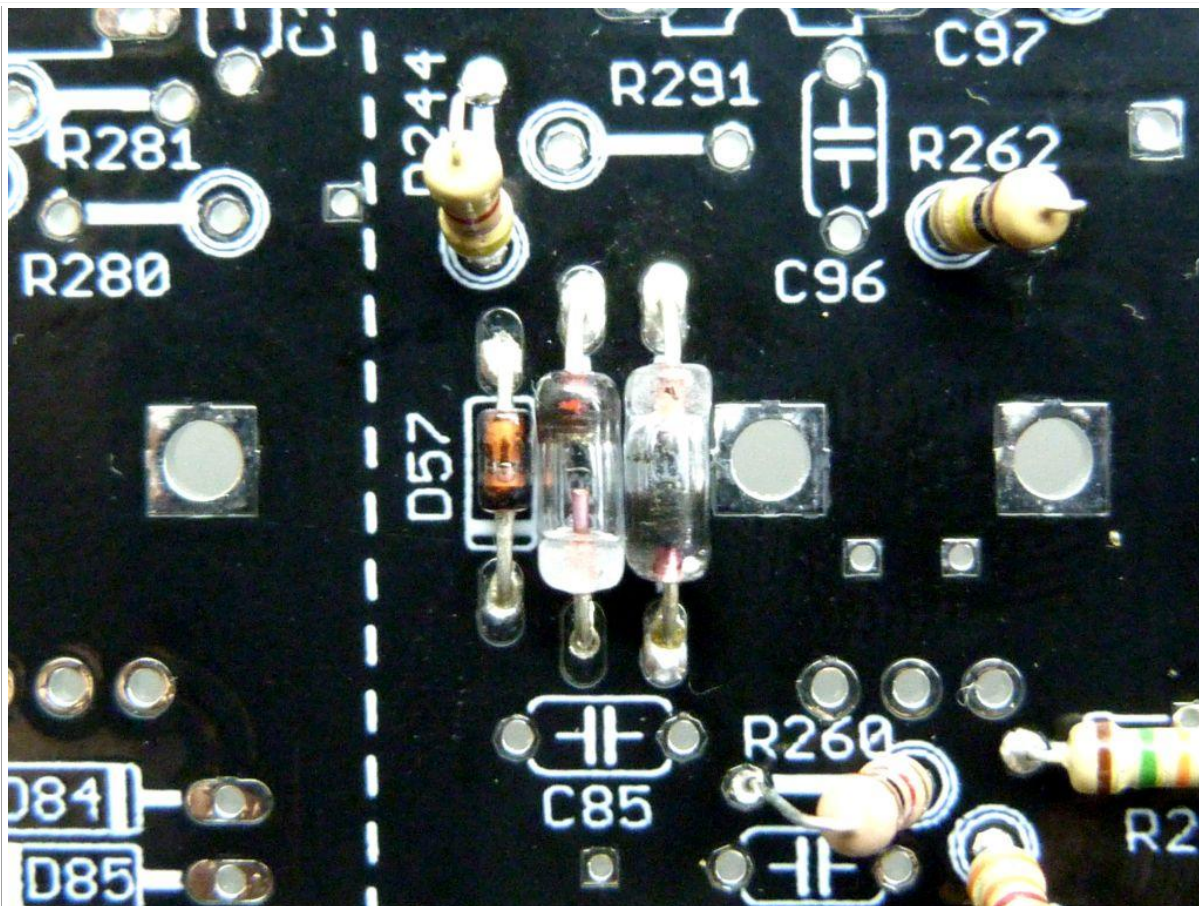
Solder all resistors.

Solder each value one after the other.



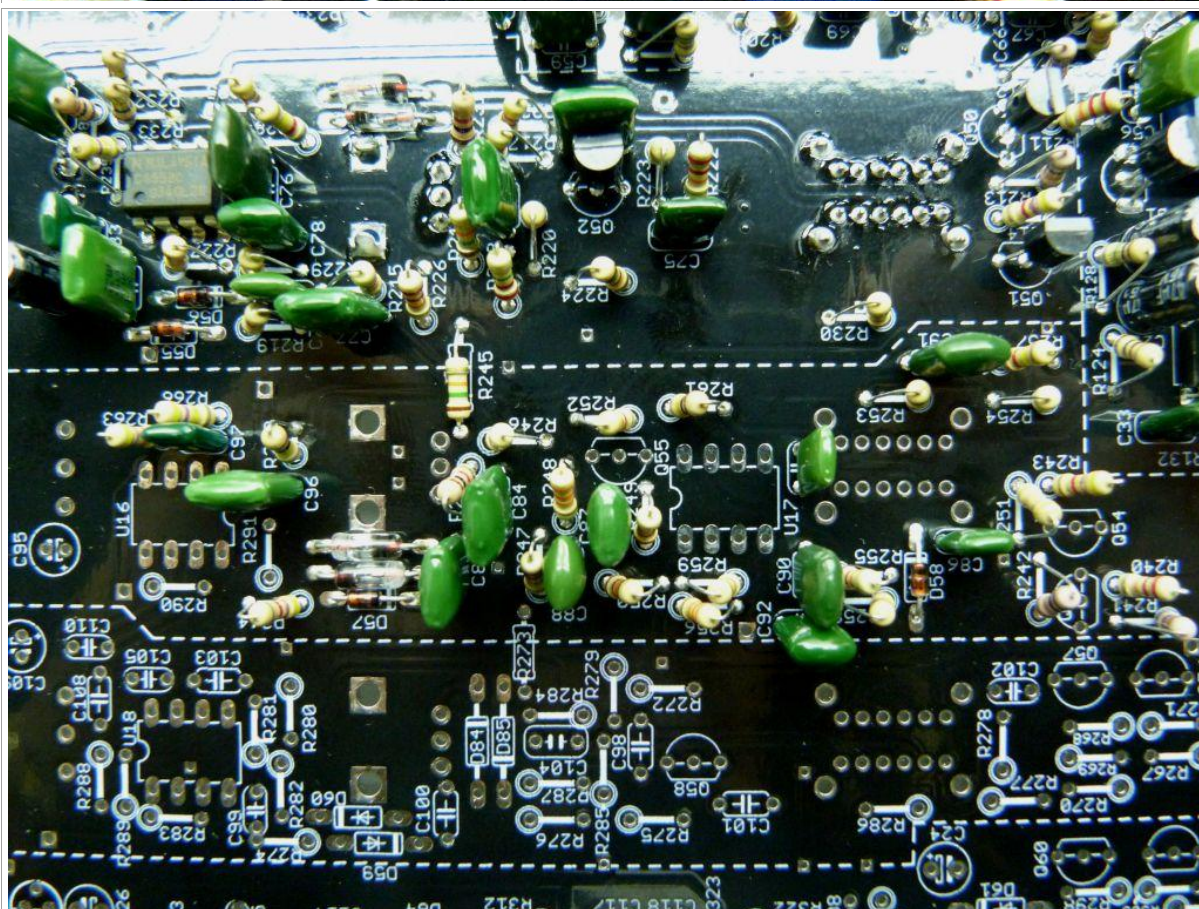
Solder D57,D58 diode 1N4148

MAKE SURE DIODES ARE IN THE RIGHT WAY

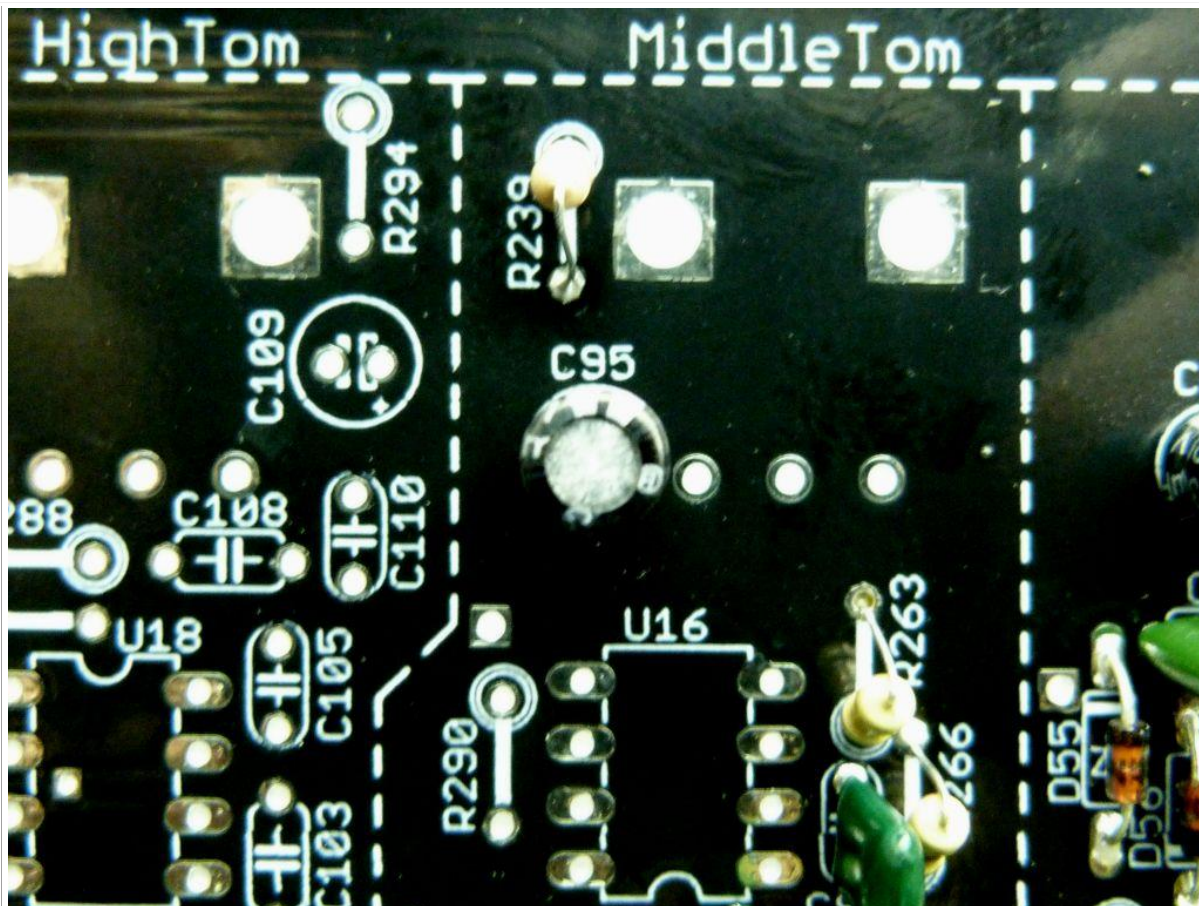


Solder both germaniums diodes.

MAKE SURE DIODES ARE IN THE RIGHT WAY

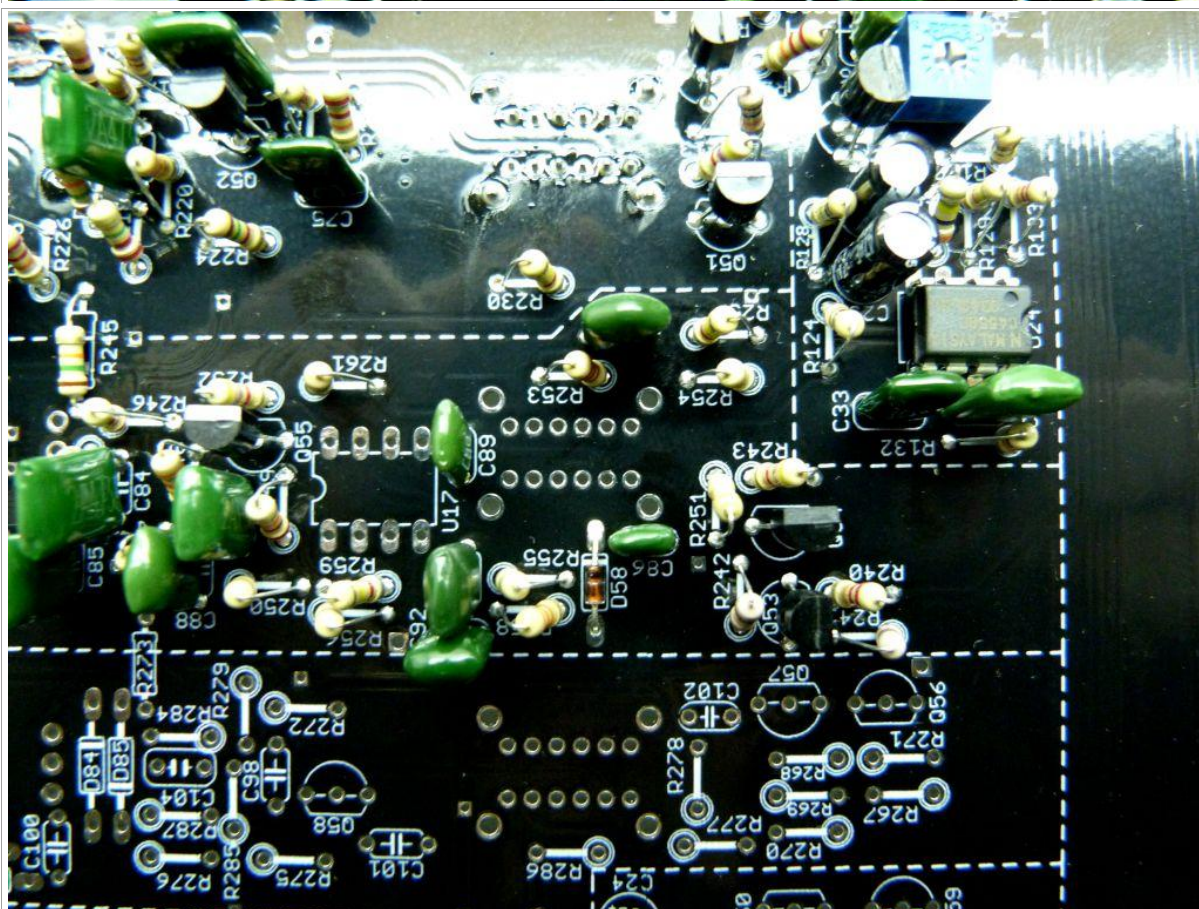


Solder polyesters capacitors



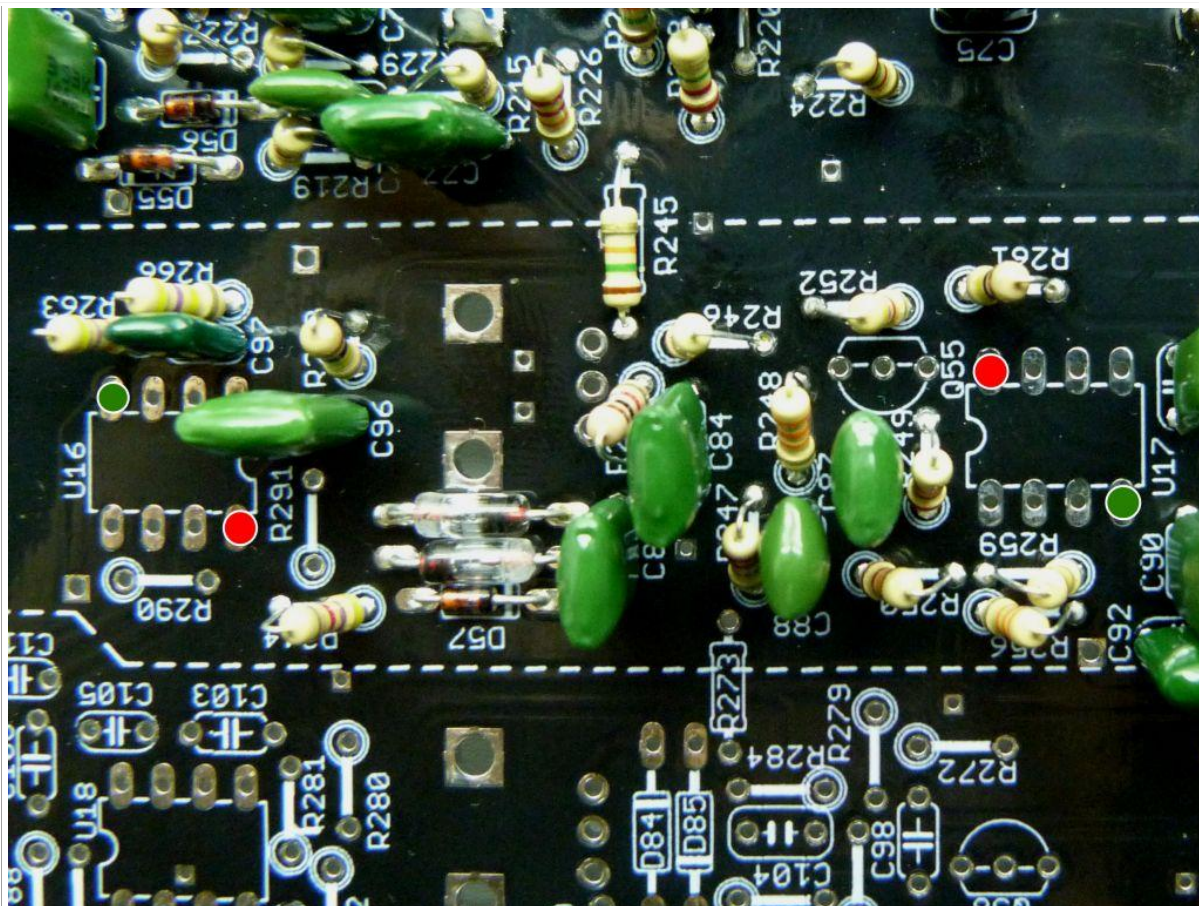
Solder C95 electrolytic capacitor

**MAKE SURE
ELECTROLYTICS
CAPACITORS ARE IN
THE RIGHT WAY**



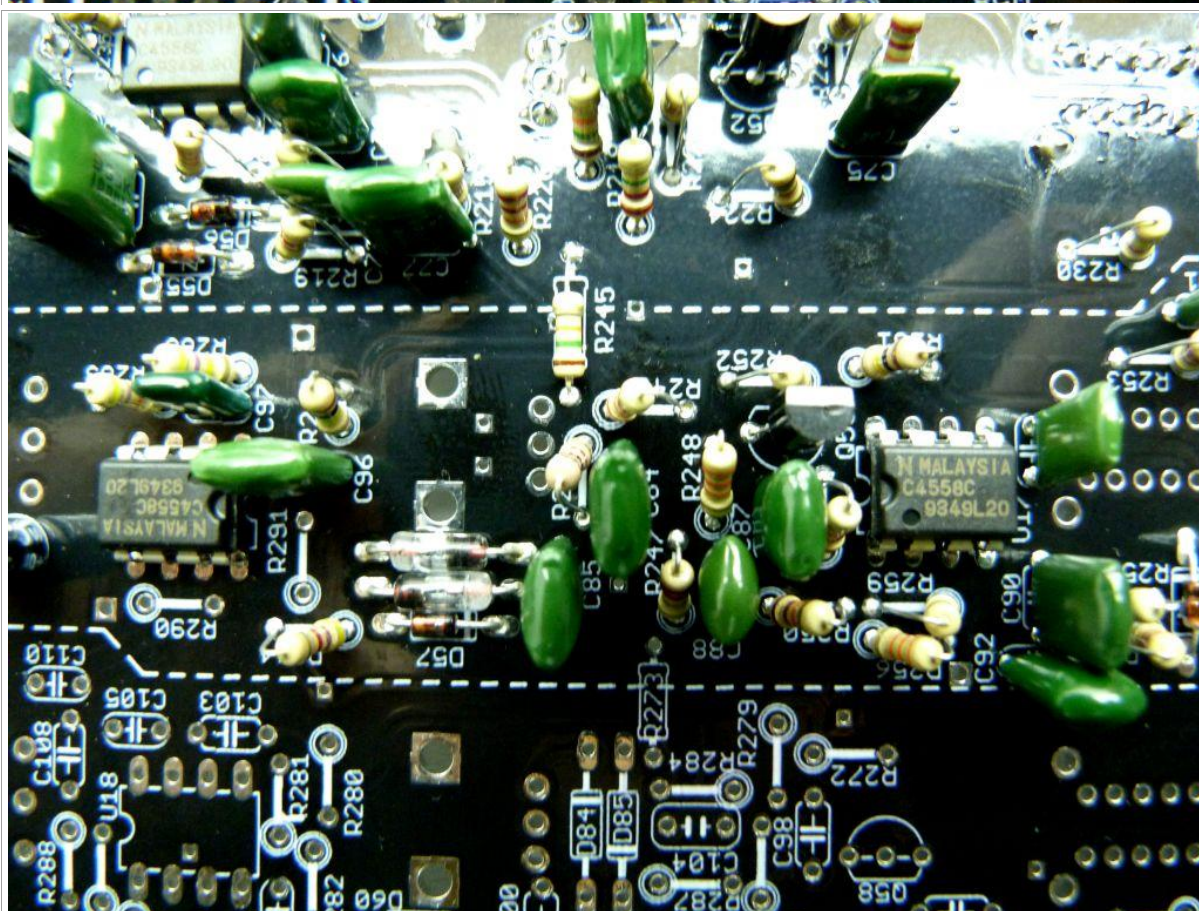
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

**MAKE SURE
TRANSISTORS ARE
IN THE RIGHT WAY**

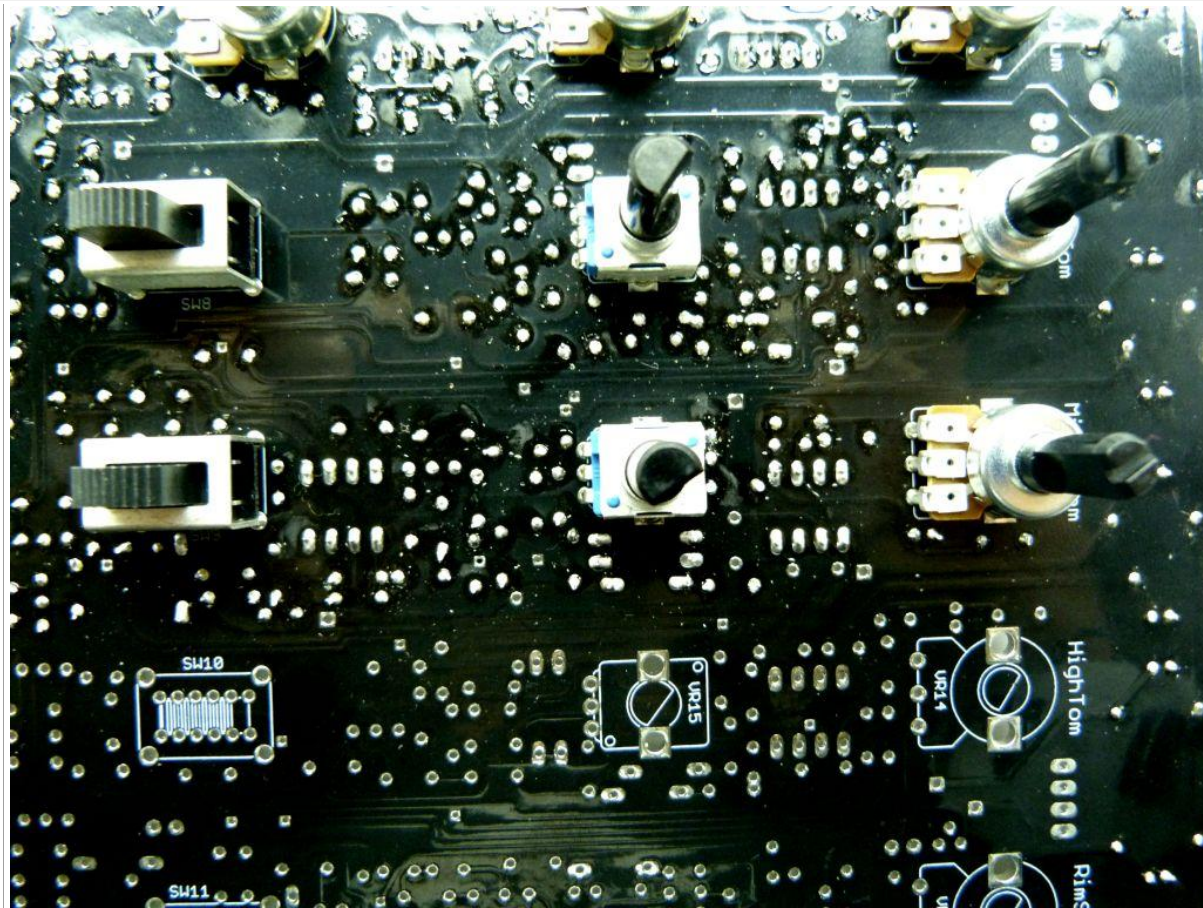


Connect the power transformer. Test 4558 power supply. The green dot is -15V, the red dot is 15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . Always check that the four wires from the power supply is well connected.

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558s. To insert it into the PCB you have to bend the leads a little.



Finally return the PCB and solder potentiometers on the opposite side of components.





To assembly the switch, solder one lead of the switch and before soldering the other check that it is well pressed against the PCB.

DO NO WRONG IN THE VALUES OF POTENTIOMETERS, BOTH POTENTIOMETERS ARE DIFFERENT.

You can then go to [HighTom](#) assembly



High Tom:

Here is the part list of High tom, prepare all components before assembly:

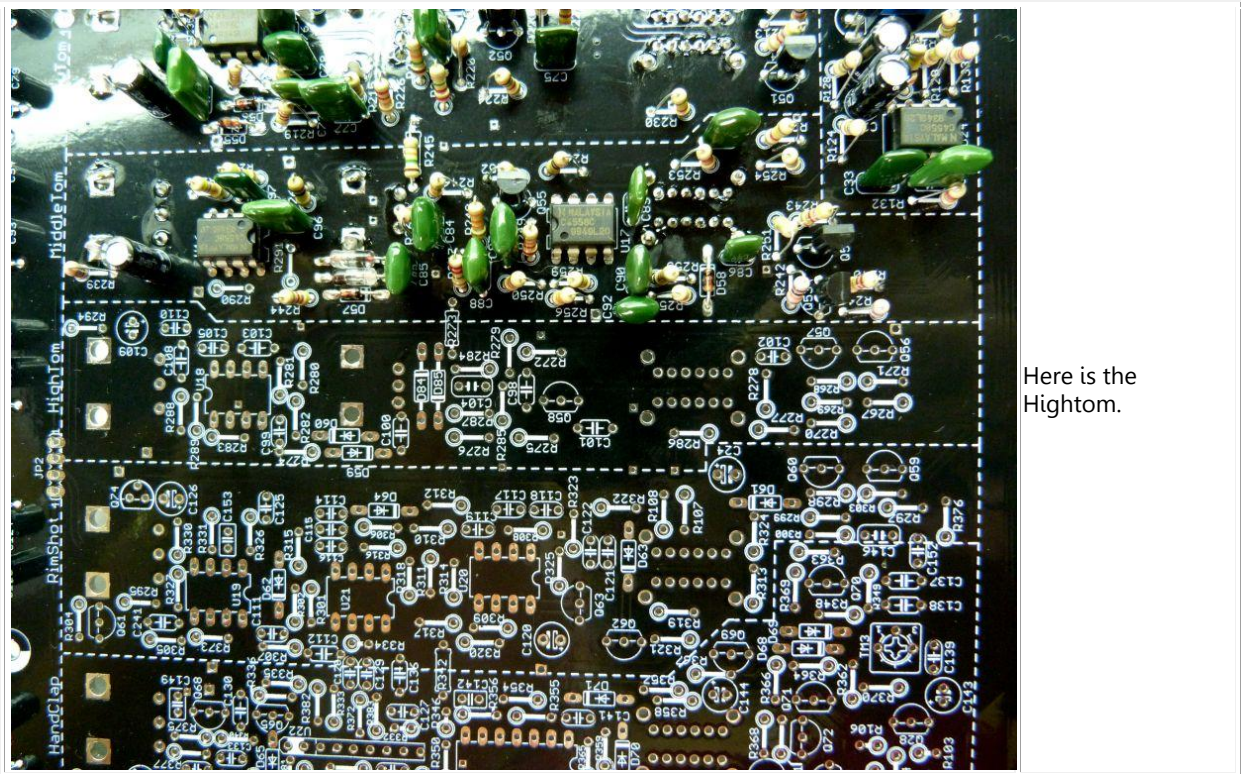
Image	Description	Part	Value	Qty
	Polyester capacitor (2A473J)	C98	47n	1
	Polyester capacitor (2A272J)	C99	2.7n	1
	Polyester capacitor (2A333J)	C100, C108	33n	2
	Polyester capacitor (2A273J)	C101, C103	27n	2

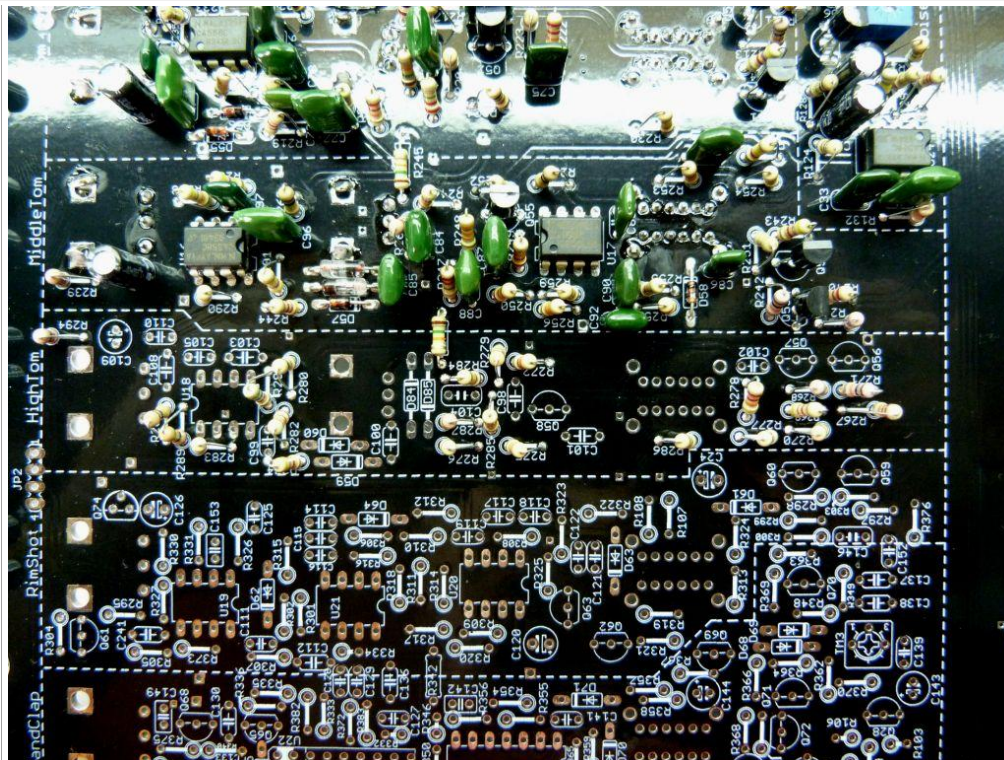
	Polyester capacitor (2A103J)	C102	10n	1
	Polyester capacitor (2A223J)	C104	22n	1
	Polyester capacitor (2A562J)	C105	5.6n	1
	Polyester capacitor (2A102J)	C110	1n	1
	Electrolytic capacitor	C109	33/25	1
	Diode	D59, D60	1N4148	2
	Germanium Diode	D84, D85	1N60	2
	NPN Silicon Transistor	Q56, Q58	2SC945	2
	PNP Silicon Transistor	Q57	2SA733	1
	1/4w Carbon resistor	R267, R277, R278, R282	22K	4
	1/4w Carbon resistor	R268, R271	10K	2
	1/4w Carbon resistor	R269, R270, R274, R279	4K7	4

	1/4w Carbon resistor	R272	3K3	1
	1/4w Carbon resistor	R273	15K	1
	1/4w Carbon resistor	R275, R283, R285	33K	3
	1/4w Carbon resistor	R276	2M2	1
	1/4w Carbon resistor	R280	1K5	1
	1/4w Carbon resistor	R281	5K6	1
	1/4w Carbon resistor	R284, R286	820K	2
	1/4w Carbon resistor	R287, R294	1K	2
	1/4w Carbon resistor	R288, R289	100K	2
	1/4w Carbon resistor	R290	47K	1
	1/4w Carbon resistor	R291	470K	1
	4PDT switch	SW10		1
	Dual Operational Amplifier	U18	μPC4558C	1

	Potentiometer (A104)	VR14	100KA	1
	Potentiometer (501)	VR15	500R	1

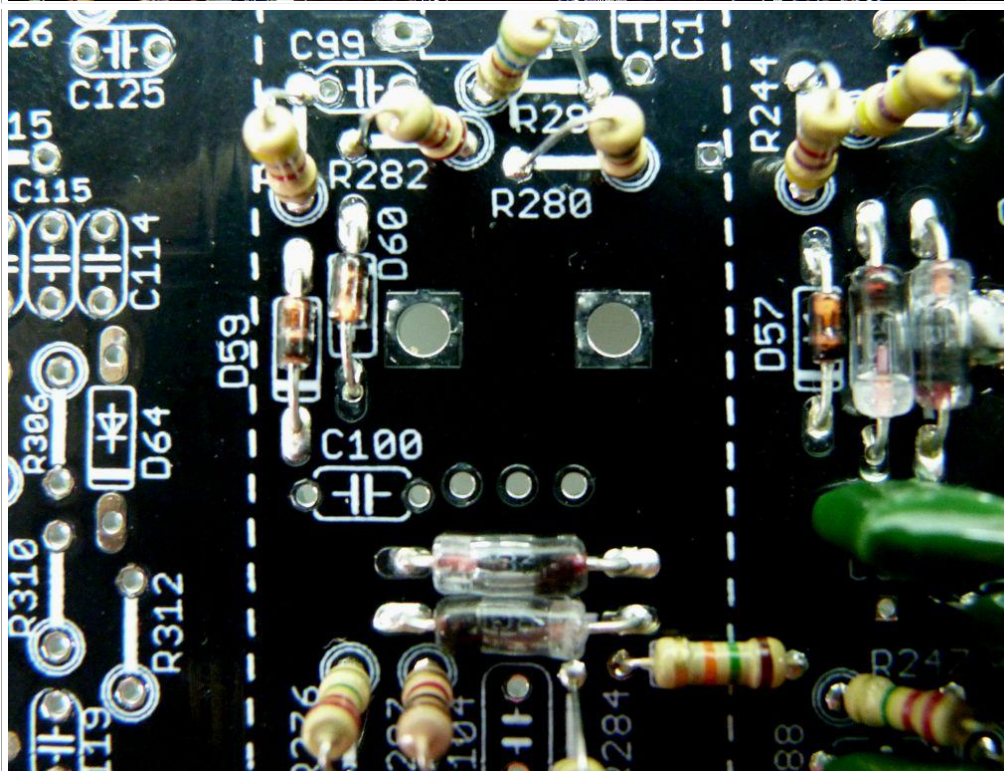
Make it:





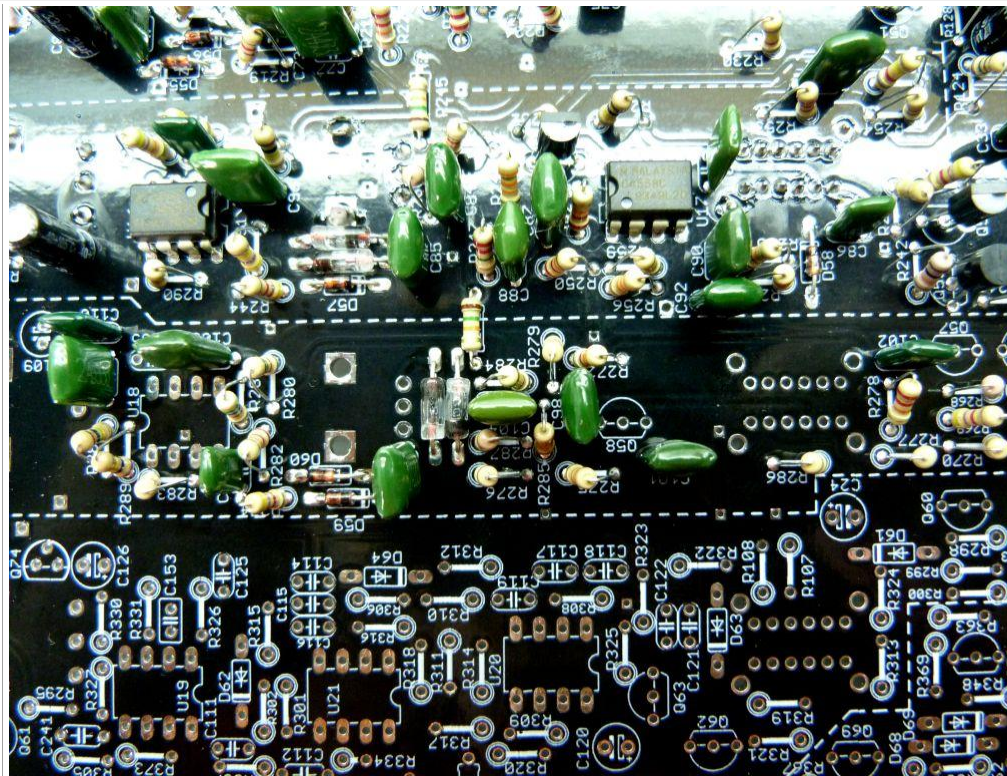
Solder all resistors.

Solder each value
one after the other.

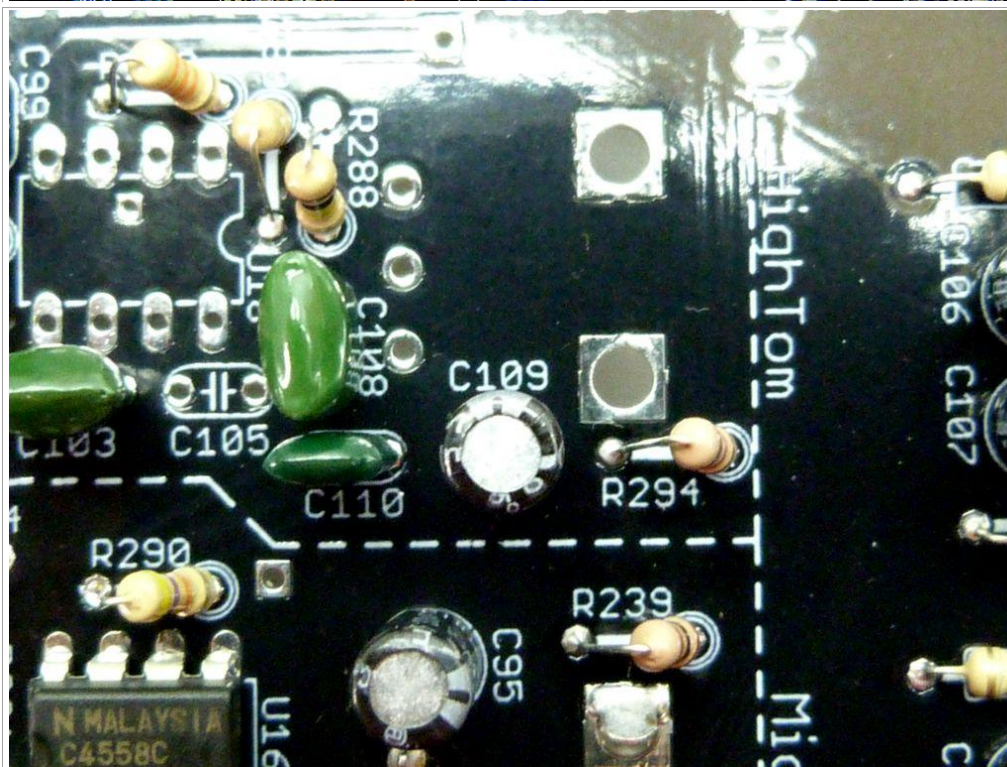


Solder D59,D60
diode 1N4148 and
germaniums diodes

**MAKE SURE
DIODES ARE IN
THE RIGHT WAY**

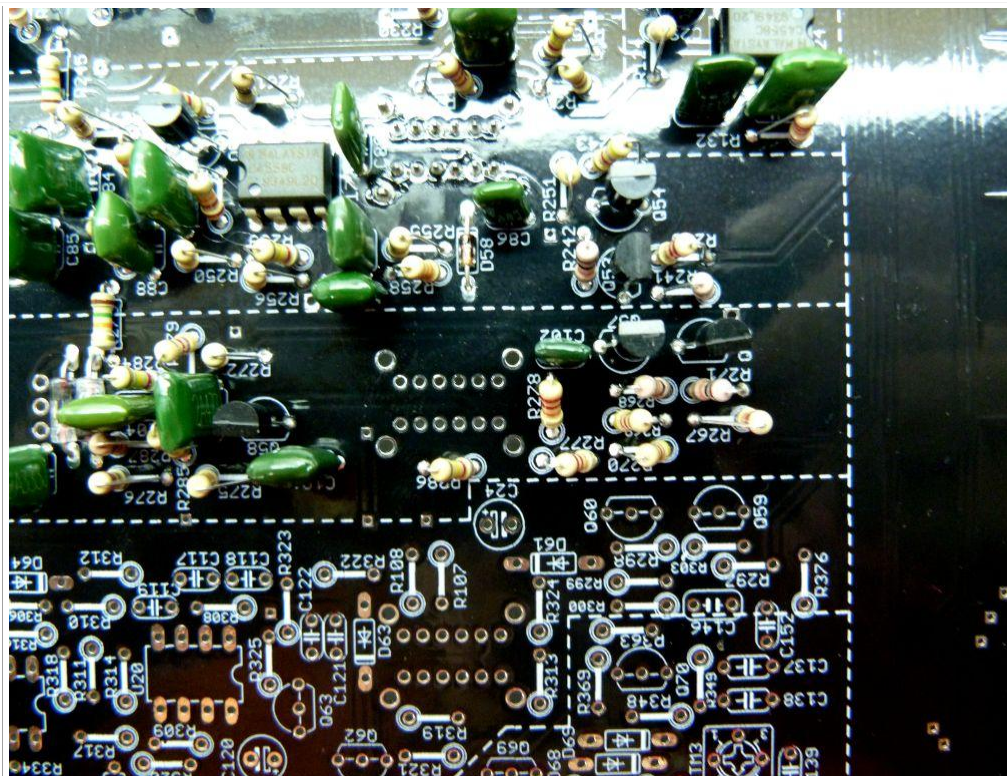


Solder polyesters capacitors



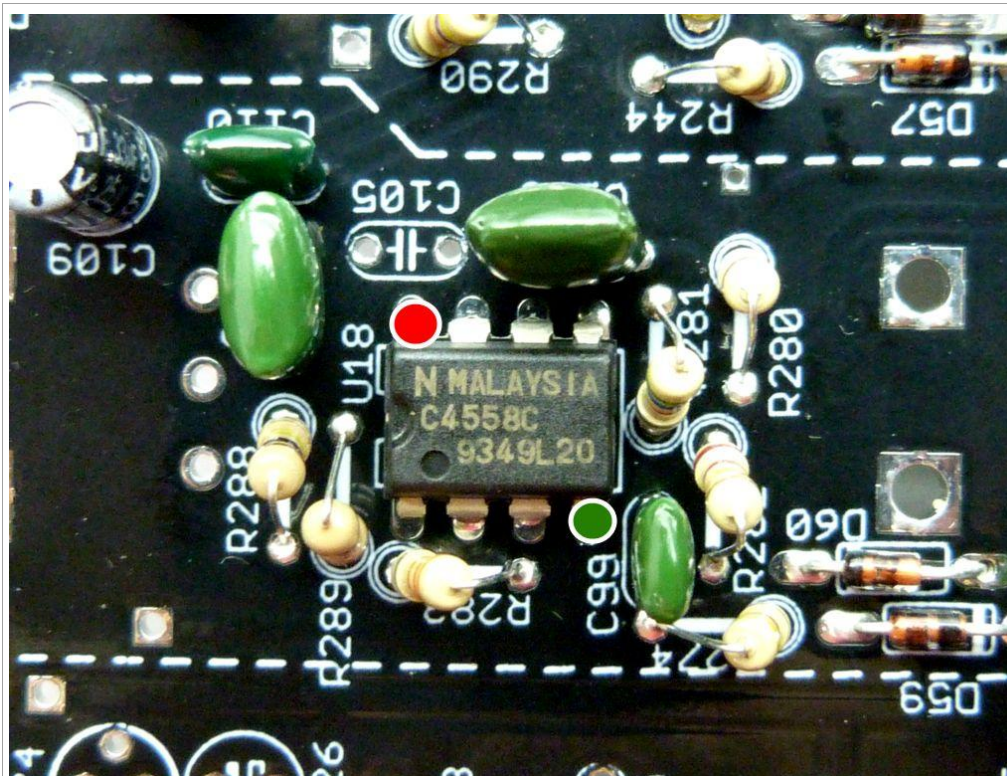
Solder C109 electrolytic capacitor

**MAKE SURE
ELECTROLYTICS
CAPACITORS ARE
IN THE RIGHT
WAY**



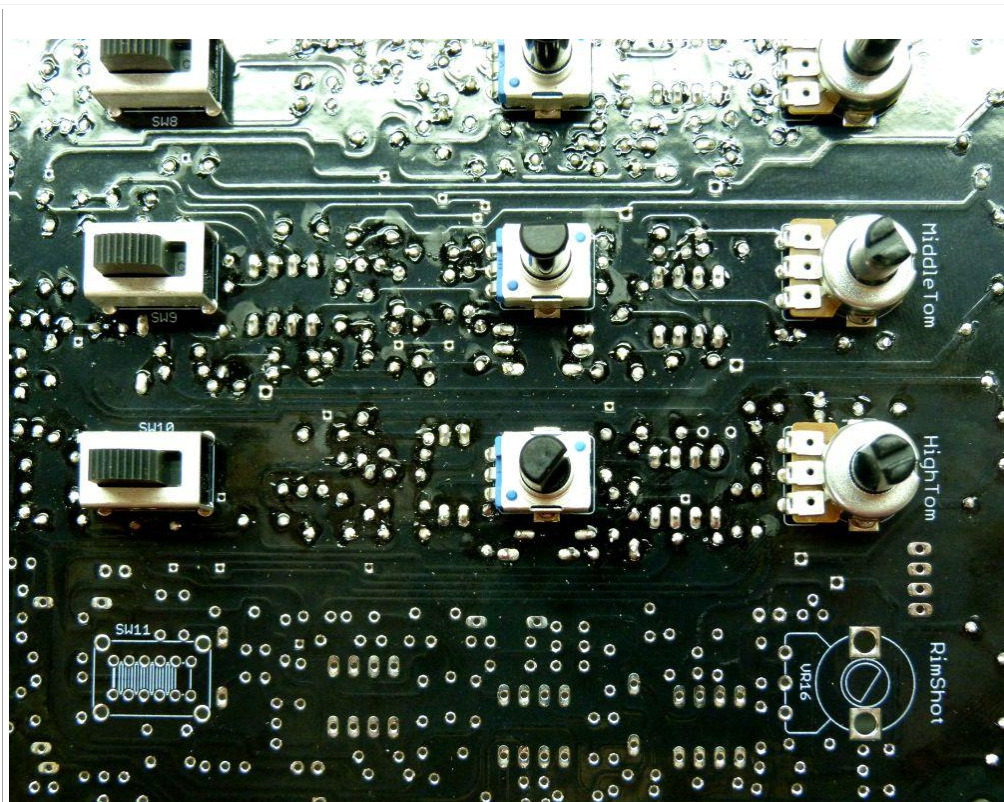
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY



Connect the power transformer. Test 4558 power supply before solder. The green dot is -15V, the red dot is 15 V (plus or minus 5%). You have the ground on the potentiometer big square pad. Always check that the four wires from the power supply is well connected.

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Finally return the PCB and solder potentiometers on the opposite side of components.





To assembly the switch, solder one leg of the switch and before soldering the other check that it is well pressed against the PCB.

DO NO WRONG IN THE VALUES OF POTENTIOMETERS , BOTH POTENTIOMETERS ARE DIFFERENT.

You can then go to [Rimshot assembly](#)




RimShot:

Here is the part list of Rimshot, prepare all components before assembly:

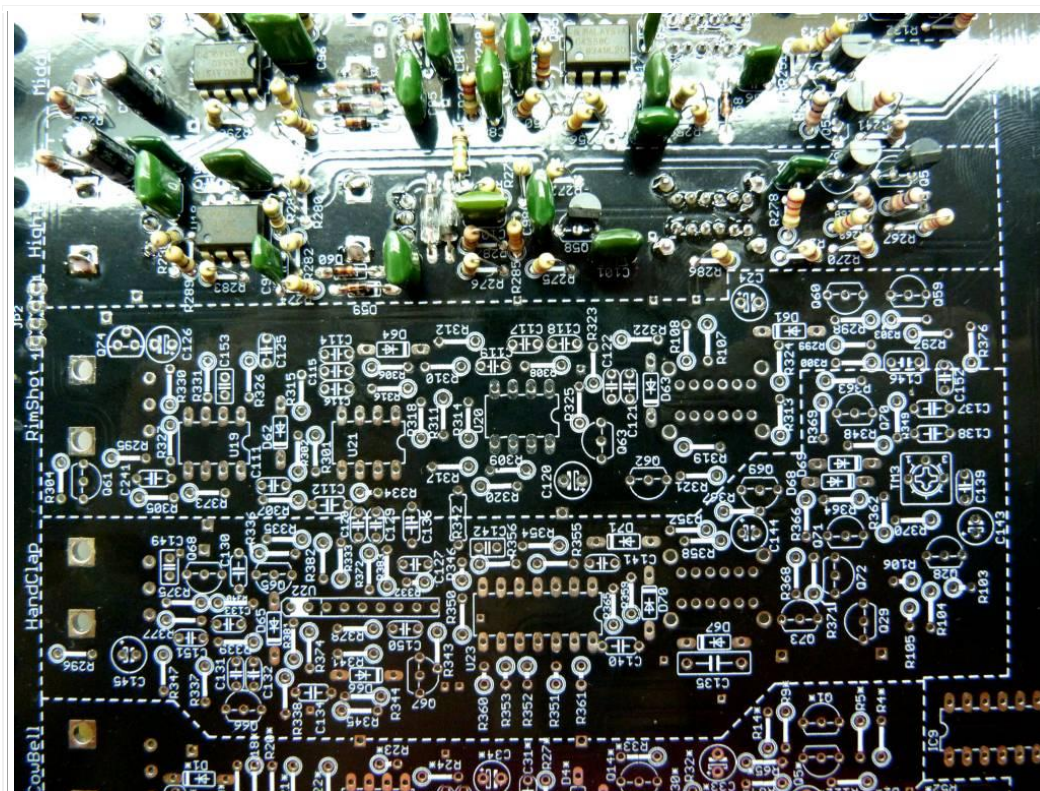
Image	Description	Part	Value	Qty
	Polyester capacitor (2A103J)	C111, C125	10n	2
	Polyester capacitor (2A223J)	C112	22n	1
	Polyester capacitor (2A102J)	C114	1n	1
	Polyester capacitor (2A472J)	C115, C116, C121, C122	4.7n	4

	Ceramic capacitor (22)	C153	22p	1
	Polyester capacitor (2A473J)	C113	47n	1
	Polyester capacitor (2A222J)	C117, C118, C119	2.2n	3
	Electrolytic capacitor	C120	10/25	1
	Electrolytic capacitor	C24	0.47/50	1
	Electrolytic capacitor	C126	33/25	1
	Diode	D61, D62, D63, D64	1N4148	4
	NPN Silicon Transistor	Q59, Q61, Q62, Q63	2SC945	4
	PNP Silicon Transistor	Q60	2SA733	1
	Silicon N-Channel JFET Transistor	Q74	2SK30	1
	1/4w Carbon resistor	R107, R295, R312	1K	3
	1/4w Carbon resistor	R108, R298, R302, R303, R311, R317, R322, R326	10K	8

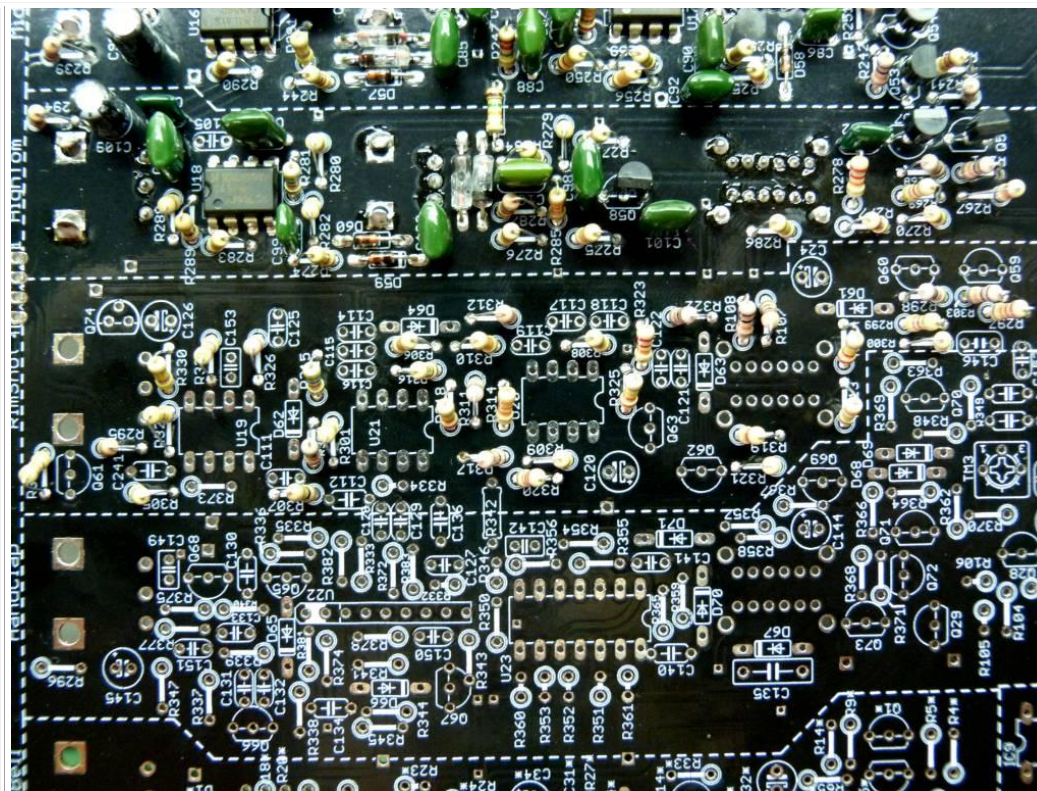
	1/4w Carbon resistor	R297, R300, R306, R320, R323	22K	5
	1/4w Carbon resistor	R299	4K7	1
	1/4w Carbon resistor	R301, R304, R331	47K	3
	1/4w Carbon resistor	R305, R316	1M	2
	1/4w Carbon resistor	R307	100K	1
	1/4w Carbon resistor	R308	820K	1
	1/4w Carbon resistor	R309, R310, R314	33K	3
	1/4w Carbon resistor	R313	390K	1
	1/4w Carbon resistor	R315	5K6	1
	1/4w Carbon resistor	R318, R319, R324	220K	3
	1/4w Carbon resistor	R321	2M2	1
	1/4w Carbon resistor	R325	330K	1
	1/4w Carbon resistor	R327, R330	470K	2

	4PDT switch	SW11		1
	Dual Operational Amplifier	U19, U20, U21	μPC4558C	3
	Potentiometer (A104)	VR16	100KA	1

Montage:



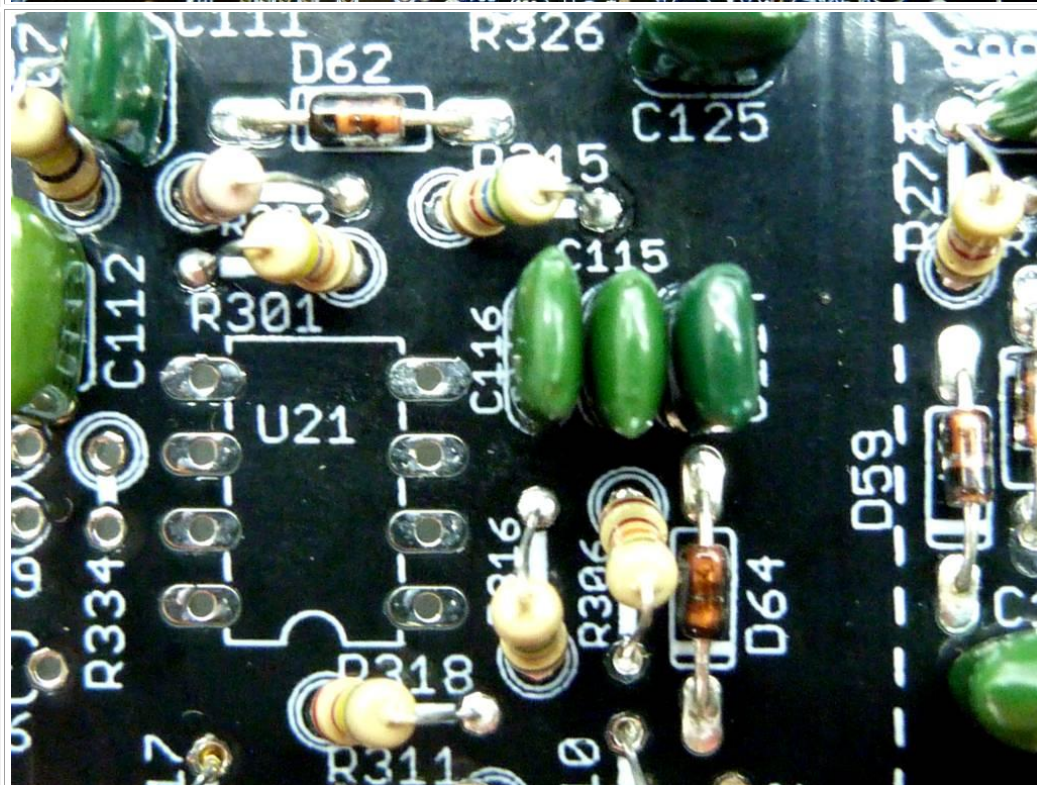
Here is the Rimshot



Solder all resistors.

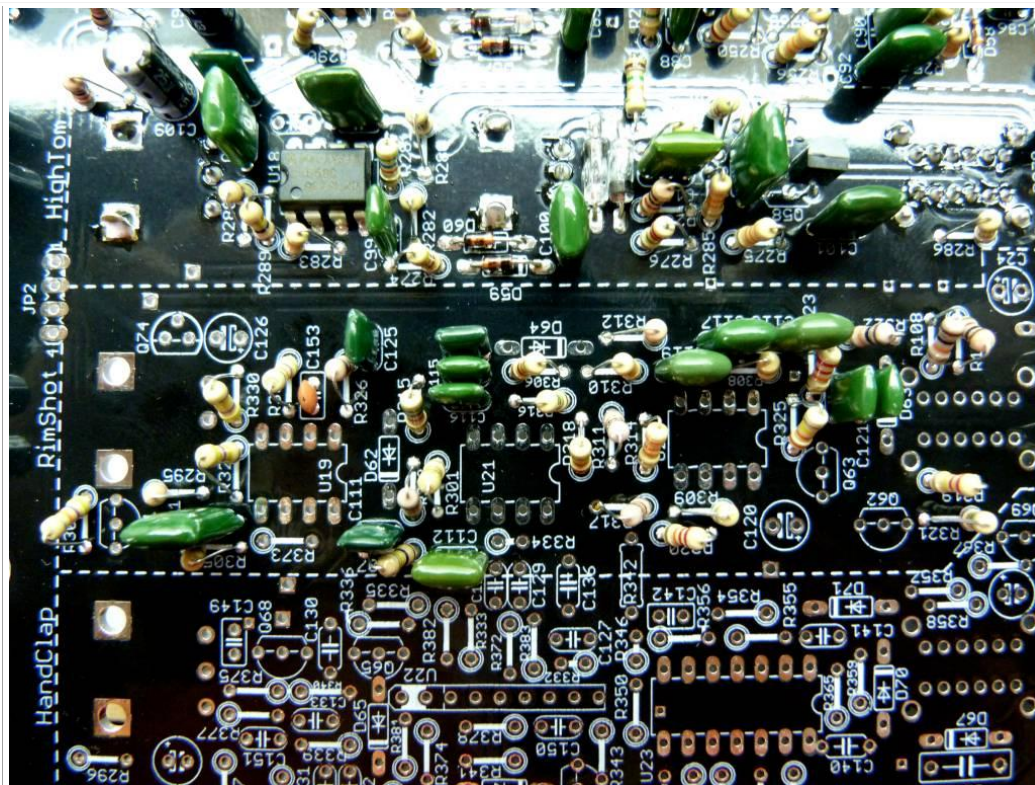
Solder each value one after the other.

R334 and R373 are part of the Handclap section and not the Rimshot. Do not mount resistance to the moment at these locations.

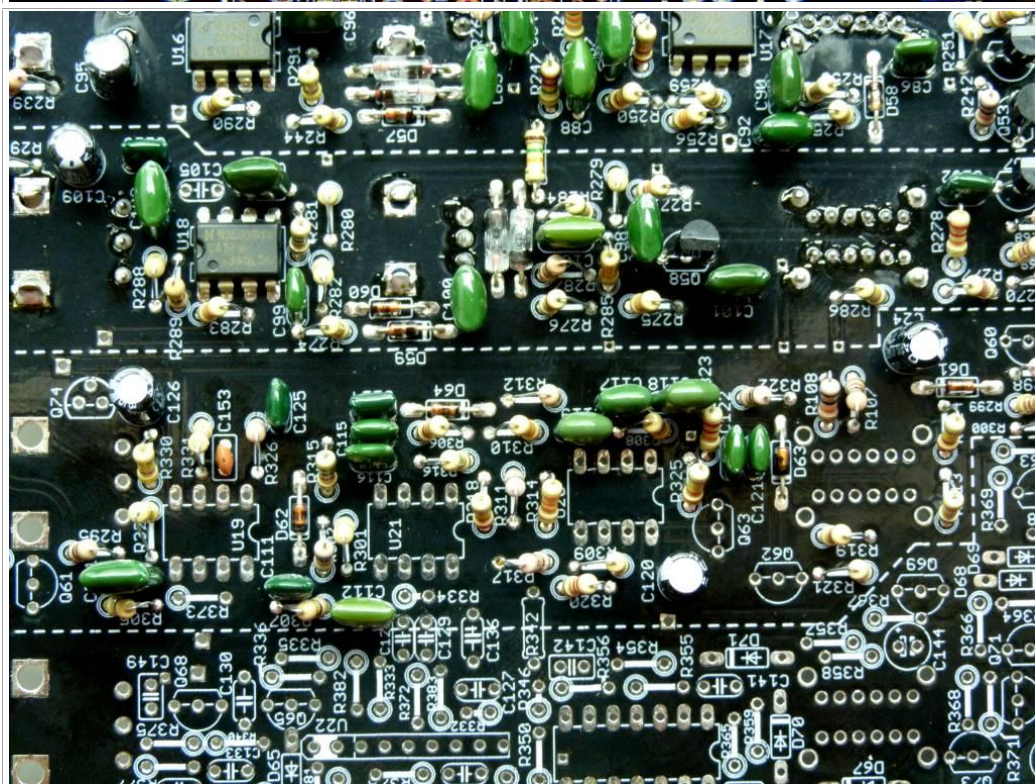


Solder diodes 1N4148.

MAKE SURE DIODES ARE IN THE RIGHT WAY

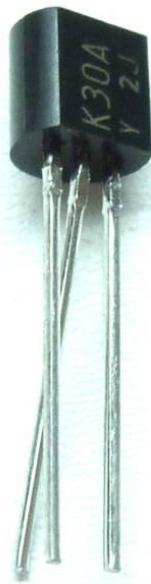


Solder
polyesters
capacitors and
ceramics
capacitors

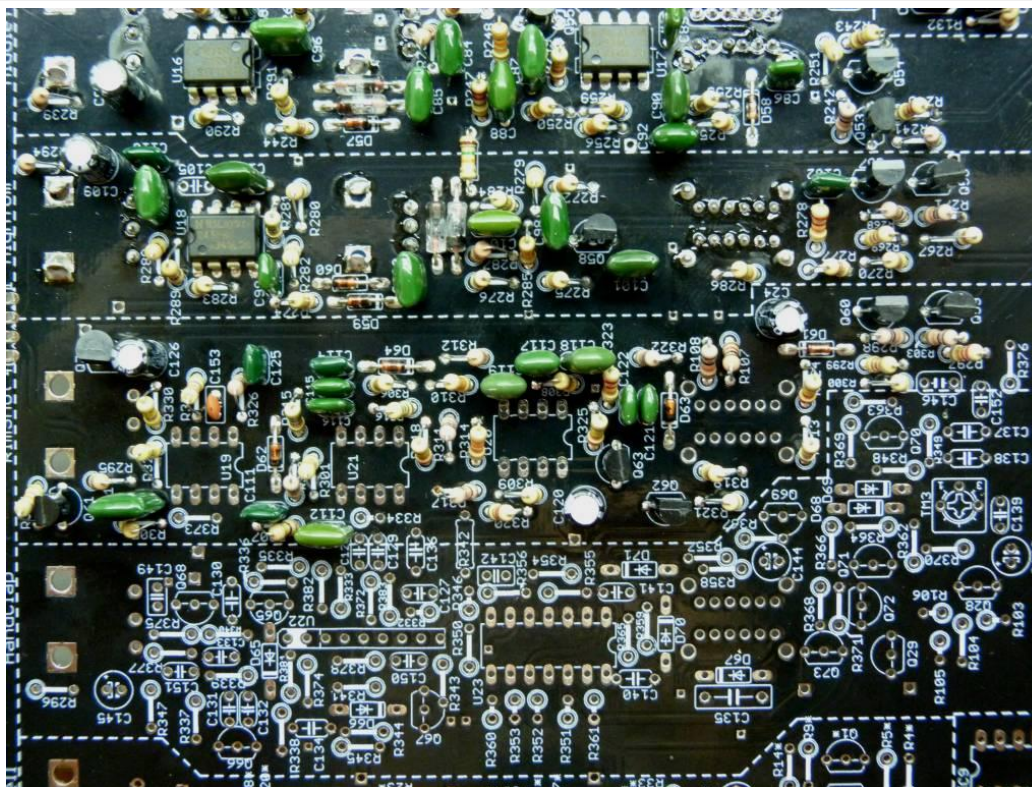


Solder
electrolytics
capacitors

**MAKE SURE
ELECTROLYTICS
CAPACITORS
ARE IN THE
RIGHT WAY**

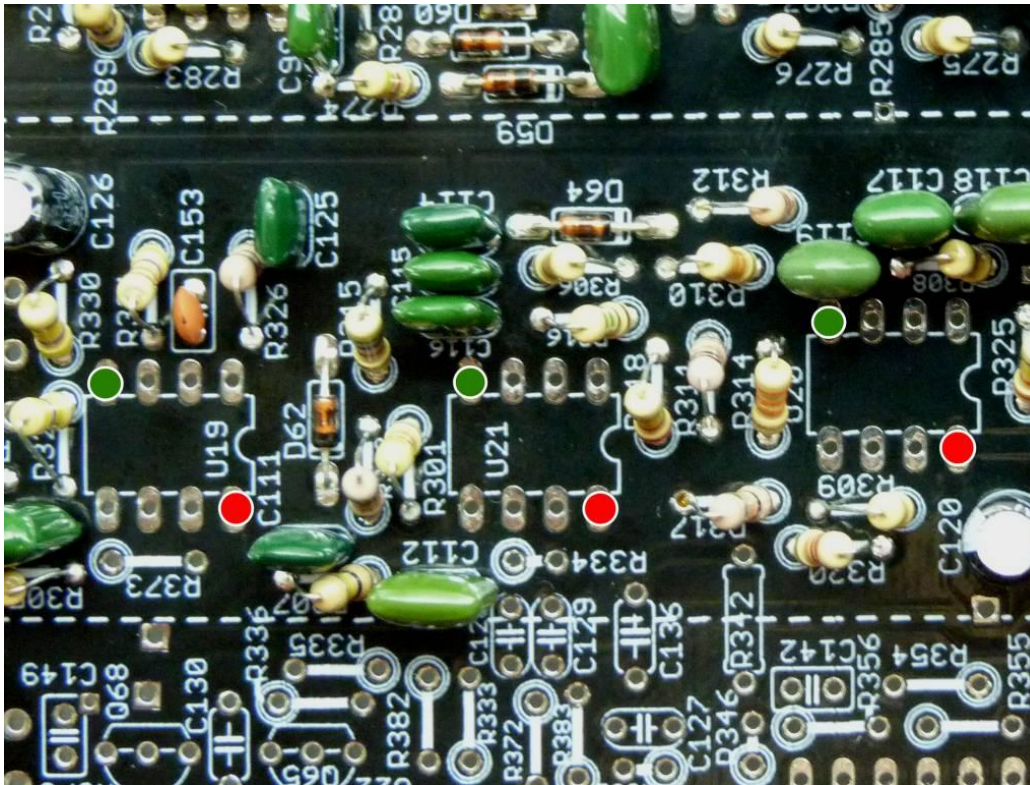


Slightly bend the middle lead of the transistor 2SK30.



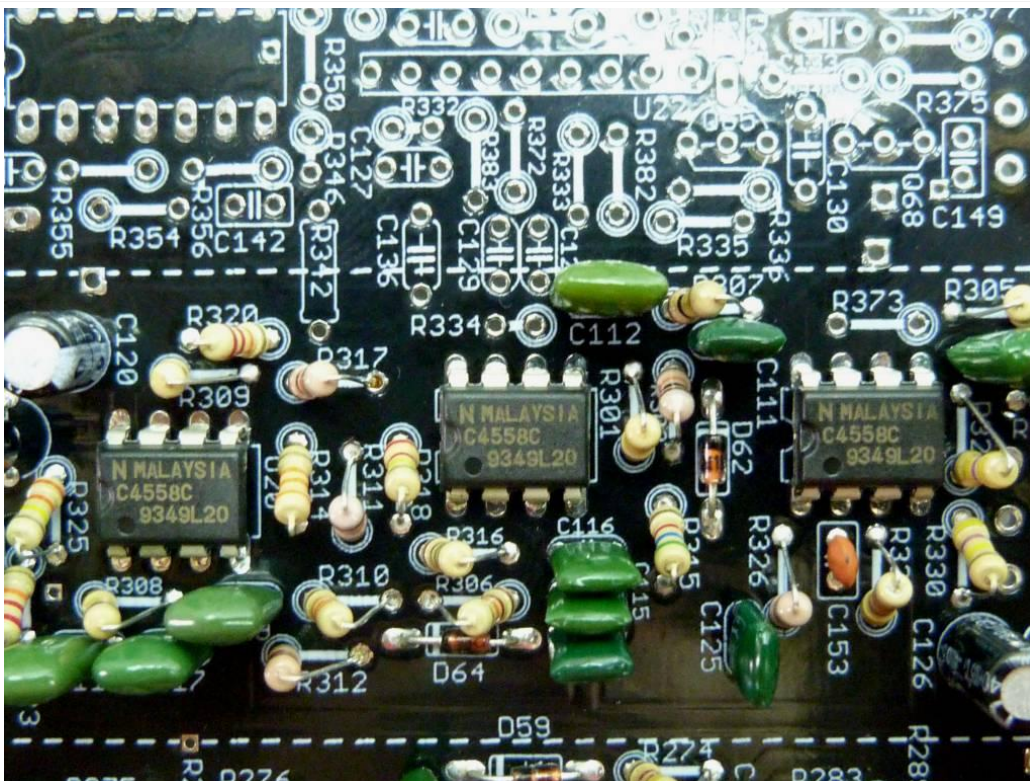
Solder transistors. Do not get confused between 2SA733, 2SC945 and 2SK30 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY

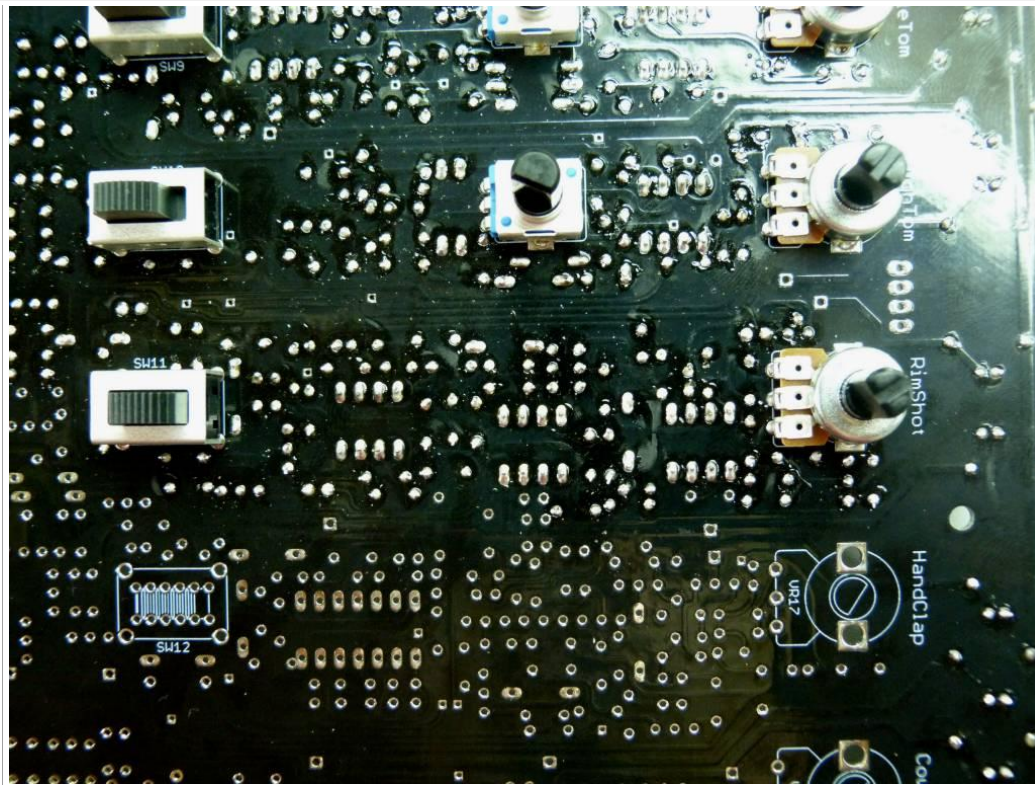


Connect the power transformer. Test 4558 power supply before solder. The green dot is -15V, the red dot is +15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . **Always check that the four wires from the power supply is well connected.**

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER . DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558s. To insert it into the PCB you have to bend the leads a little.












Finally return the PCB and solder potentiometer on the opposite side of components.

To assembly the switch, solder one lead of the switch and before soldering the other check that it is well pressed against the PCB.

You can then go to [HandClap](#) assembly

HandClap:

Assembling the handclap is more difficult than others. Because of component density we could not clearly marked on the circuit the name of each component. We really recommend you bring [Eagle](#) to confirm the location of a component for which you are unsure. To learn how to, go to the [YOCTO project](#) page. It is explained. List of components:

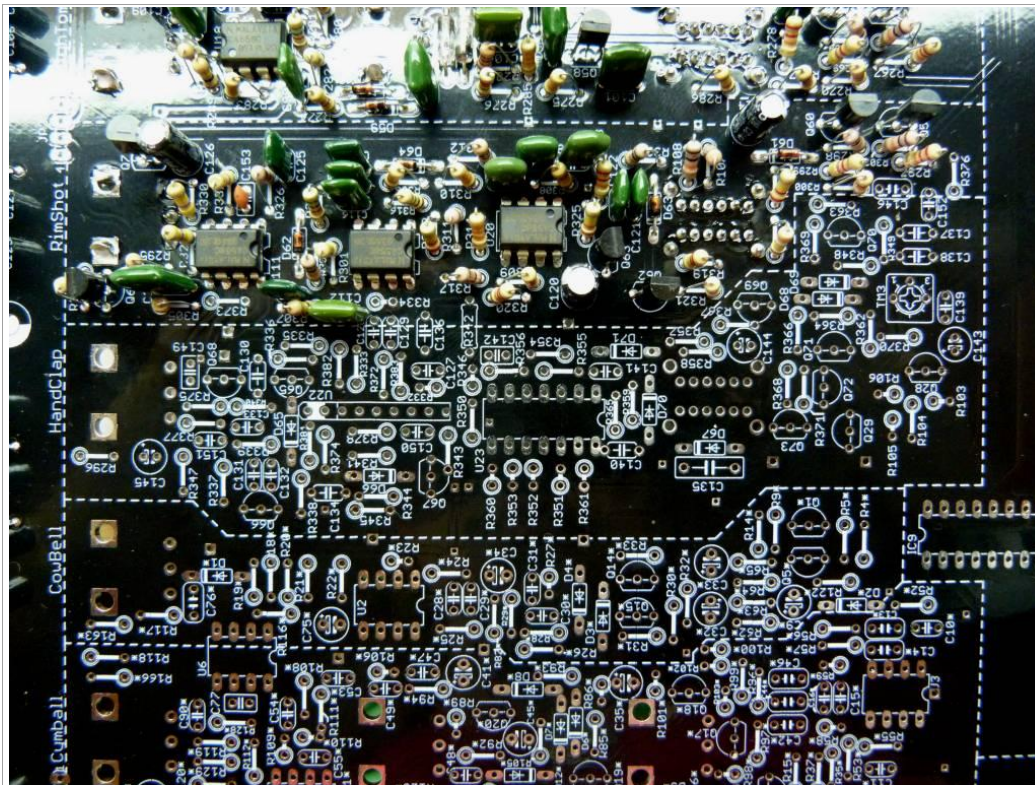
Image	Description	Part	Value	Qty
	Polyester capacitor (1n8J)	C127	1.8n	1
	Polyester capacitor (2A472J)	C128, C129, C152	4.7n	3
	Polyester capacitor (2A473J)	C130, C138	47n	2
	Polyester capacitor (2A103J)	C131, C151	10n	2
	Polyester capacitor (2A102J)	C132, C133, C141, C150	1n	4
	Polyester capacitor (2A333J)	C134, C137	33n	2
	Polyester capacitor (104J)	C135	100n	1
	Polyester capacitor (2A223J)	C136	22n	1
	Polyester capacitor (2A183J)	C139, C146	18n	2

	Polyester capacitor (2A273J)	C140	27n	1
	Polyester capacitor (221)	C142, C149	220p	2
	Electrolytic capacitor	C143	1/50	1
	Electrolytic capacitor	C144	0.47/50	1
	Electrolytic capacitor	C145	33/25	1
	Diode	D65, D66, D67, D68, D69, D70, D71	1N4148	7
	NPN Silicon Transistor	Q28, Q67, Q68, Q69, Q70, Q73	2SC945	6
	PNP Silicon Transistor	Q29, Q65, Q66, Q71, Q72	2SA733	5
	1/4w carbon resistor	R103, R361, R347	22K	3
	1/4w carbon resistor	R104, R337, R359, R363, R374, R106, R333, R200'	10K	8
	1/4w carbon resistor	R105, R351, R352, R353	4K7	4
	1/4w carbon resistor	R296, R381, R382	1K	3

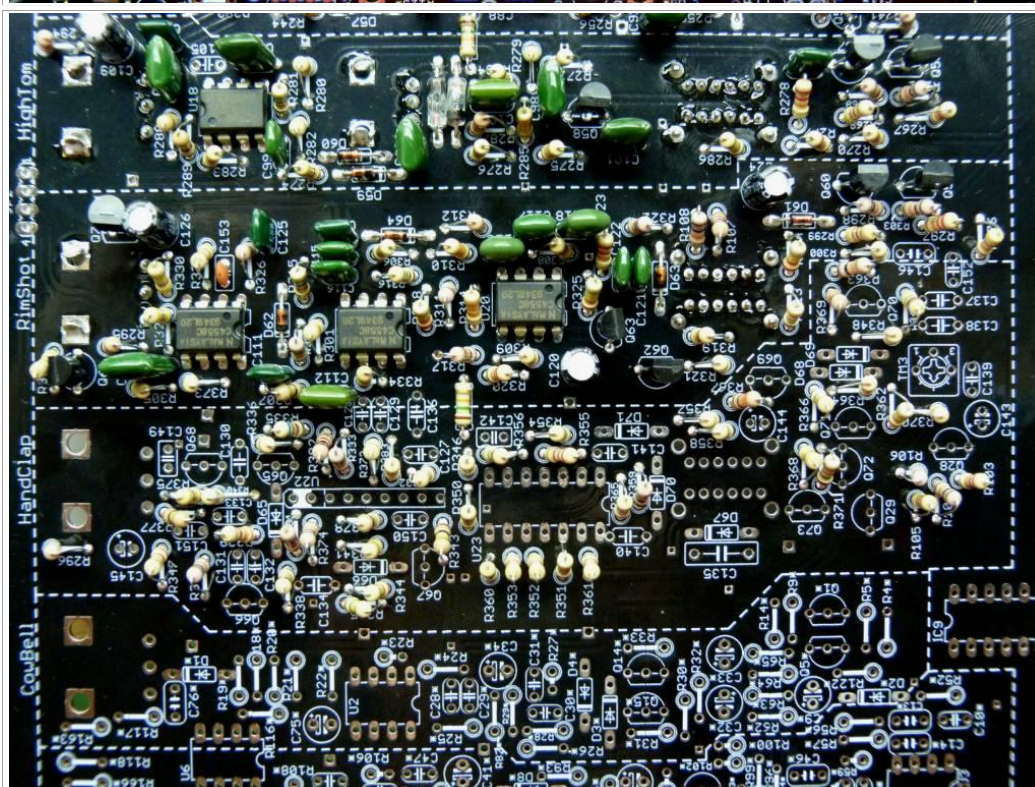
	1/4w carbon resistor	R332, R360	27K	2
	1/4w carbon resistor	R343, R377, R378	100K	3
	1/4w carbon resistor	R335	6K8	1
	1/4w carbon resistor	R336, R348, R349, R356, R350	1M	5
	1/4w carbon resistor	R338, R366, R371, R342	15K	4
	1/4w carbon resistor	R339	3K3	1
	1/4w carbon resistor	R340, R357, R358	68K	3
	1/4w carbon resistor	R341, R368, R375	470K	3
	1/4w carbon resistor	R344	220K	1
	1/4w carbon resistor	R345, R334	150K	2
	1/4w carbon resistor	R346	680	1
	1/4w carbon resistor	R354	5K6	1
	1/4w carbon resistor	R355	2K7	1

	1/4w carbon resistor	R362	330K	1
	1/4w carbon resistor	R364	2K2	1
	1/4w carbon resistor	R365, R383	82K	2
	1/4w carbon resistor	R367, R369	330	2
	1/4w carbon resistor	R370, R373, R376	47K	3
	1/4w carbon resistor	R372	39K	1
	4PDT switch	SW12	4PDT switch	1
	Trim Potentiometer (P103)	TM3	10K(B)	1
	Voltage controlled Operational Amplifier	U22	BA6110	1
	Quad Comparator	U23	AN6912	1
	Potentiometer (A104)	VR17	100K(A)	1

Make it:

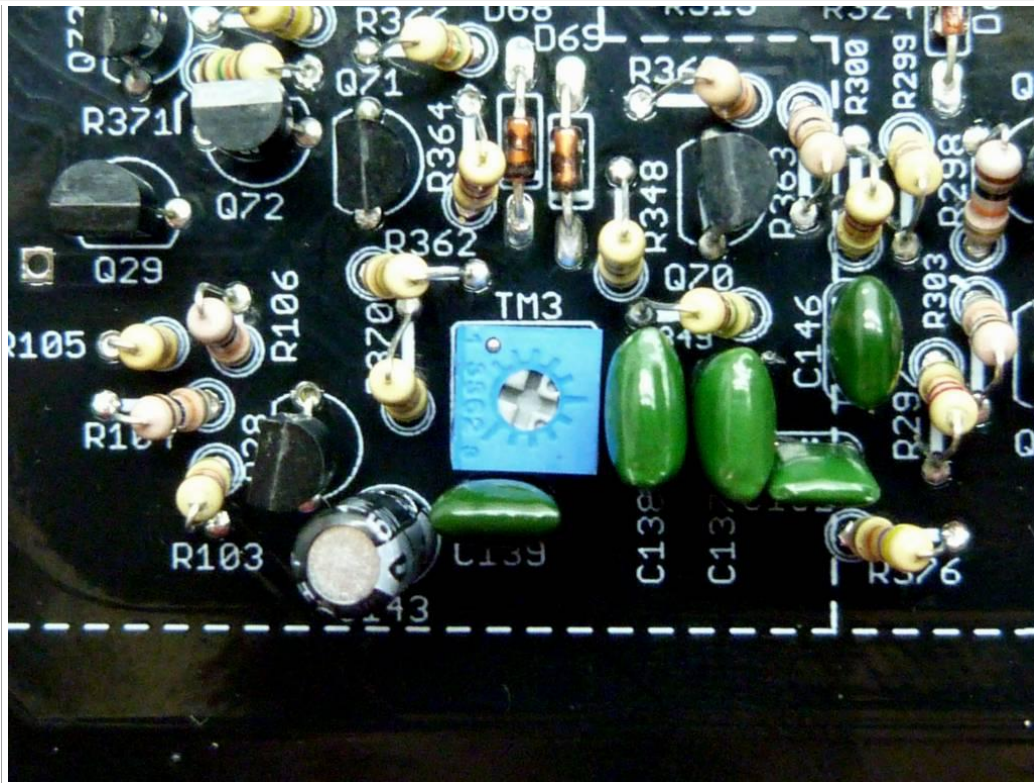


Here's the part about the HandClap. You see that there are more components than in the previous section, this is why you must be careful that you do. **Remember to look at the Eagle location of a component you are not sure.**

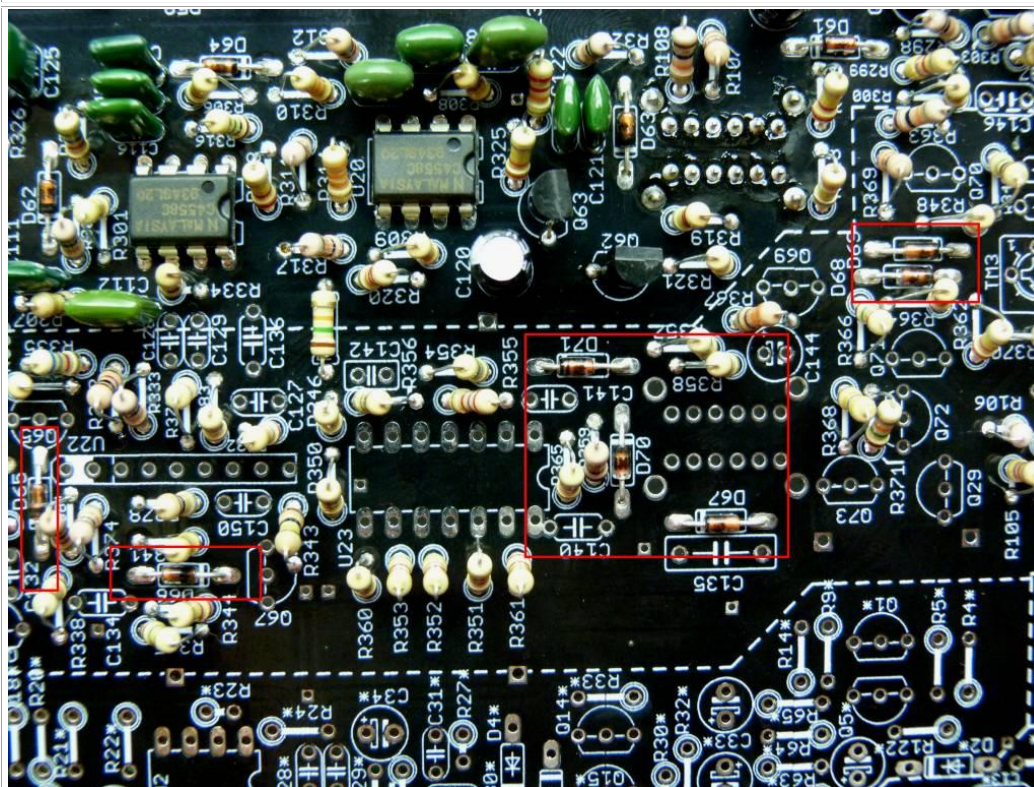


Solder all resistors.

Solder each value one after the other.

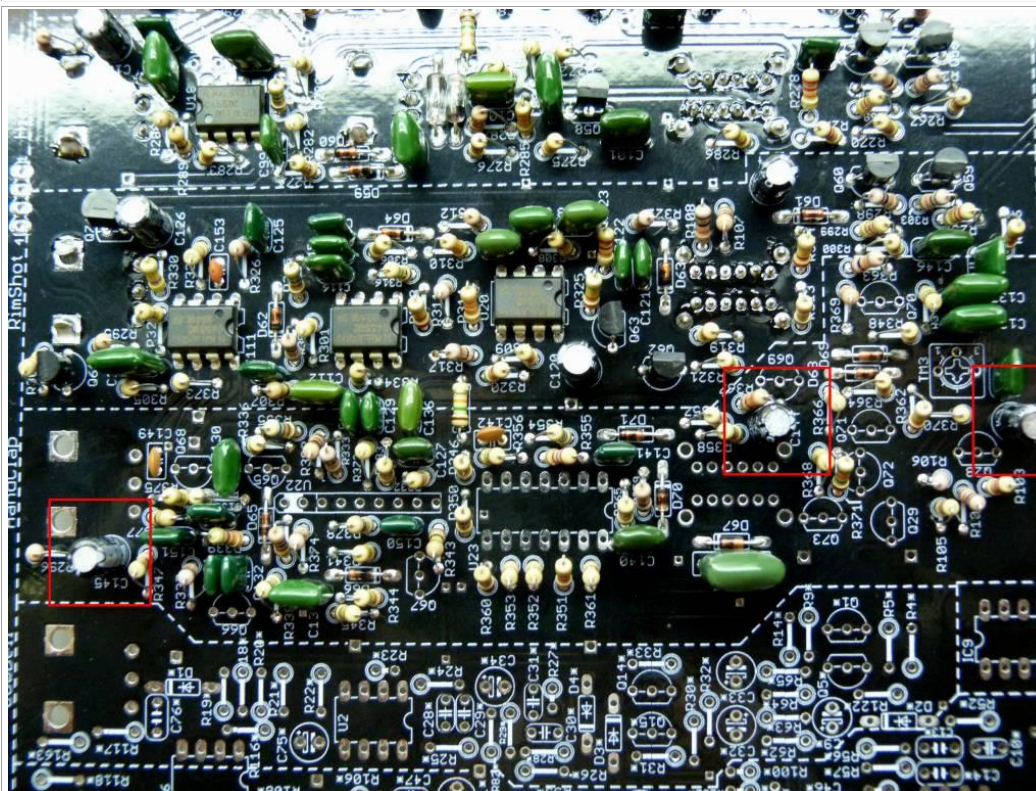
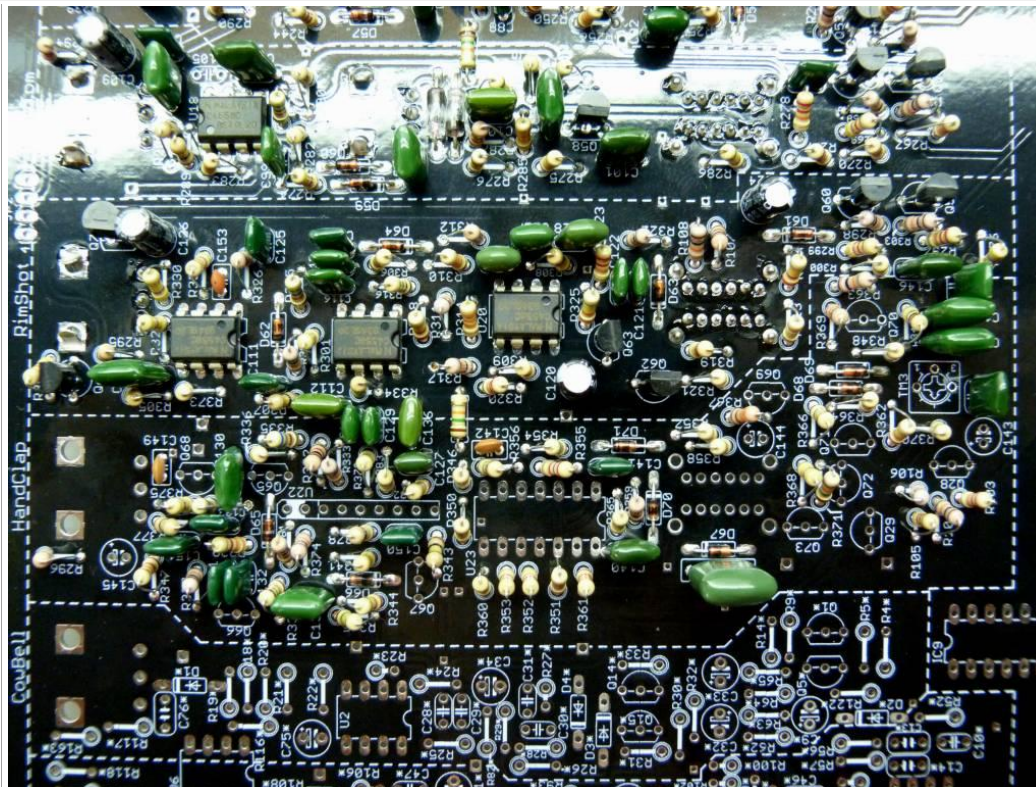


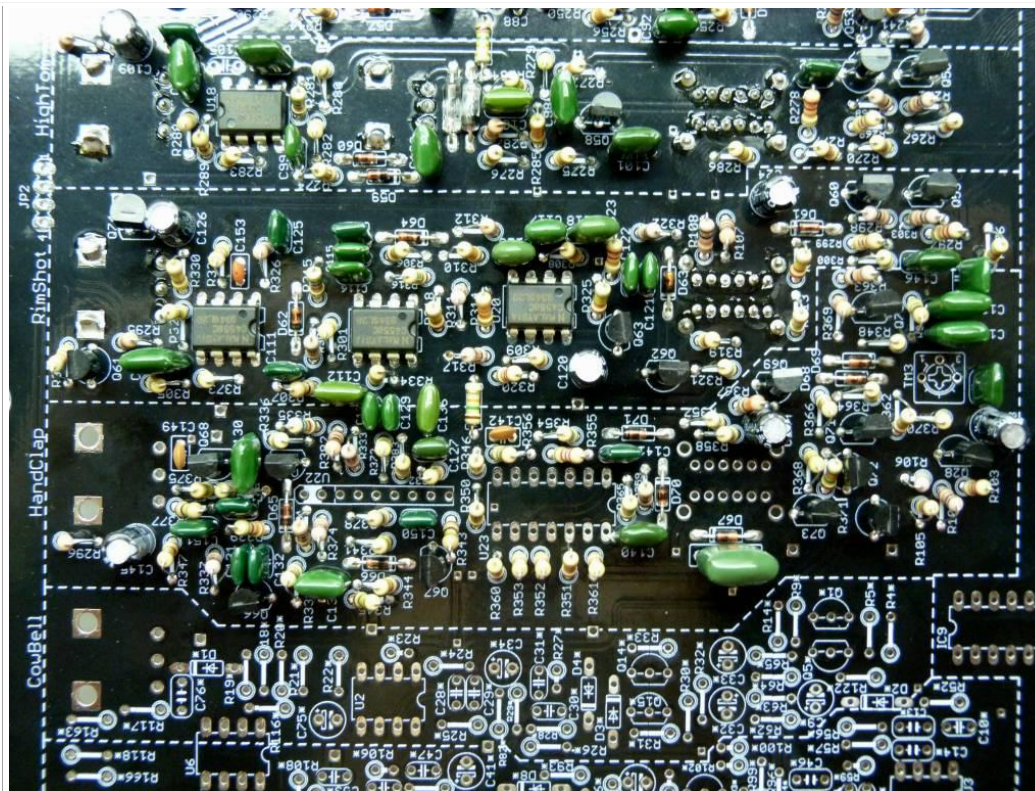
Then solder the trimmer TM3.



Install the 1N4148 diodes. Here in the red boxes.

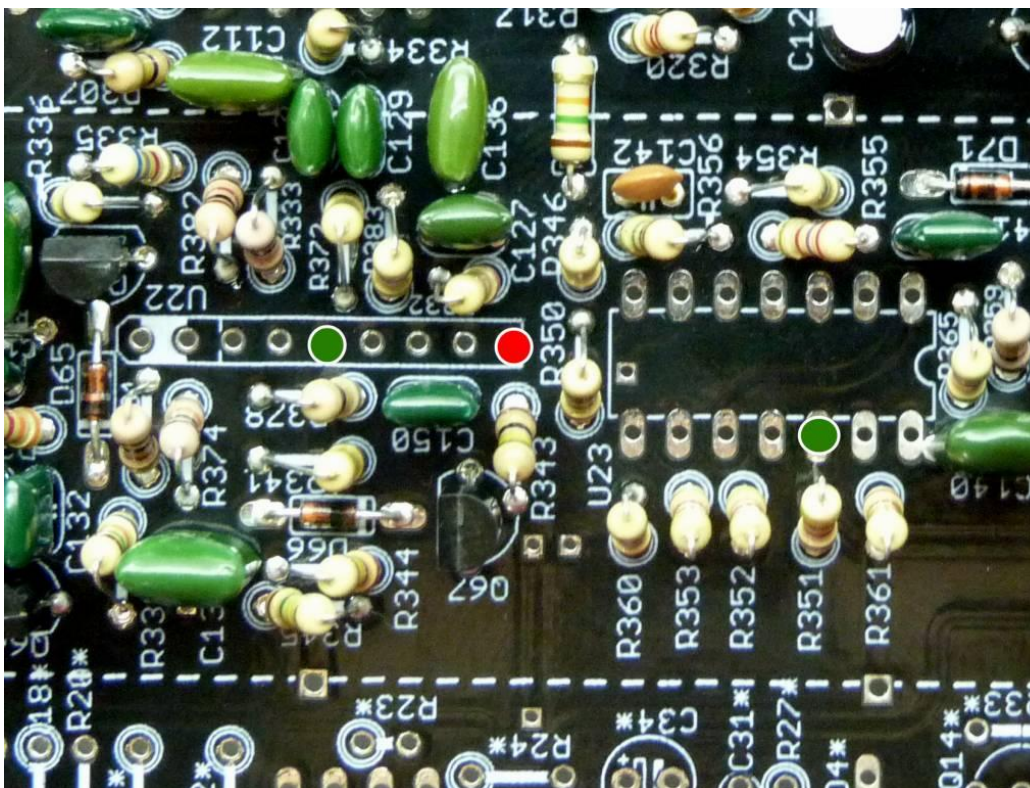
MAKE SURE DIODES ARE IN THE RIGHT WAY





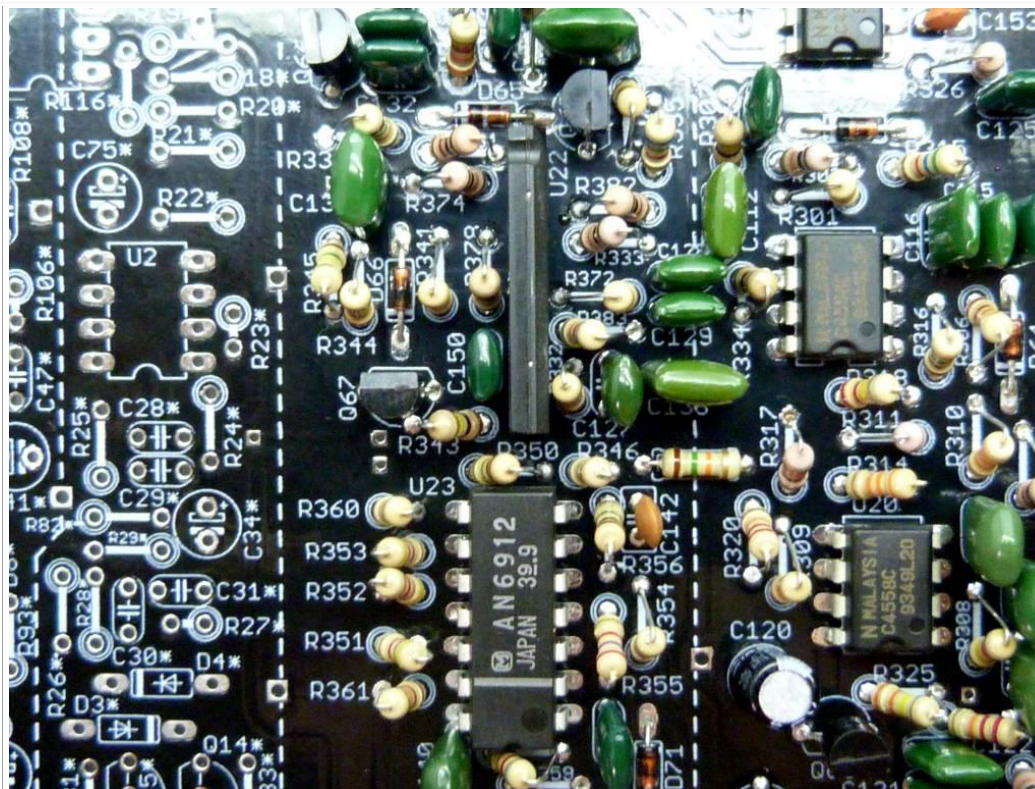
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY



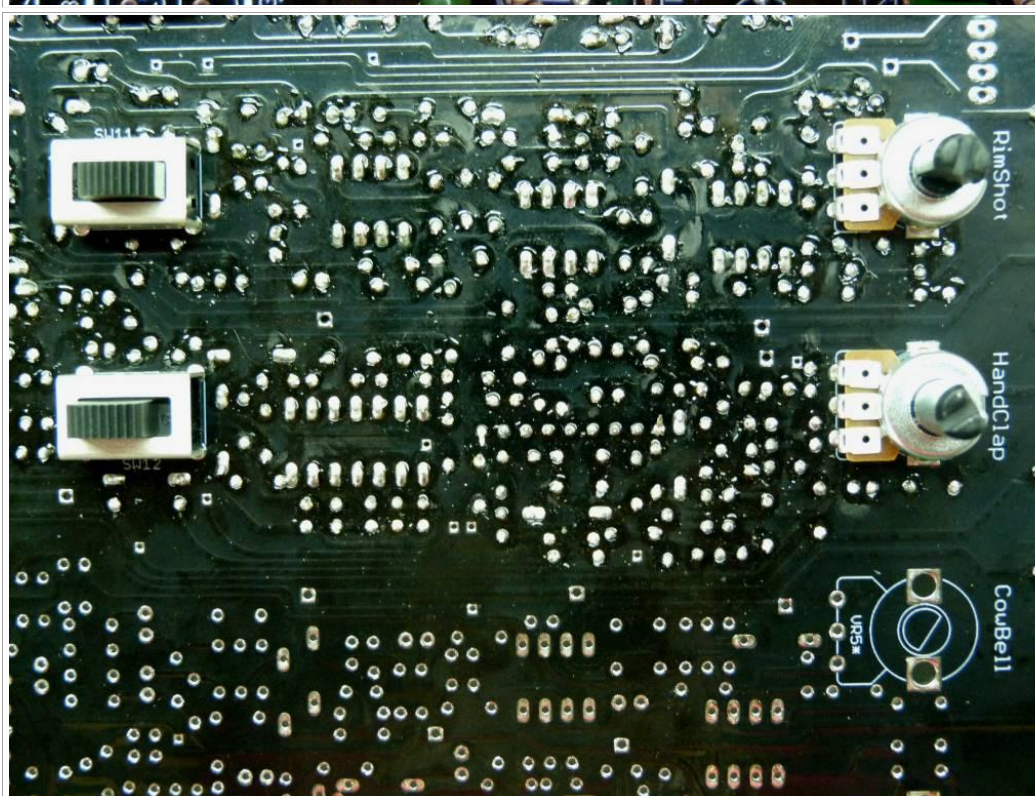
Connect the power transformer. Test BA6110 and AN6912 power supply. The green dot is -15V, the red dot is +15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . **Always check that the four wires from the power supply is well connected.**

**THEN DONT
FORGET TO
DISCONNECT
THE POWER
TRANSFORMER
. DO NOT
SOLDER
COMPONENT
AS THE
CIRCUIT IS
POWERED !**



Solder both ICs. To insert AN6912 into the PCB you have to bend the leads a little.

MAKE SURE BA6110 ARE IN THE RIGHT WAY












Finally return the PCB and solder the potentiometer and the switch on the opposite side of components.

Be careful to flatten the switch to the PCB before soldering all its leads.



You can then go to [Cowbell assembly](#)

CowBell:

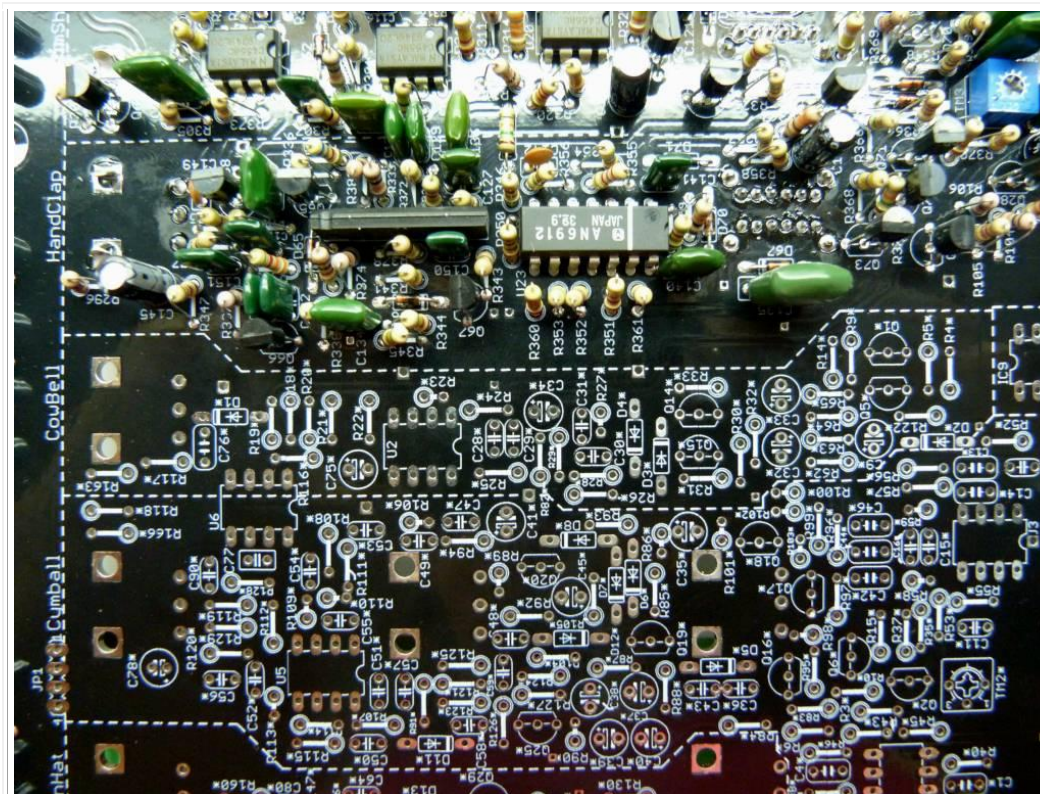
You will notice that all the names of components have a star to match the names on the original TR-808 schematic. The TR-808 have two different circuits for instruments (Main board and Voice board). As we have design a single circuit, we had components with same names due to the addition of the star. All components with a star in their name are the components of the TR-808 Voice board. Prepare all these components before beginning assembly. List of components:

Image	Description	Part	Value	Qty
	Polyester capacitor (2A103J)	C28*	10n	1
	Polyester capacitor (2A223J)	C76*	22n	1
	Polyester capacitor (2A332J)	C29*	3.3n	1
	Polyester capacitor (2A222J)	C30*, C31*	2.2n	2
	Electrolytic capacitor	C32*, C33*	10/25	2
	Electrolytic capacitor	C9*	0.47/50	1
	Electrolytic capacitor	C34*, C75*	1/50	2
	Diode	D1*, D2*, D3*, D4*	1N4148	4
	NPN Silicon Transistor	Q1*, Q14*, Q15*	2SC945	3

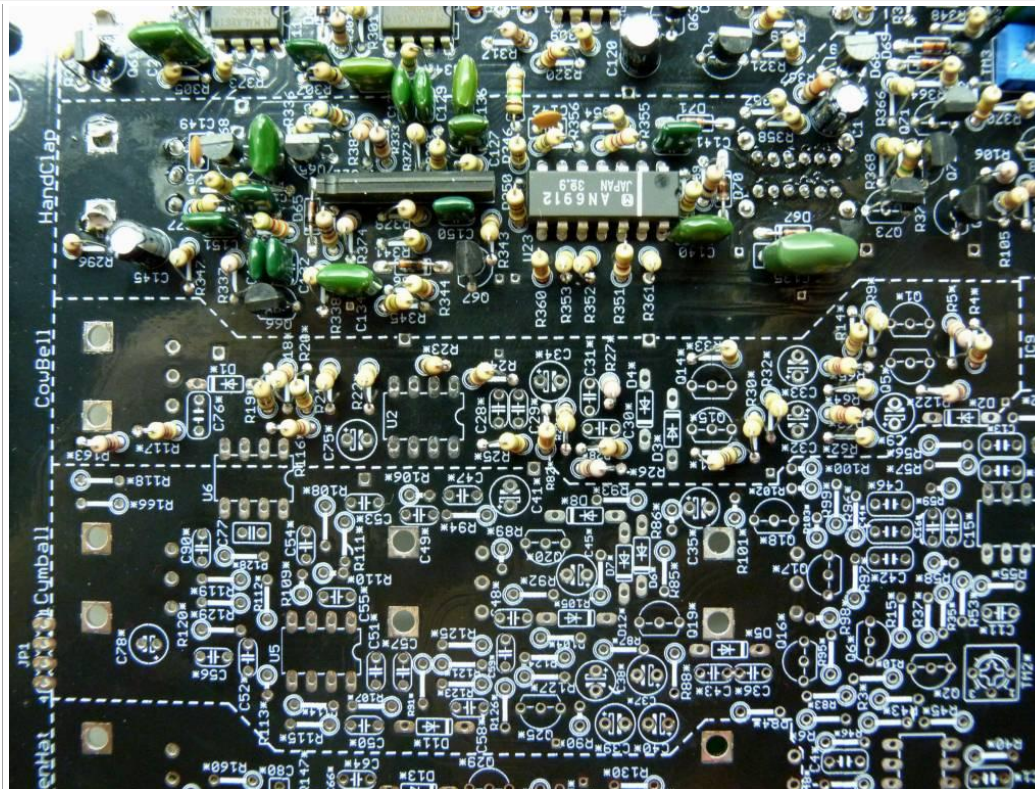
	PNP Silicon Transistor	Q5*	2SA733	1
	1/4w carbon resistor	R4*, R9*, R117*	22K	3
	1/4w carbon resistor	R5*, R26*, R27*	10K	3
	1/4w carbon resistor	R14*	4K7	1
	1/4w carbon resistor	R18*, R21*, R22*	3K3	3
	1/4w carbon resistor	R19*, R28*, R29*, R23*	100K	4
	1/4w carbon resistor	R20*	15K	1
	1/4w carbon resistor	R24*, R63*, R65*	2K2	3
	1/4w carbon resistor	R25*, R30*, R32*	470K	3
	1/4w carbon resistor	R31*, R33*	100R	2
	1/4w carbon resistor	R62*, R64*, R82*	33K	3
	1/4w carbon resistor	R116*	8K2	1
	1/4w carbon resistor	R122*, R163*	1K	2

	Dual Operational Amplifier	U2, U6	μPC4558C	2
	Potentiometer (A502)	VR5*	5KA	1

Make it:

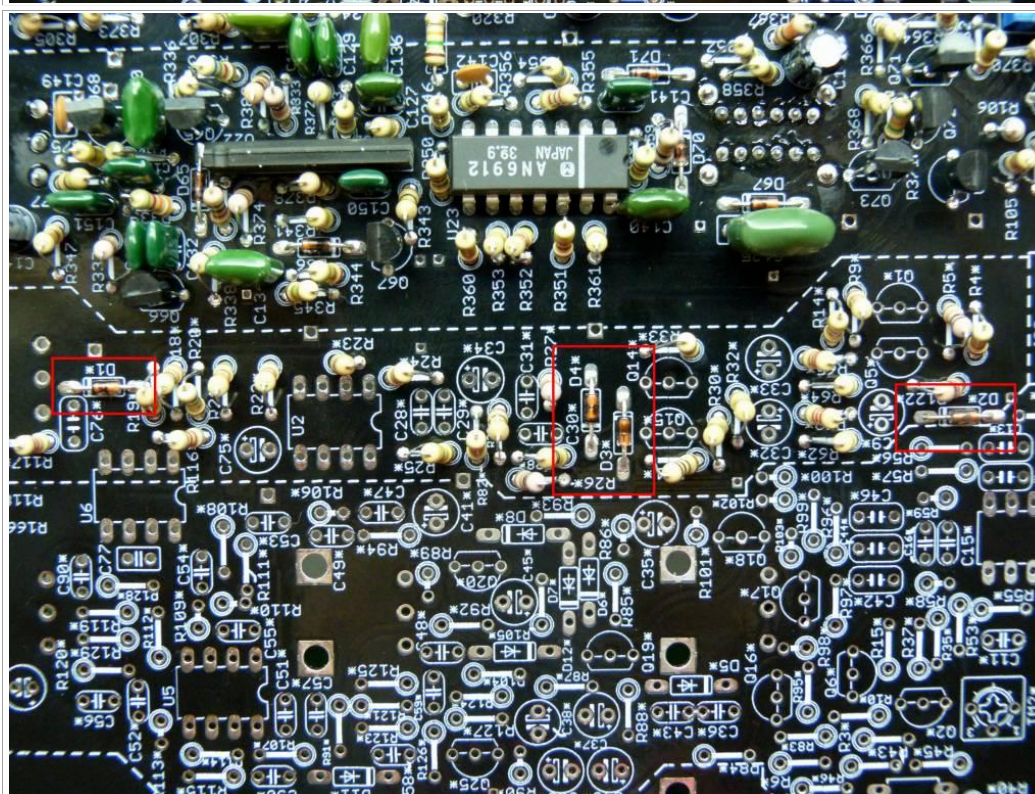


Here is the Cowbell.



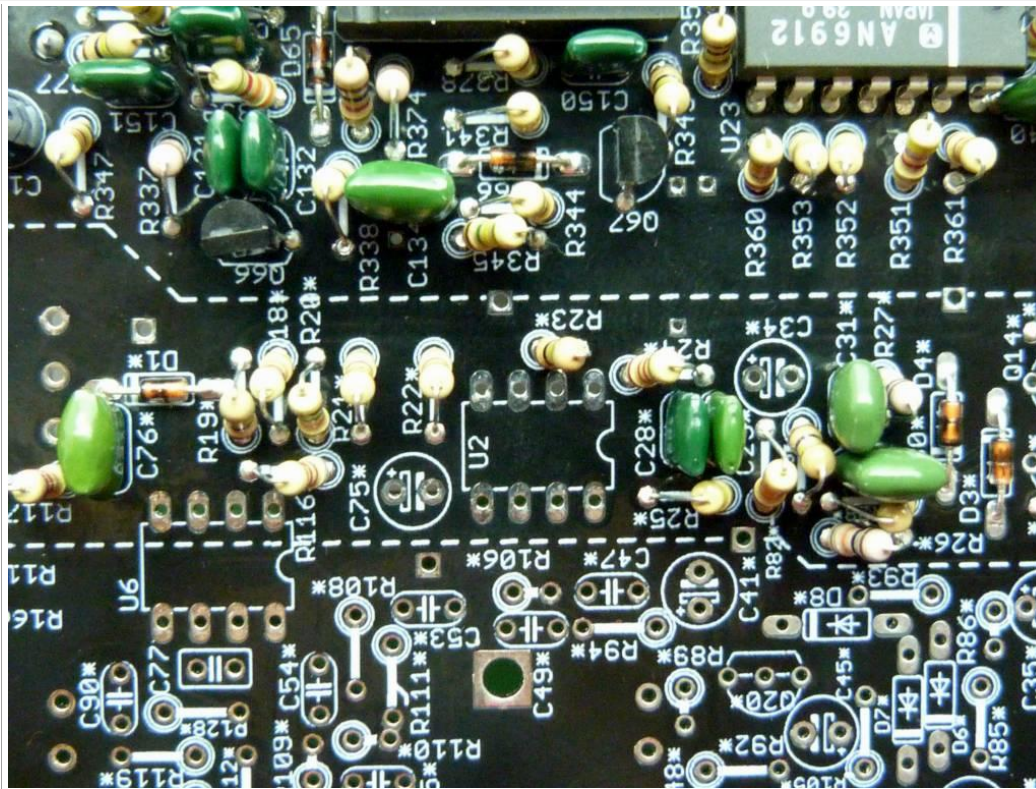
Solder all resistors.

Solder each value one after the other.

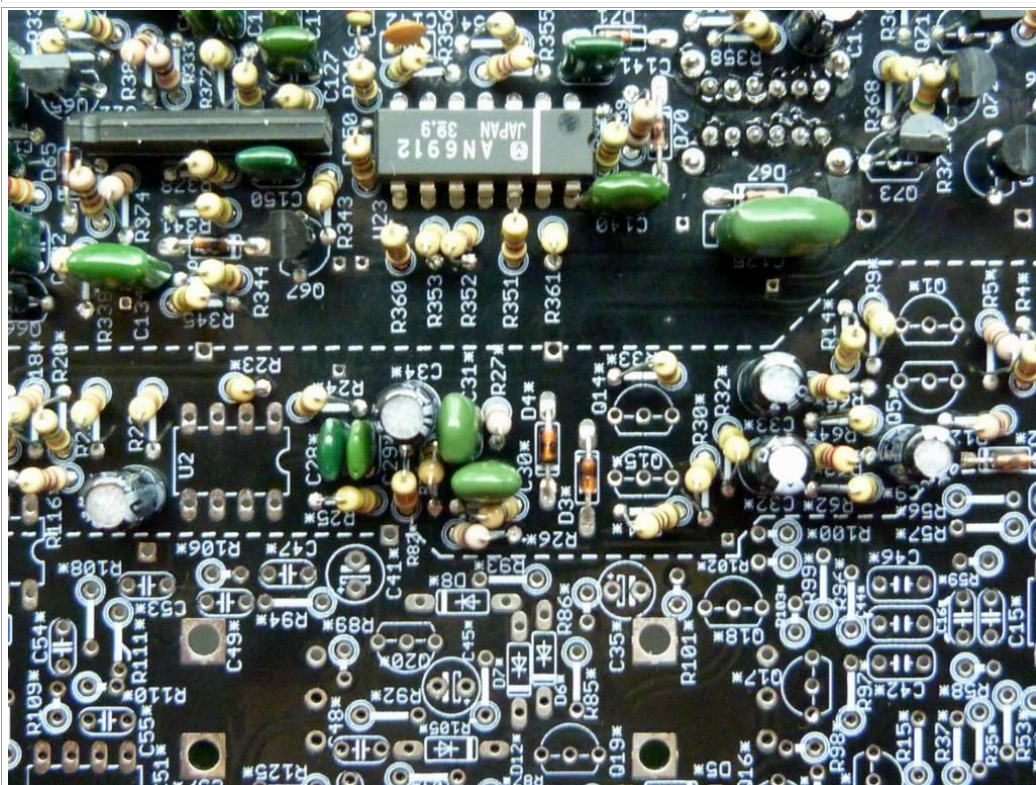


Solder the four diodes 1N4148

MAKE SURE DIODES ARE IN THE RIGHT WAY

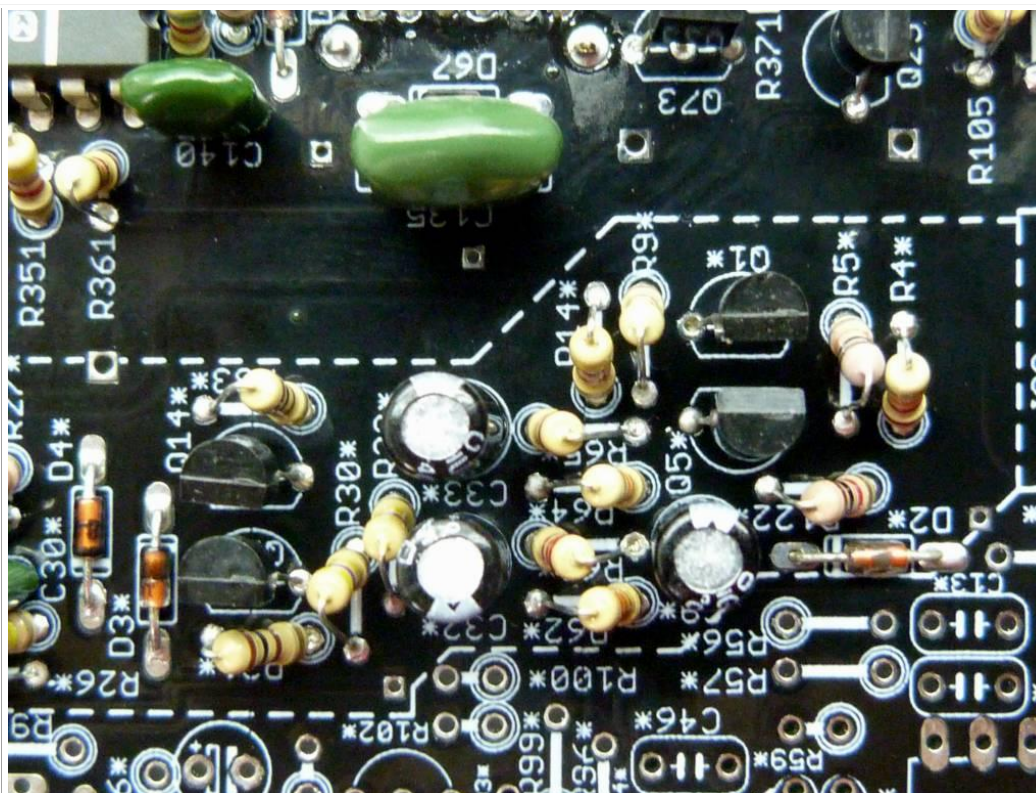


Solder
polyesters
capacitors



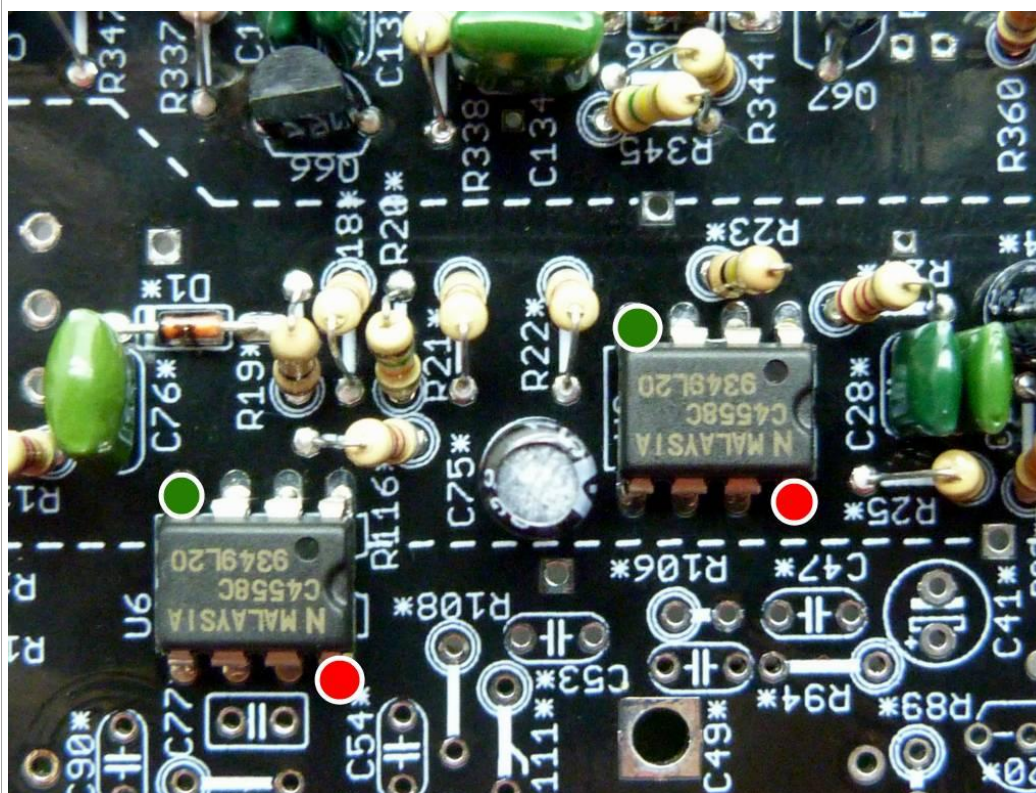
Solder
electrolytic
capacitors

**MAKE SURE
ELECTROLYTICS
CAPACITORS
ARE IN THE
RIGHT WAY**



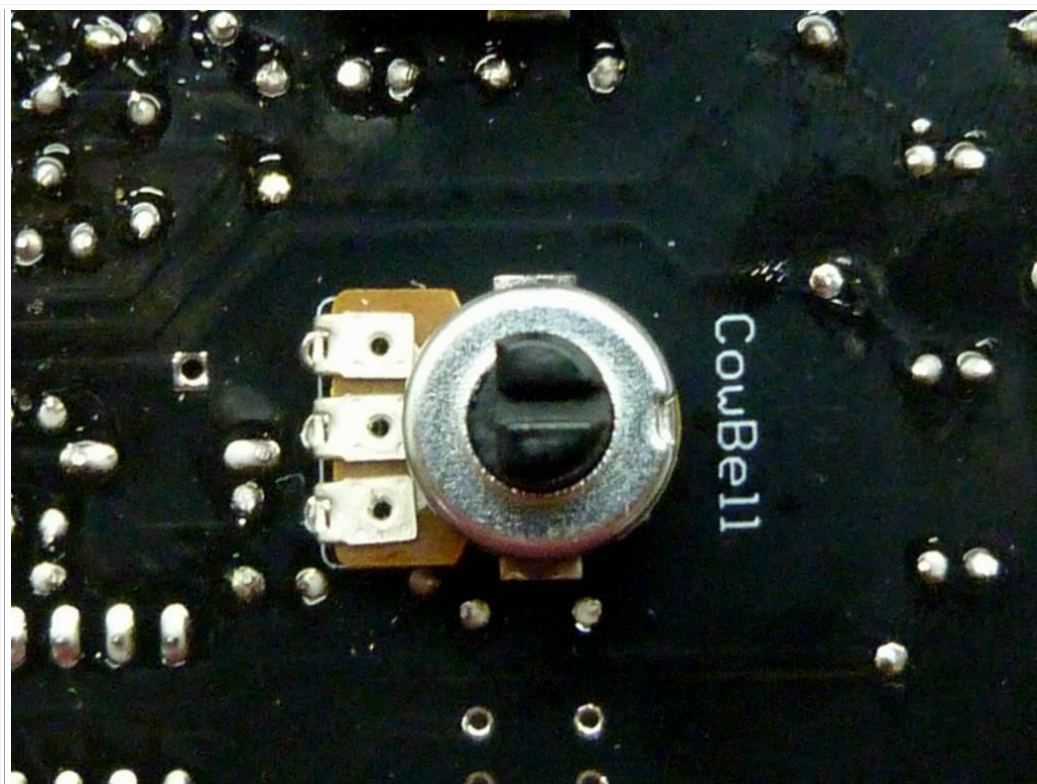
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY



Connect the power transformer. Test 4558 power supply **before solder**. The green dot is -15V, the red dot is +15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . **Always check that the four wires from the power supply is well connected.**

**THEN DONT
FORGET TO
DISCONNECT
THE POWER
TRANSFORMER
. DO NOT
SOLDER
COMPONENT
AS THE
CIRCUIT IS
POWERED !**







Finally return the PCB and solder the potentiometer on the opposite side of components.

You can then go to [Cymbal assembly](#)














Cymbal:

The Cymbal circuit includes the both Cowbell oscillators. To adjust these two oscillators you need an oscilloscope. If you don't have one you can use your computer sound card as an oscilloscope with this small software [SoundCard Oscilloscope](#). Prepare all components before assembly.

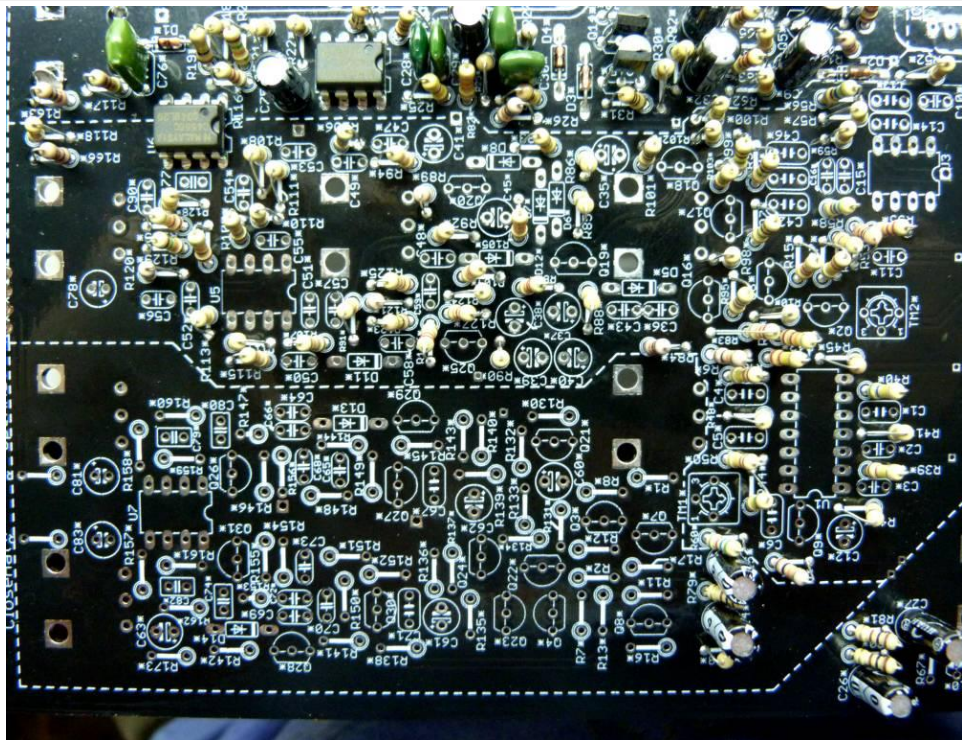
List of components:

Image	Description	Part	Value	Qty
	Polyester capacitor (2A183J)	C1*, C4*, C5*	18n	3
	Polyester capacitor (2A103J)	C2*, C3*, C55*, C56*, C58*, C90*	10n	6
	Polyester capacitor (2A223J)	C6*, C42*, C44*, C46*	22n	4
	Polyester capacitor (2A332J)	C10*, C15*, C16*, C49*, C57*	3.3n	5

	Polyester capacitor (2A682J)	C13*, C14*	6.8n	2
	Polyester capacitor (2A152J)	C36*, C43*, C47*, C48*, C50*, C59*	1.5n	6
	Ceramic capacitor (221)	C77*	220p	1
	Polyester capacitor (2A102J)	C11*, C51*, C52*, C53*, C54*	1n	5
	Electrolytic capacitor	C12*	100/10	1
	Electrolytic capacitor	C35*	47/16	1
	Electrolytic capacitor	C37*, C45*	2.2/50	2
	Electrolytic capacitor	C38*, C40*, C41*	1/50	3
	Electrolytic capacitor	C39*	0.47/50	1
	Electrolytic capacitor	C78*	33/25	1
	Diode	D5*, D6*, D7*, D8*, D11*, D12*	1N4148	6
	NPN Silicon Transistor	Q2*, Q9*, Q16*, Q17*, Q18*, Q19*, Q20*, Q25*	2SC945	8

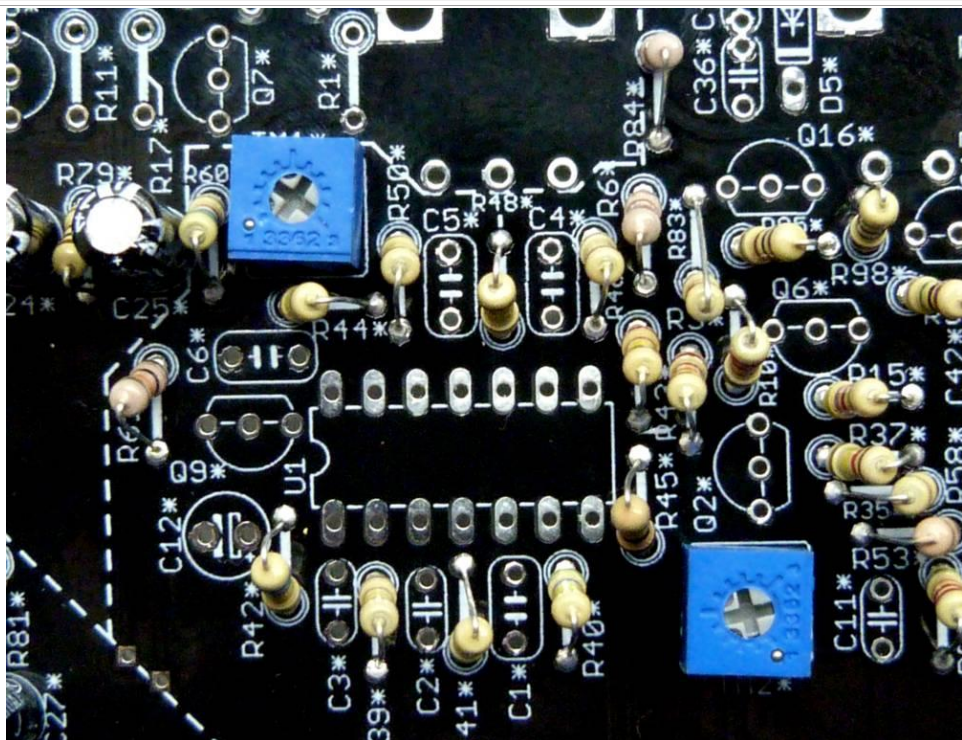
	PNP Silicon Transistor	Q6*	2SA733	1
	1/4w Carbon resistor	R3*, R10*, R55*, R83*, R87*, R104*, R108*, R112*, R119*, R124*, R126*	22K	11
	1/4w Carbon resistor	R6*, R61*, R84*, R120*, R121*, R89*	10K	6
	1/4w Carbon resistor	R15*	4K7	1
	1/4w Carbon resistor	R35*, R37*, R39*, R46*, R48*, R50*	120K	6
	1/4w Carbon resistor	R40*, R41*	560K	2
	1/4w Carbon resistor	R42*	680K	1
	1/4w Carbon resistor	R43*	220K	1
	1/4w Carbon resistor	R44*	150K	1
	1/4w Carbon resistor	R45*, R123*	100K	2
	1/4w Carbon resistor	R52*, R88*, R90*, R91*, R92*, R105*	33K	6
	1/4w Carbon resistor	R53*, R166*	1K	2
	1/4w Carbon resistor	R56*, R58*	560R	2

	1/4w Carbon resistor	R57*, R127*, R59*	82K	3
	1/4w Carbon resistor	R60*	5K6	1
	1/4w Carbon resistor	R85*, R95*, R86*, R98*, R101*	100R	5
	1/4w Carbon resistor	R93*, R128*	470K	2
	1/4w Carbon resistor	R94*, R114*, R115*, R110*	39K	4
	1/4w Carbon resistor	R96*, R97*, R99*, R100*, R102*, R103*	1M	6
	1/4w Carbon resistor	R106*	6K8	1
	1/4w Carbon resistor	R107*, R111*, R109*, R113*	18K	4
	1/4w Carbon resistor	R118*	47K	1
	1/4w Carbon resistor	R125*	2K2	1
	1/4w Carbon resistor	R129*	15K	1
	Trim potentiometer (254P)	TM1*, TM2*	250KB	2
	Hex schmitt trigger	U1	4584N	1

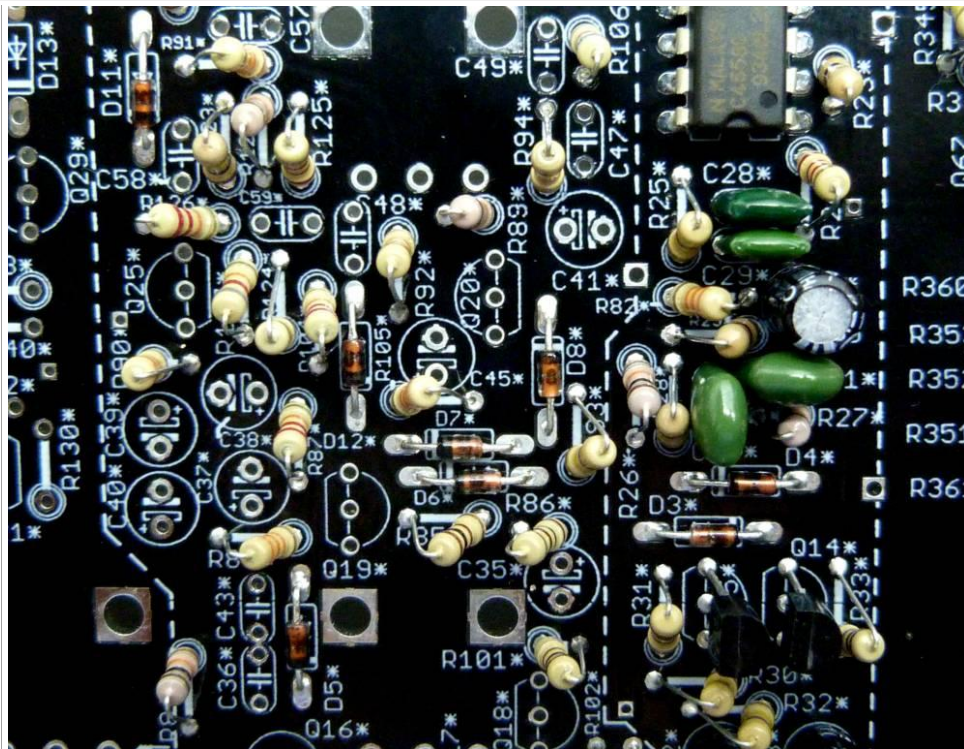


Assembly the resistors.
If you can not find the
location of a resistor,
use Eagle.

Solder each value one
after the other.

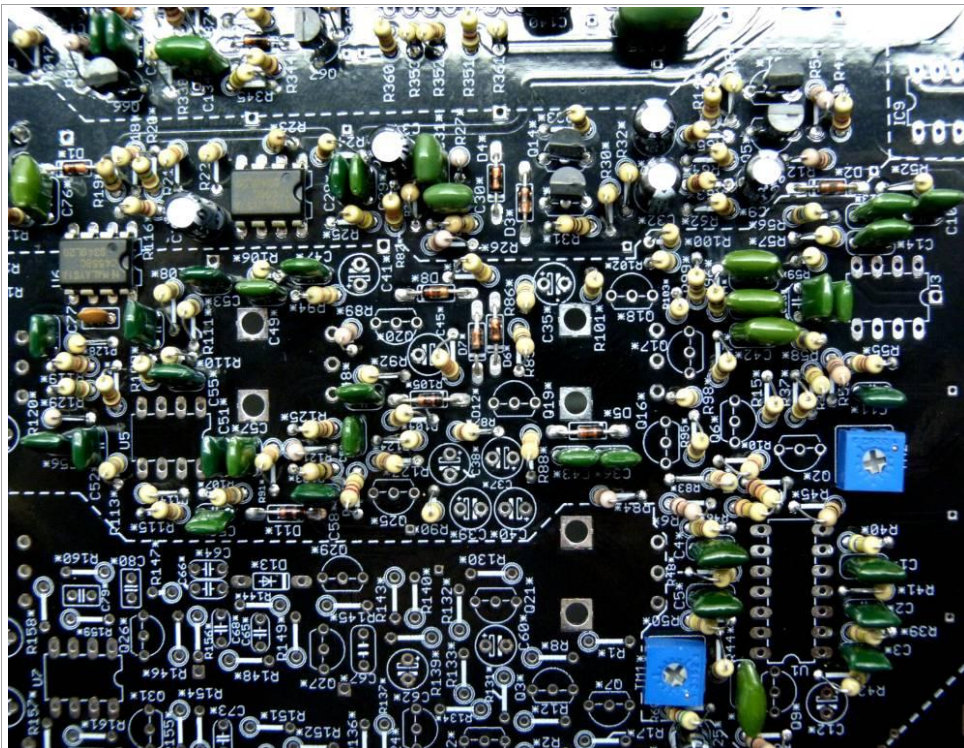


Solder TM1* and TM2*.

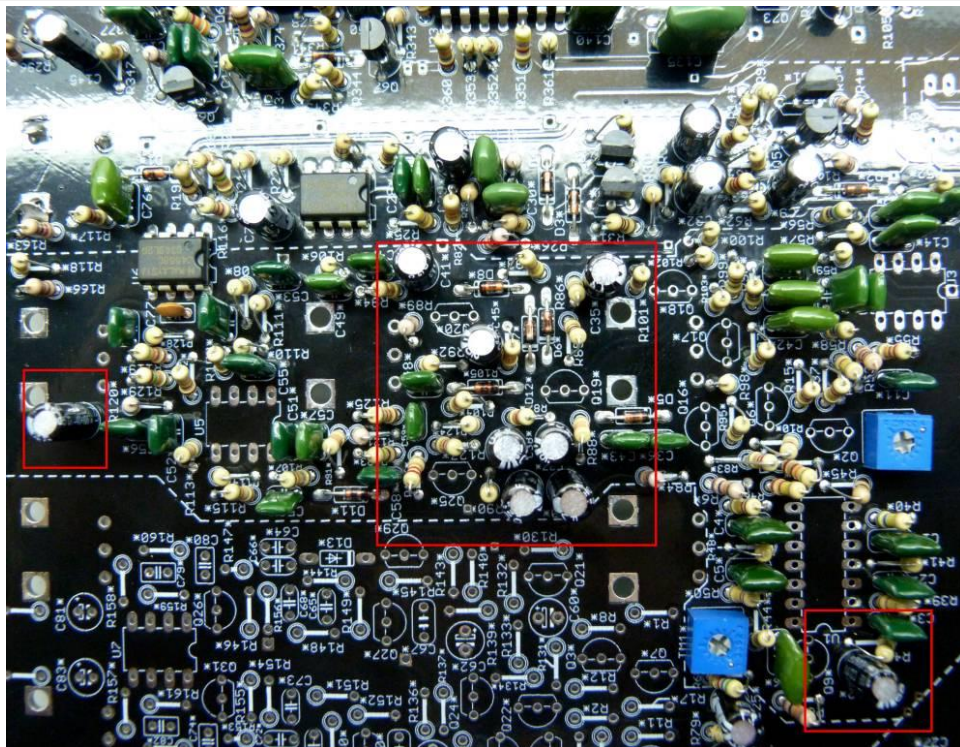


Solder the diodes
1N4148

MAKE SURE DIODES ARE IN THE RIGHT WAY

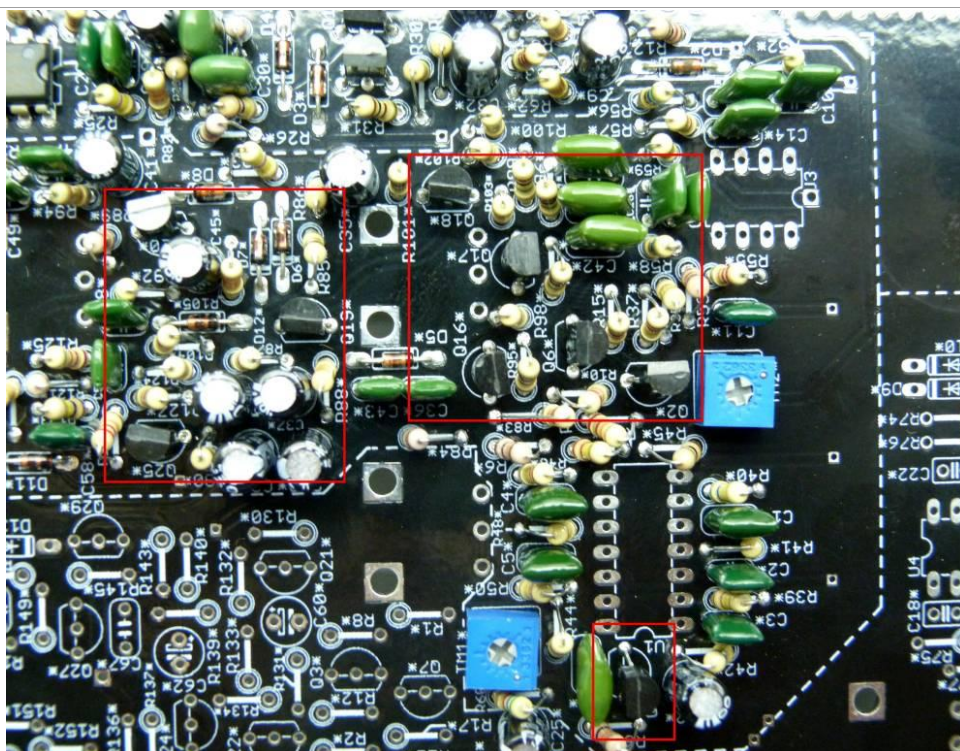


Solder polyesters capacitors



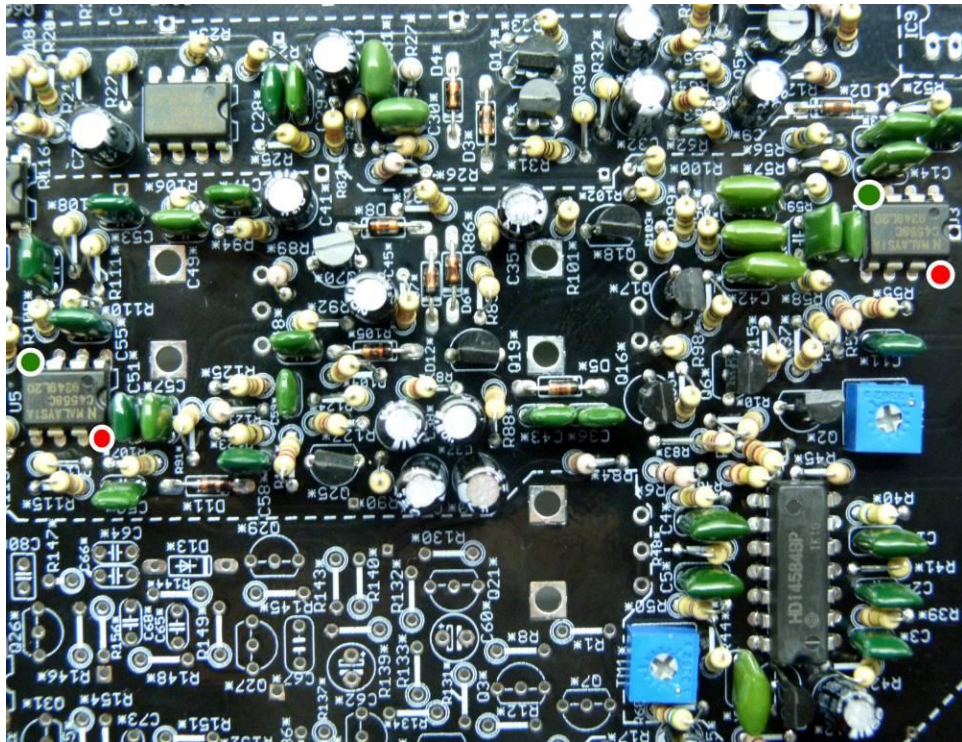
Solder electrolytic capacitors

**MAKE SURE
ELECTROLYTICS
CAPACITORS ARE IN
THE RIGHT WAY**



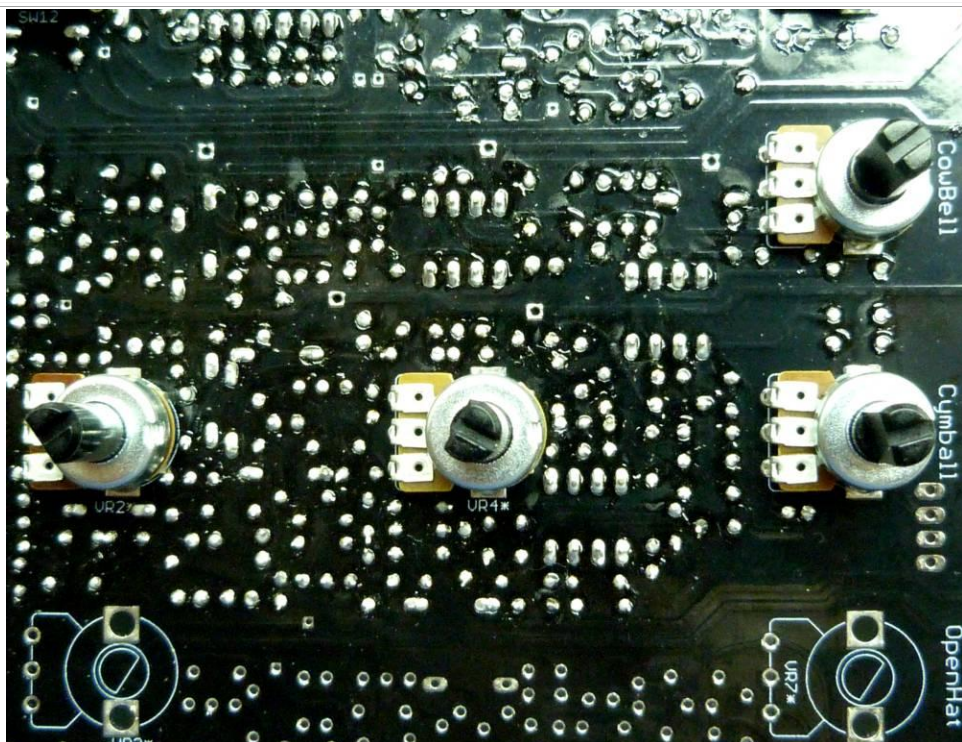
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

**MAKE SURE
TRANSISTORS ARE IN
THE RIGHT WAY**



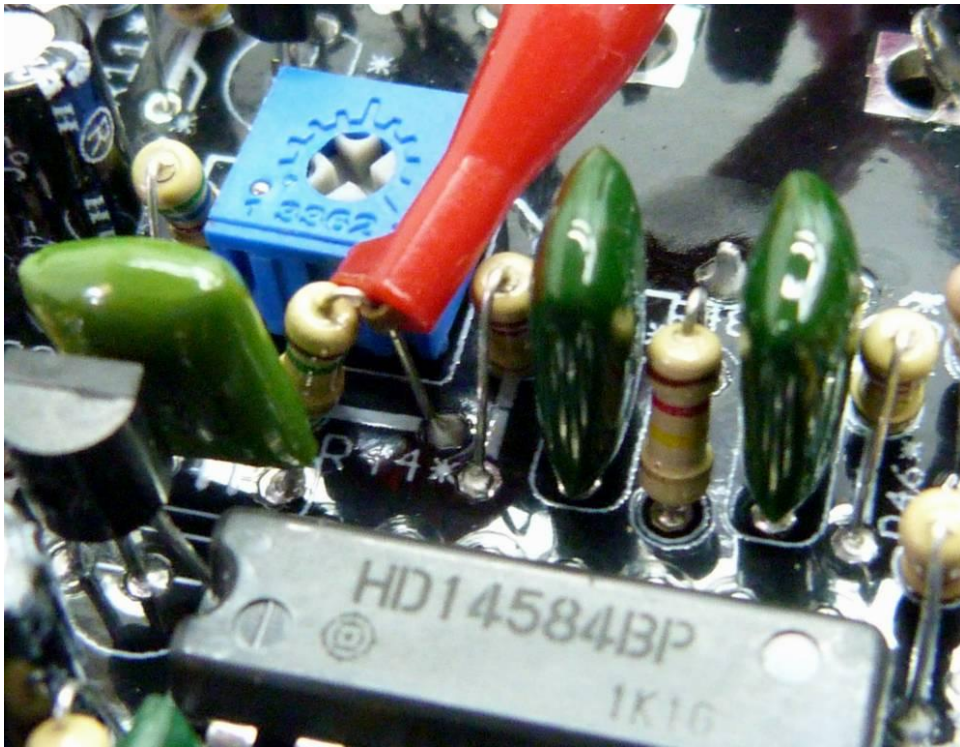
Connect the power transformer. Test 4558s power supply **before solder**. The green dot is -15V, the red dot is +15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . **Always check that the four wires from the power supply is well connected.**

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !

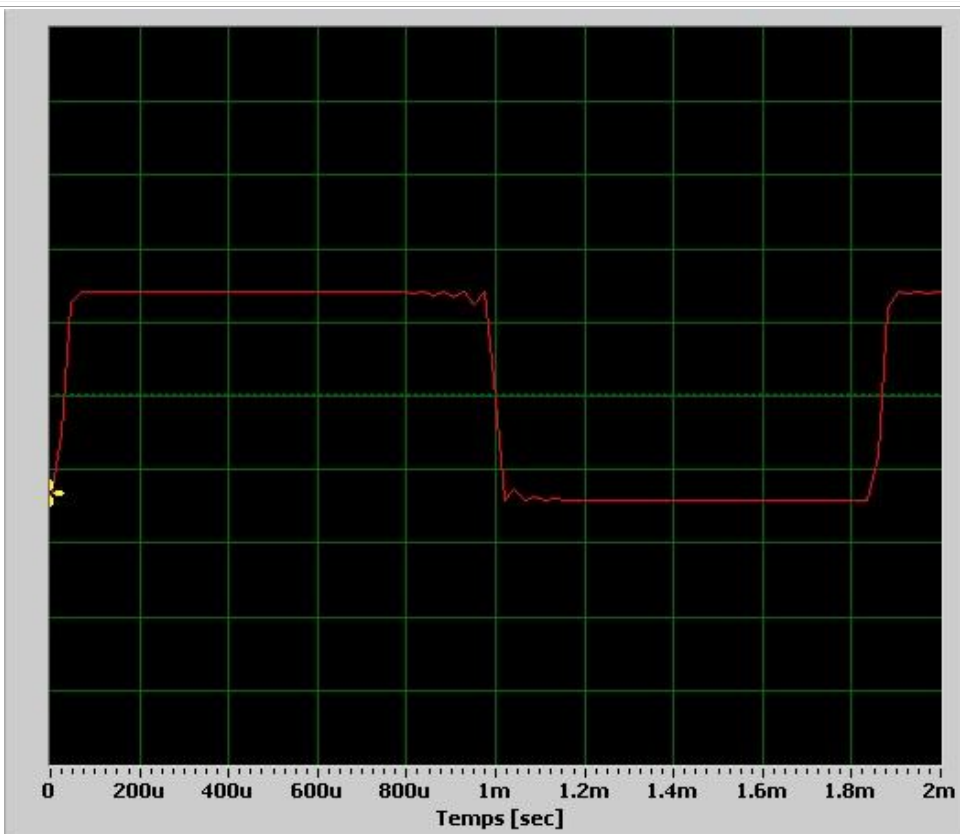


Finally return the PCB and solder potentiometers on the opposite side of components.

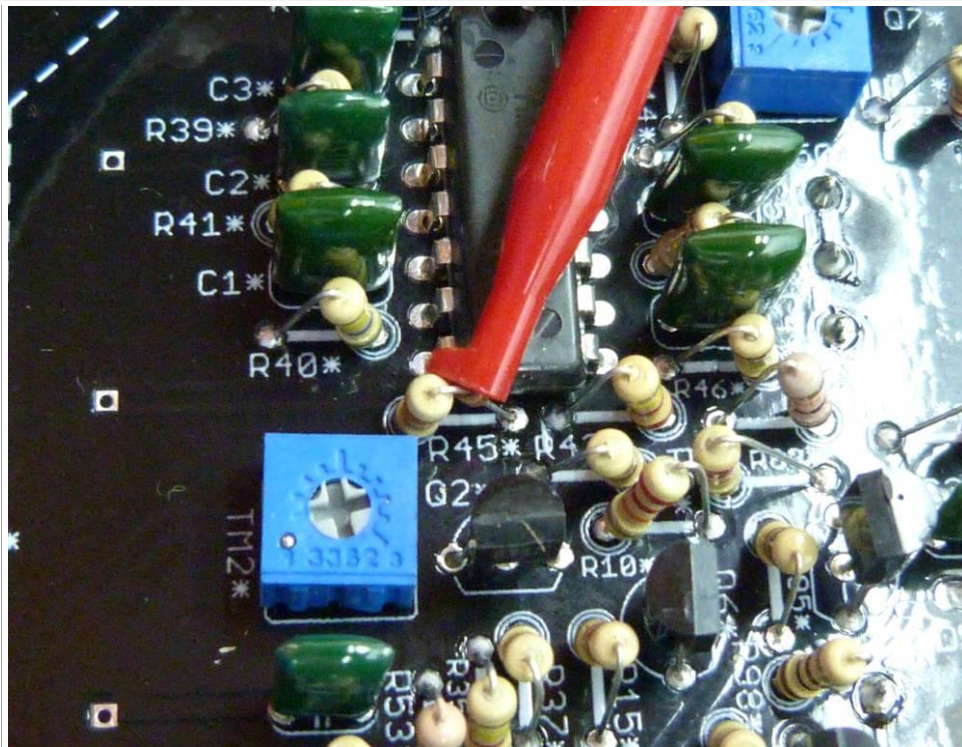
DO NO WRONG IN THE VALUES OF POTENTIOMETERS, ALL THREE POTENTIOMETERS ARE DIFFERENT.



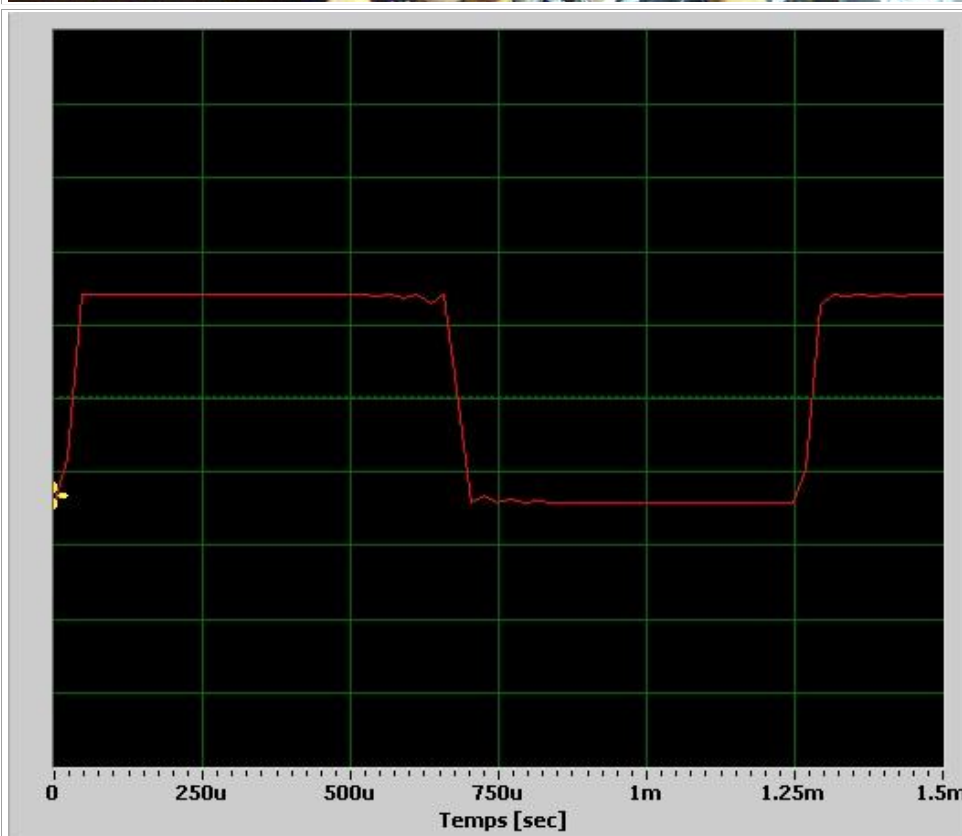
Connect the power transformer. Connect your oscilloscope on R44 * as shown in the picture.



Adjust TM1* up to a period of 1.85ms. If TM1* adjustment range is not large enough for this period change the value of R44 * per a resistor of 100Kohm. (supplied in kit)



Then connect your oscilloscope on R45 * as shown in the picture.



Adjust TM2 * up to a period of 1.25ms. If TM2* adjustment range does not allow you to get this period change the value of R45 * per 68kohm. (Supplied with the kit).

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER.

You can then go to [Hi Hats assembly](#)

Hi Hats:

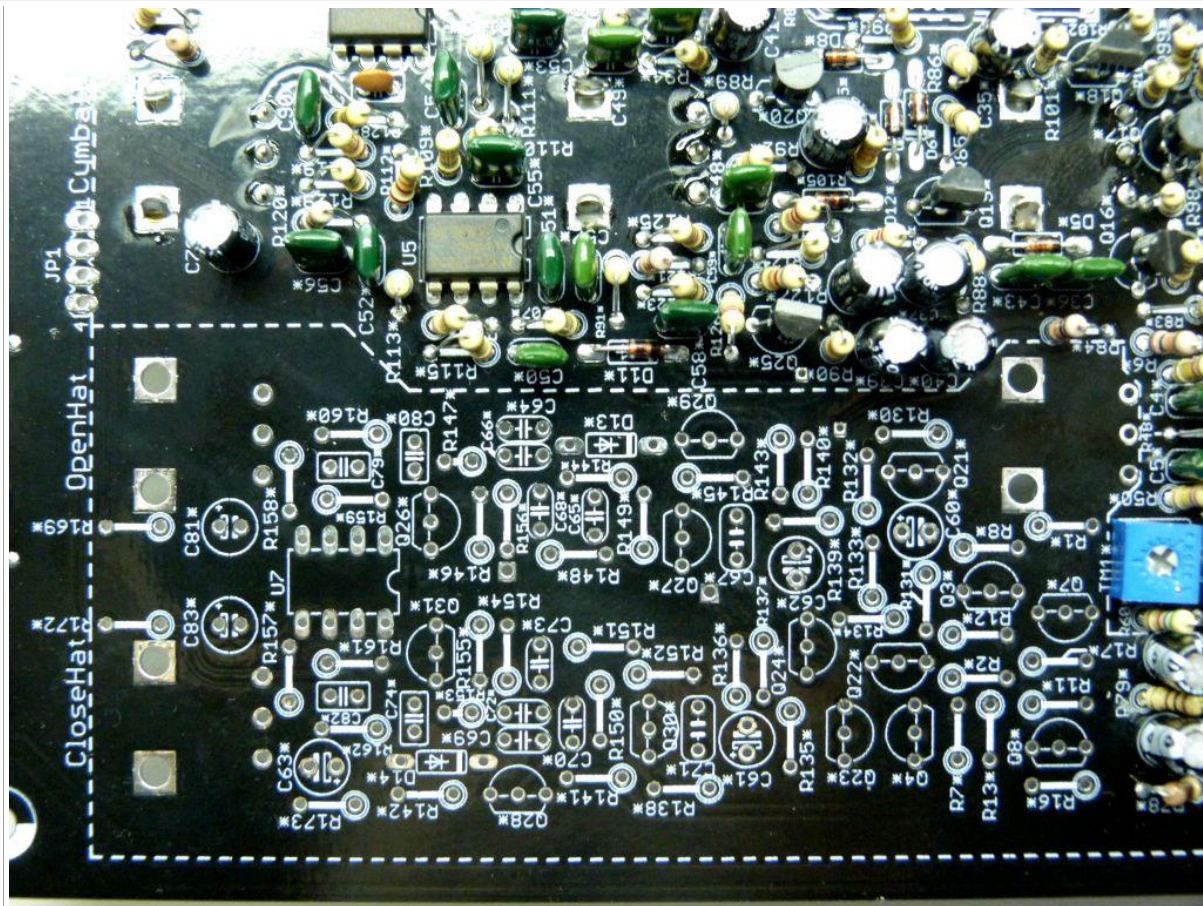
Finally, the last instrument to build. Prepare components before beginning assembly. Here is the list of components for Hi Hat:

Image	Description	Part	Value	Qty
	Polyester capacitor (2A152J)	C64*, C65*, C66*, C68*, C69*, C70*	1.5n	6
	Polyester capacitor (2A223J)	C67*, C71*	22n	2
	Polyester capacitor (2A102J)	C72*, C73*	1n	2
	Polyester capacitor (2A471J)	C74*, C80*	470p	2
	Polyester capacitor (221)	C79*, C82*	220p	2
	Electrolytic capacitor	C60*	10/25	1
	Electrolytic capacitor	C61*	47/16	1
	Electrolytic capacitor	C81*, C83*	33/25	2
	Electrolytic capacitor	C62*, C63*	0.47/50	2
	Diode	D13*, D14*	1N4148	2

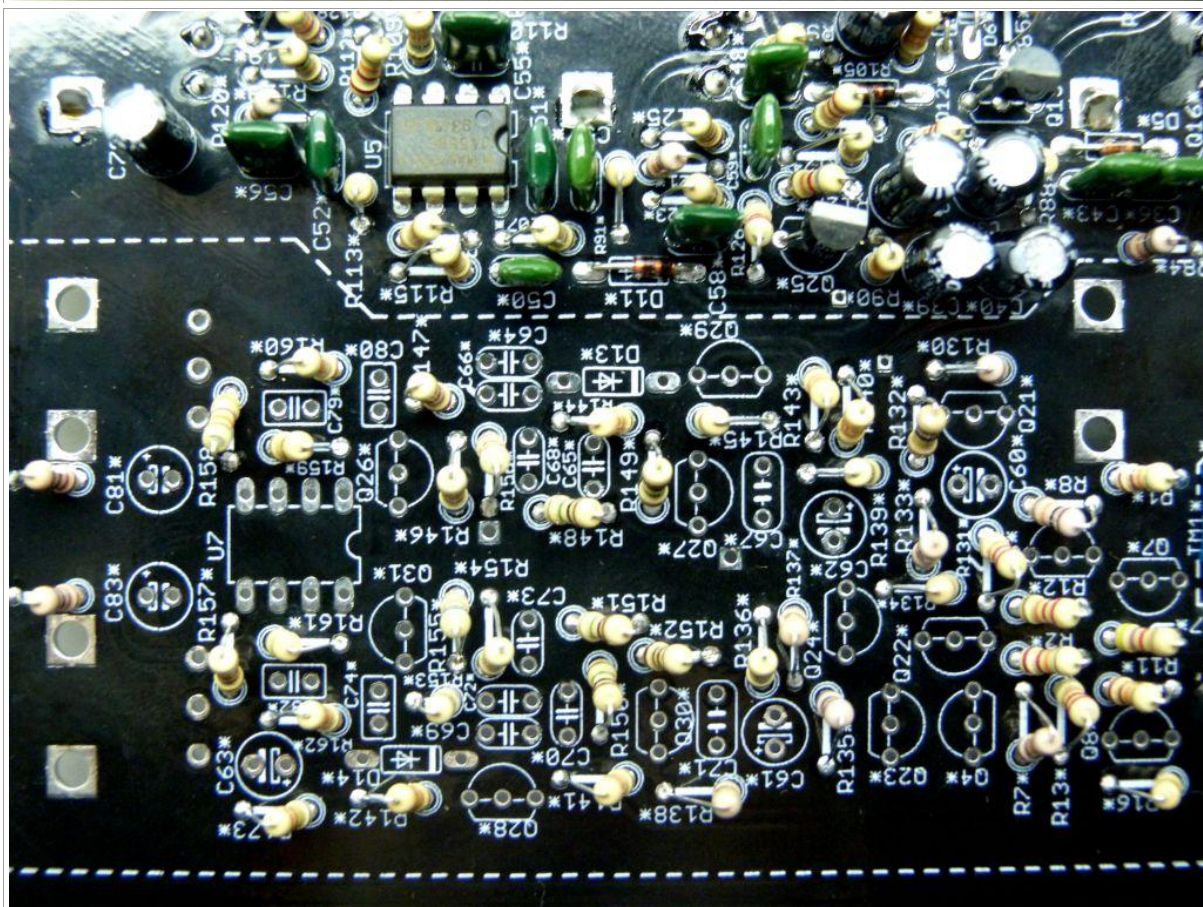
	NPN Silicon Transistor	Q3*, Q4*, Q21*, Q22*, Q23*, Q24*, Q26*, Q27*, Q28*, Q29*, Q30*, Q31*	2SC945	12
	PNP Silicon Transistor	Q7*, Q8*	2SA733	2
	1/4w Carbon resistor	R1*, R2*, R11*, R12*, R13*, R131*, R154*, R156*	22K	8
	1/4w Carbon resistor	R7*, R8*, R130*, R133*, R135*	10K	5
	1/4w Carbon resistor	R16*, R17*	4K7	2
	1/4w Carbon resistor	R132*, R134*	100K	2
	1/4w Carbon resistor	R136*, R145*, R152*	100R	3
	1/4w Carbon resistor	R137*, R138*	470R	2
	1/4w Carbon resistor	R139*, R148*, R149*, R150*, R151*	1M	5
	1/4w Carbon resistor	R140*, R141*, R142*, R143*, R144*, R162*	33K	6
	1/4w Carbon resistor	R146*, R155*	68K	2
	1/4w Carbon resistor	R147*, R153*	2K7	2
	1/4w Carbon resistor	R157*, R158*	47K	2

	1/4w Carbon resistor	R159*, R161*	470K	2
	1/4w Carbon resistor	R160*	39K	1
	1/4w Carbon resistor	R169*, R172*	1K	2
	1/4w Carbon resistor	R173*	330K	1
	Dual Operational Amplifier	U7	μPC4558C	1
	Potentiometer (B205)	VR3*	2MB	1
	Potentiometer (A104)	VR7*, VR8*	100KA	2

Make it:

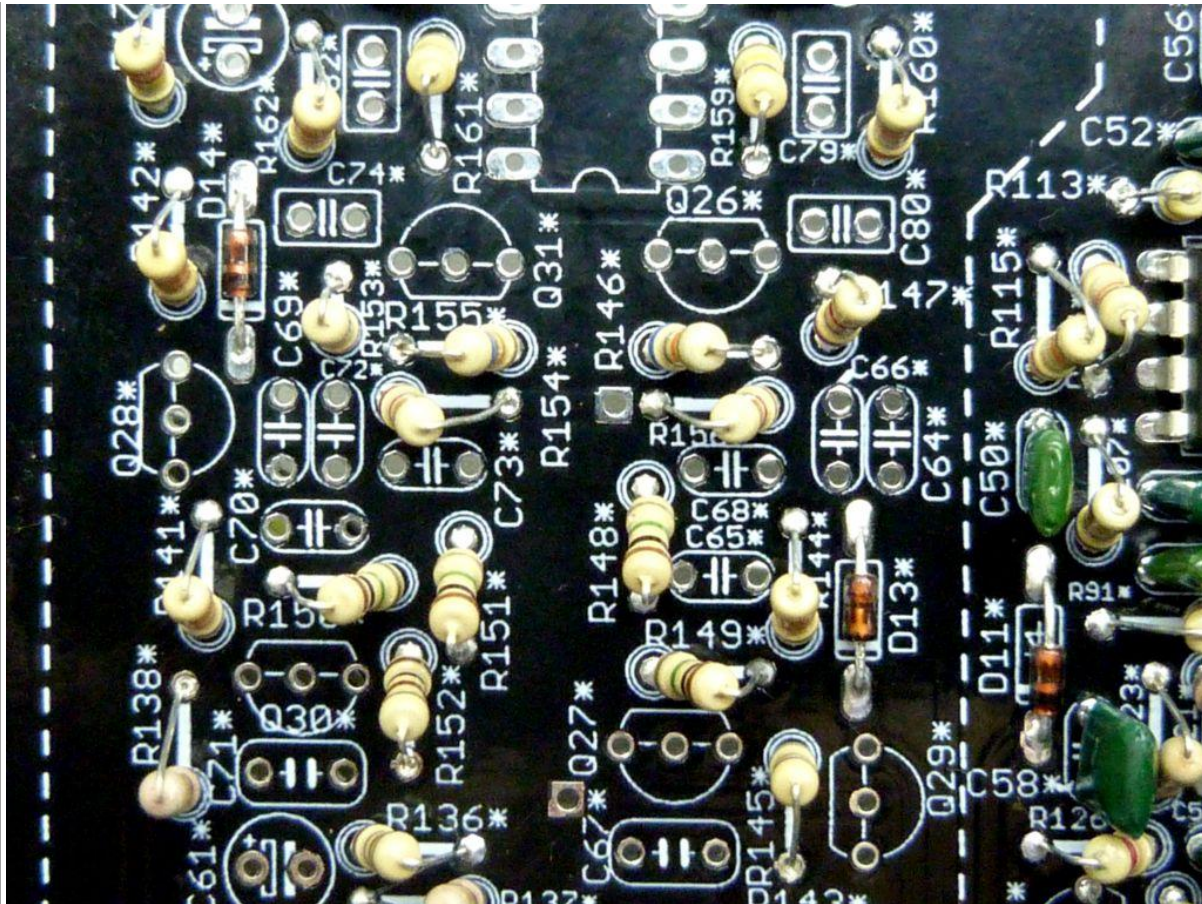


Here is the HitHat



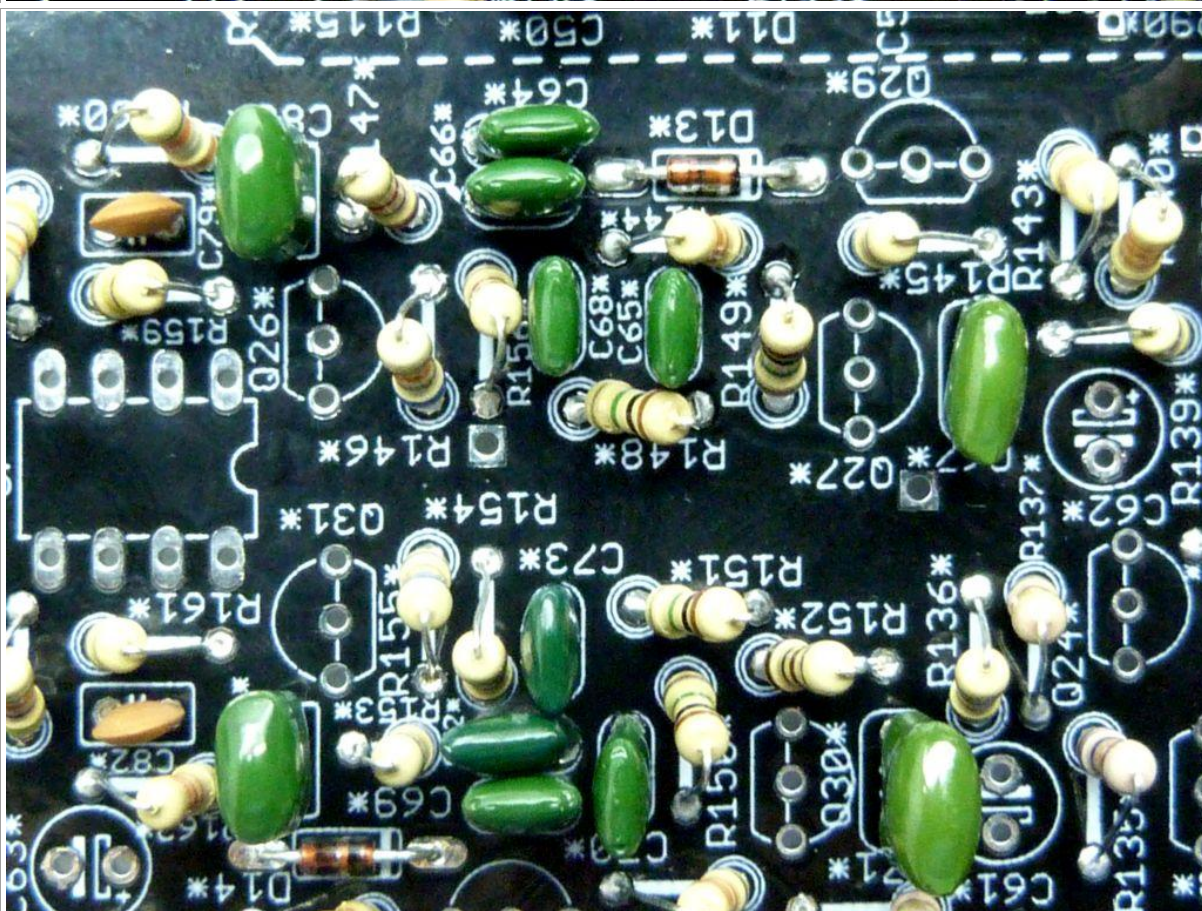
Solder all resistors.

Solder each value one after the other.

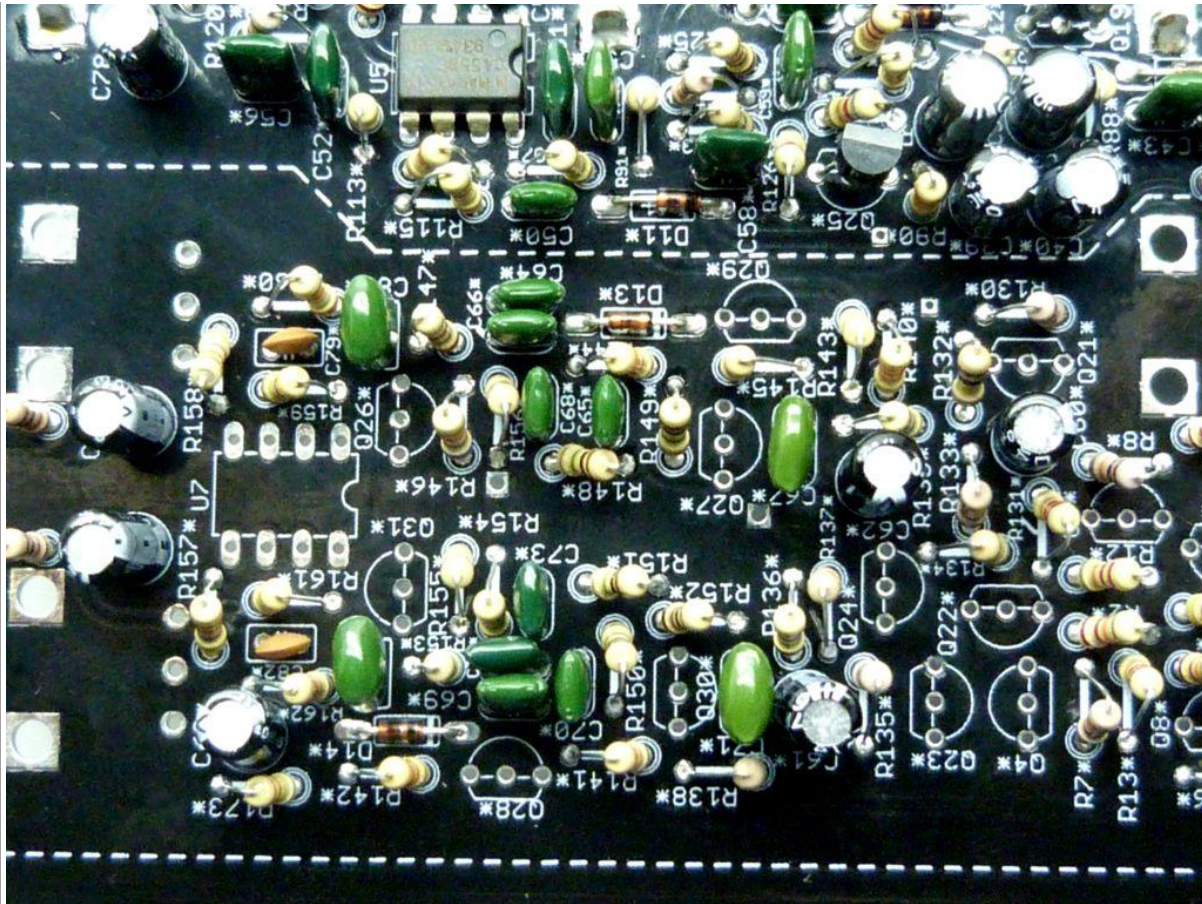


Solder both
diodes 1N4148

**MAKE SURE
DIODES ARE IN
THE RIGHT WAY**

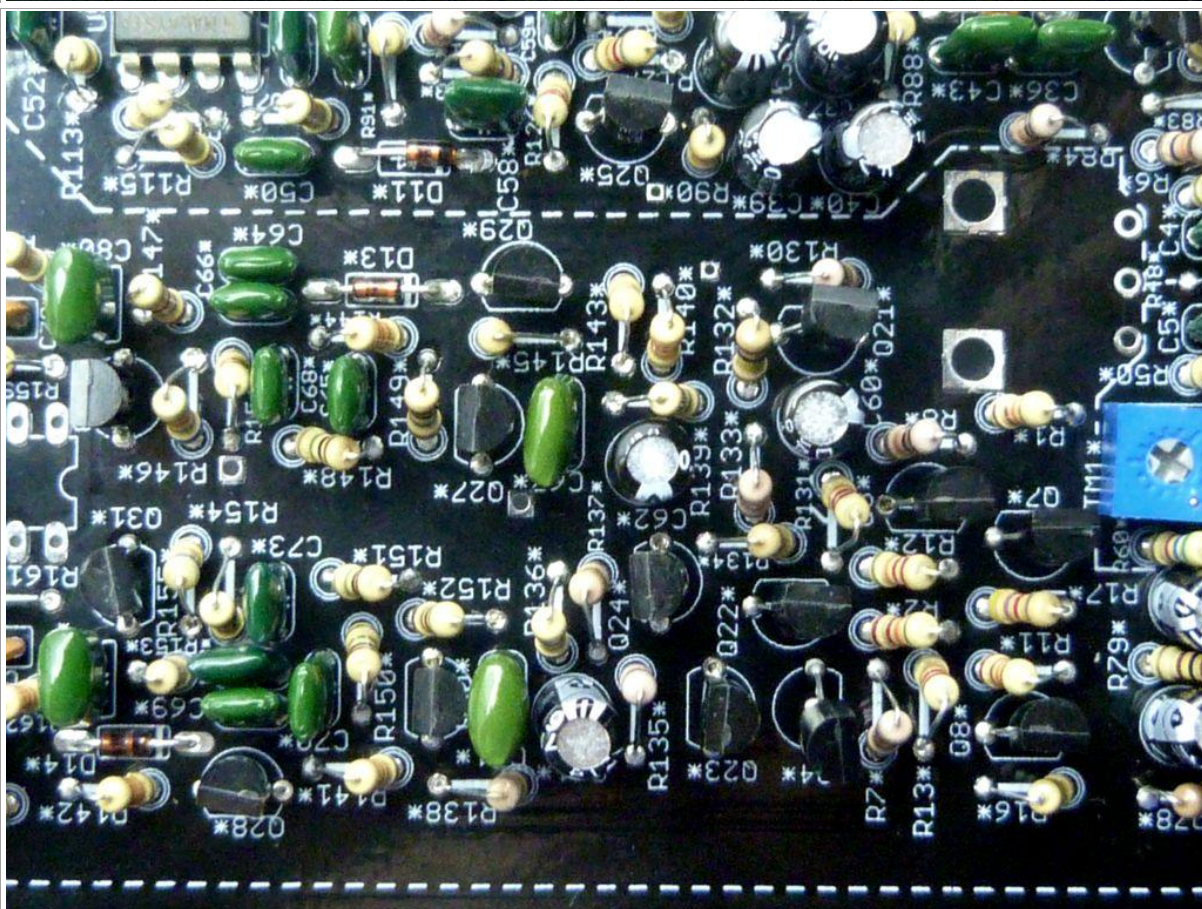


Solder polyesters
capacitors



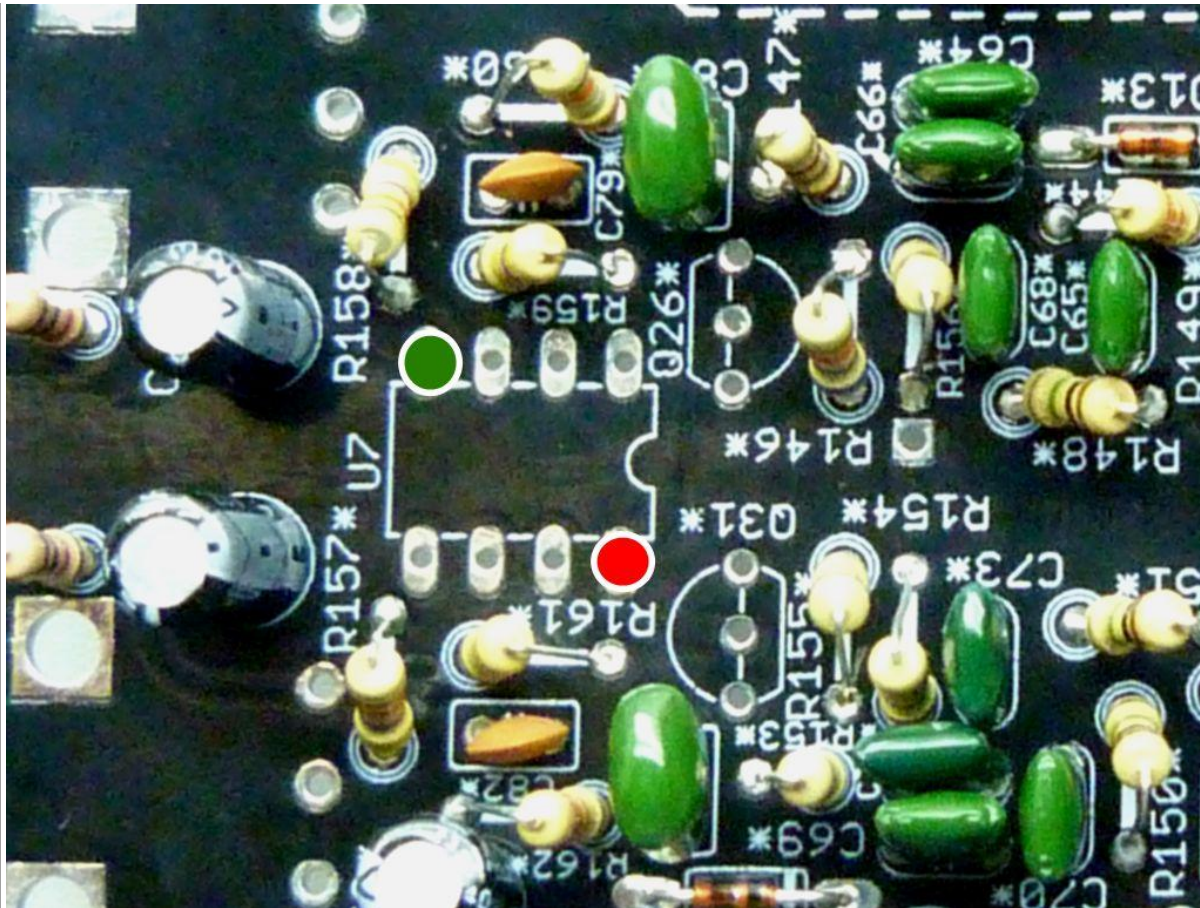
Solder electrolytic capacitors

MAKE SURE ELECTROLYTICS CAPACITORS ARE IN THE RIGHT WAY



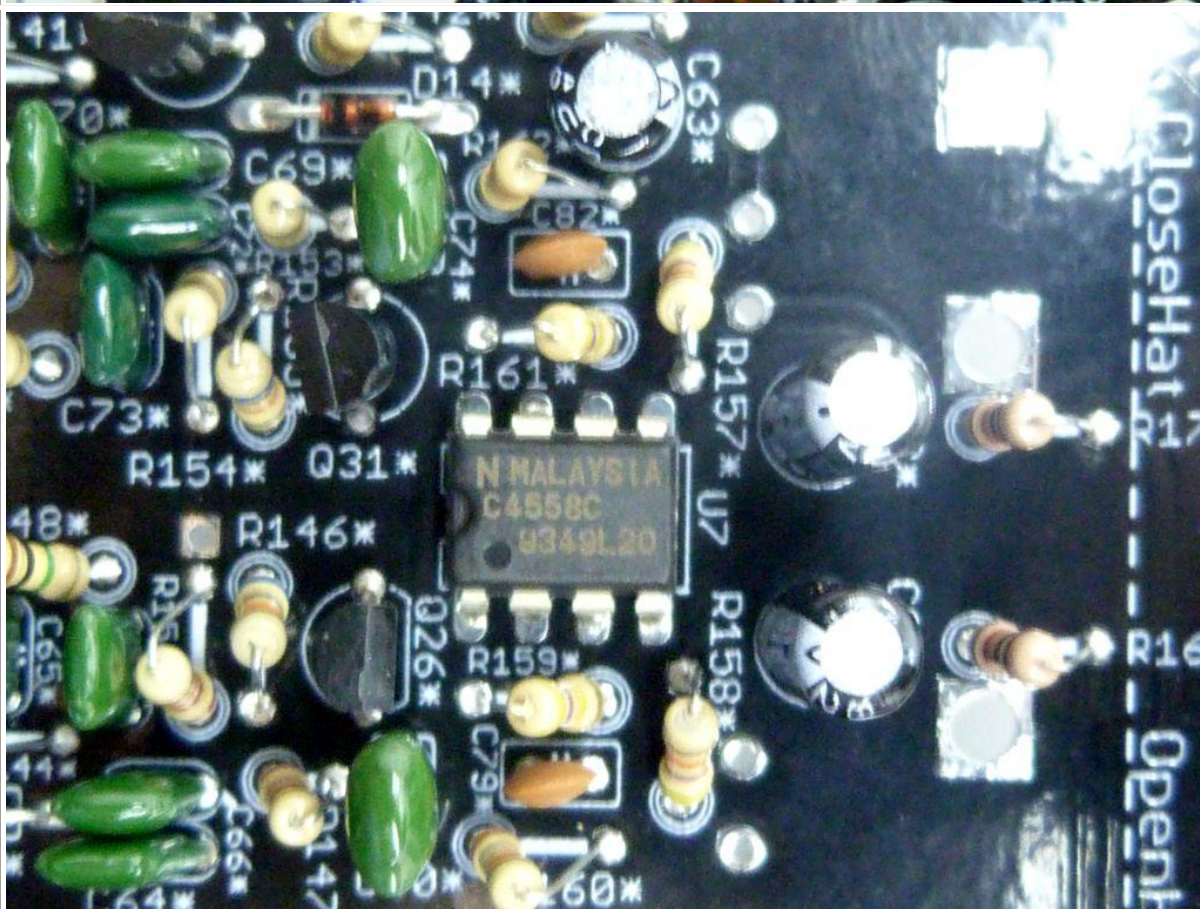
Solder transistors. Do not get confused between 2SA733 and 2SC945 it is not the same transistors.

MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY

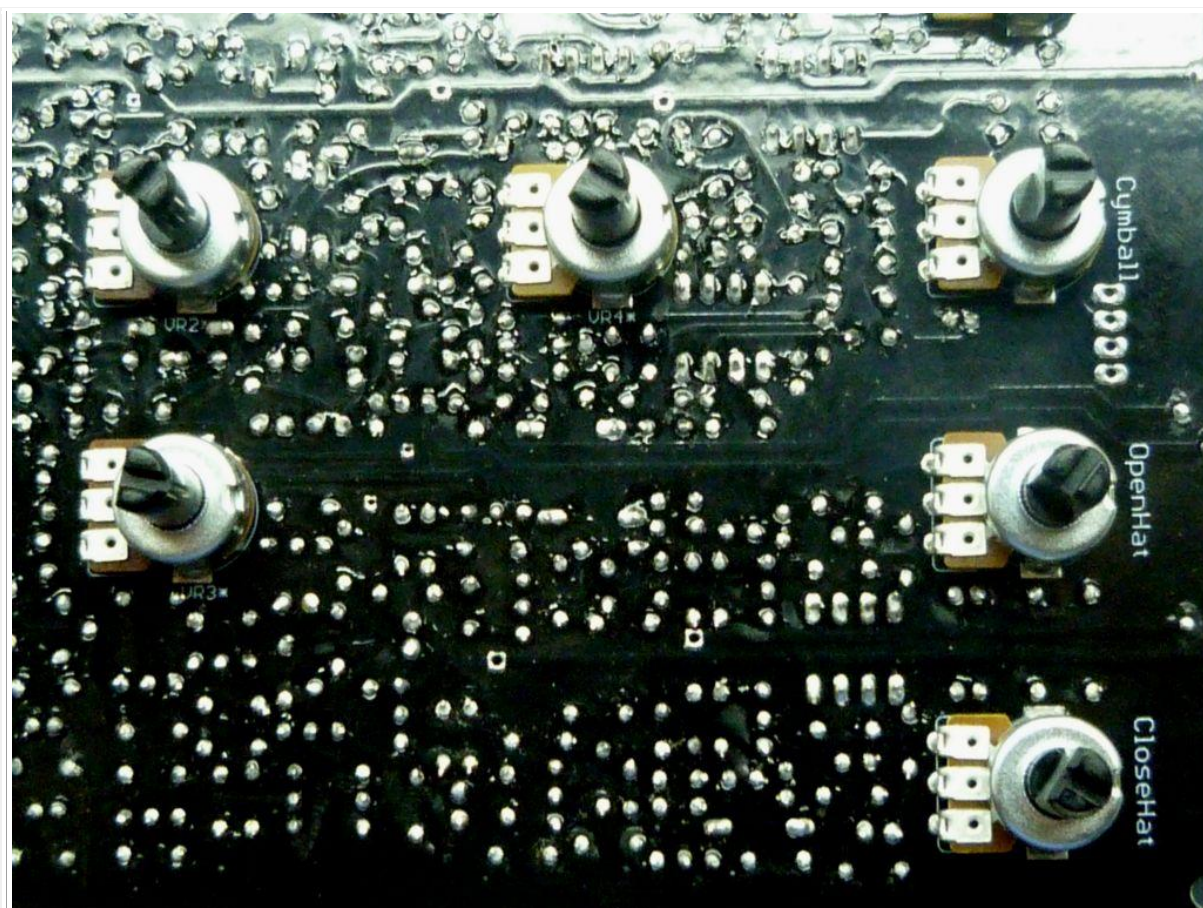


Connect the power transformer. Test 4558 power supply. The green dot is -15V, the red dot is +15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . **Always check that the four wires from the power supply is well connected.**

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER. DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558. To insert it into the PCB you have to bend the leads a little.






Finally return the PCB and solder the potentiometer on the opposite side of components.

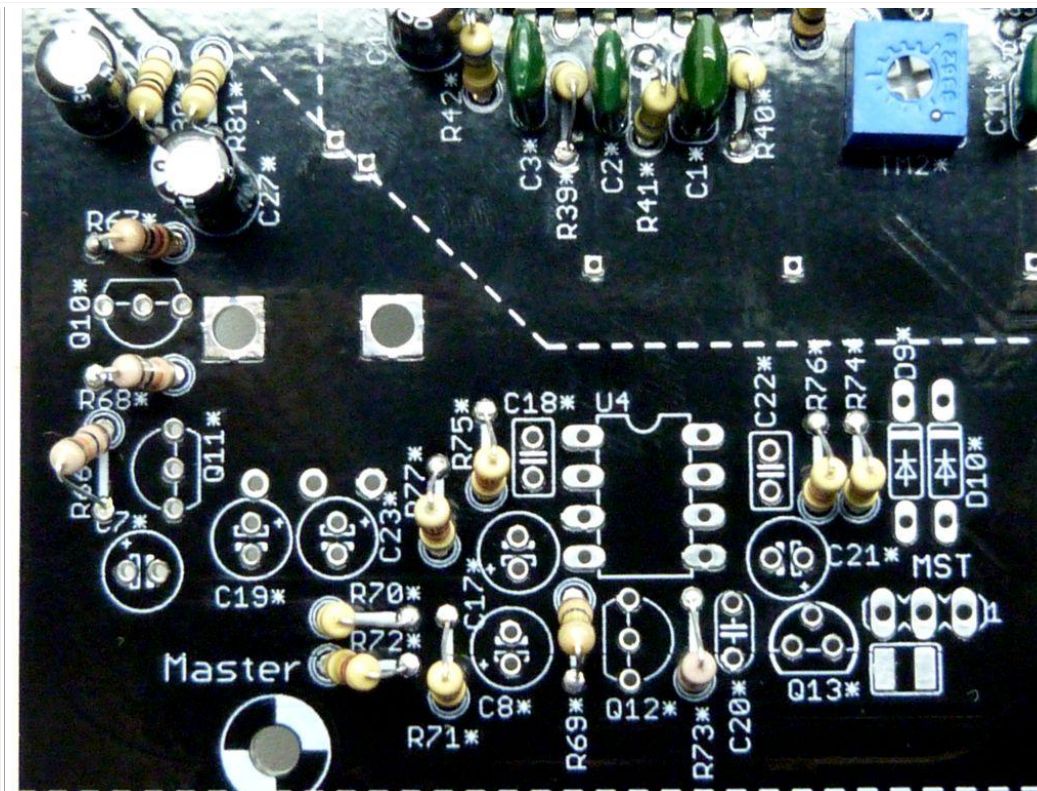
You can then go to [Master](#) assembly.

Master:

The master section is where all the sounds are summed. The original **TR-808** OPA is a μ PD4558 but it can be replaced by another with a better signal / noise ratio. Prepare all components before beginning assembly. List of components:

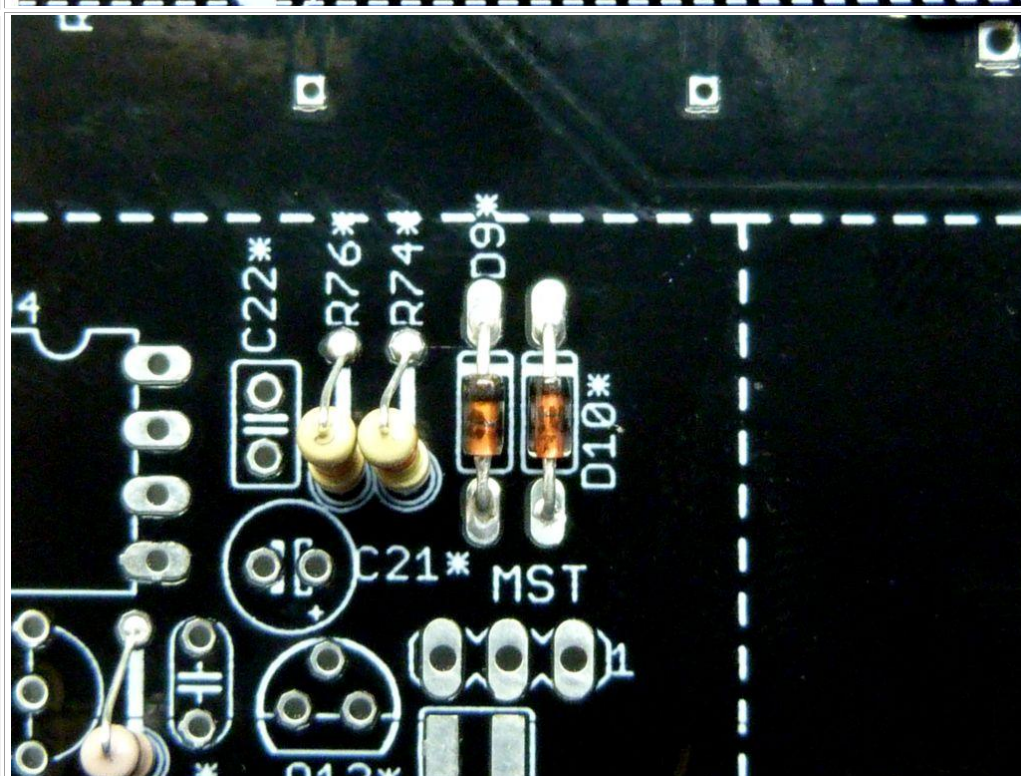
Image	Description	Part	Value	Qty
	Ceramic capacitor (221)	C18*, C22*	220p	2
	Polyester capacitor (2A102J)	C20*	1n	1
	Electrolytic capacitor	C21*	33/25	1

	Electrolytic capacitor	C7*, C8*	2.2/50	2
	Electrolytic capacitor	C17*, C19*, C23*	1/50	3
	Diode	D9*, D10*	1N4148	2
	PNP Silicon Transistor	Q10*, Q12*	2SA733	2
	NPN Silicon Transistor	Q11*	2SC945	1
	Silicon N-Channel JFET Transistor	Q13*	2SK30	1
	1/4w Carbon resistor	R66*, R68*, R73*	10K	3
	1/4w Carbon resistor	R67*	1K	1
	1/4w Carbon resistor	R69*	100K	1
	1/4w Carbon resistor	R70*	100R	1
	1/4w Carbon resistor	R71*, R72*	220K	2
	1/4w Carbon resistor	R74*	330K	1



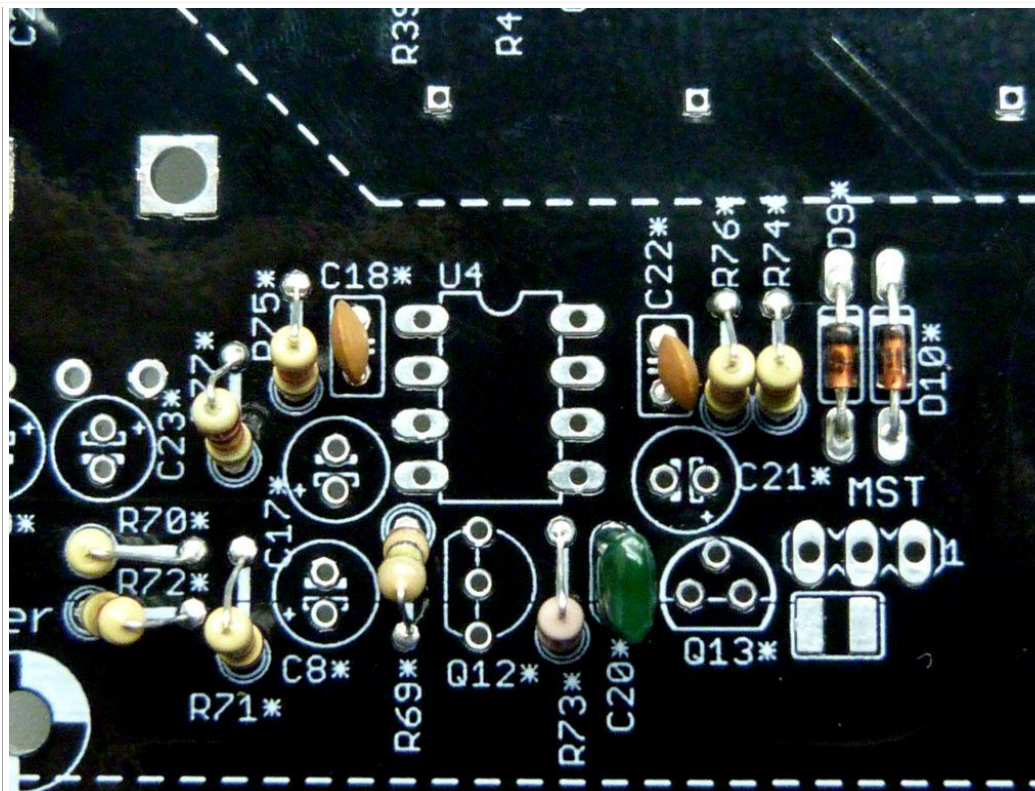
Solder all resistors.

Solder each value one after the other.

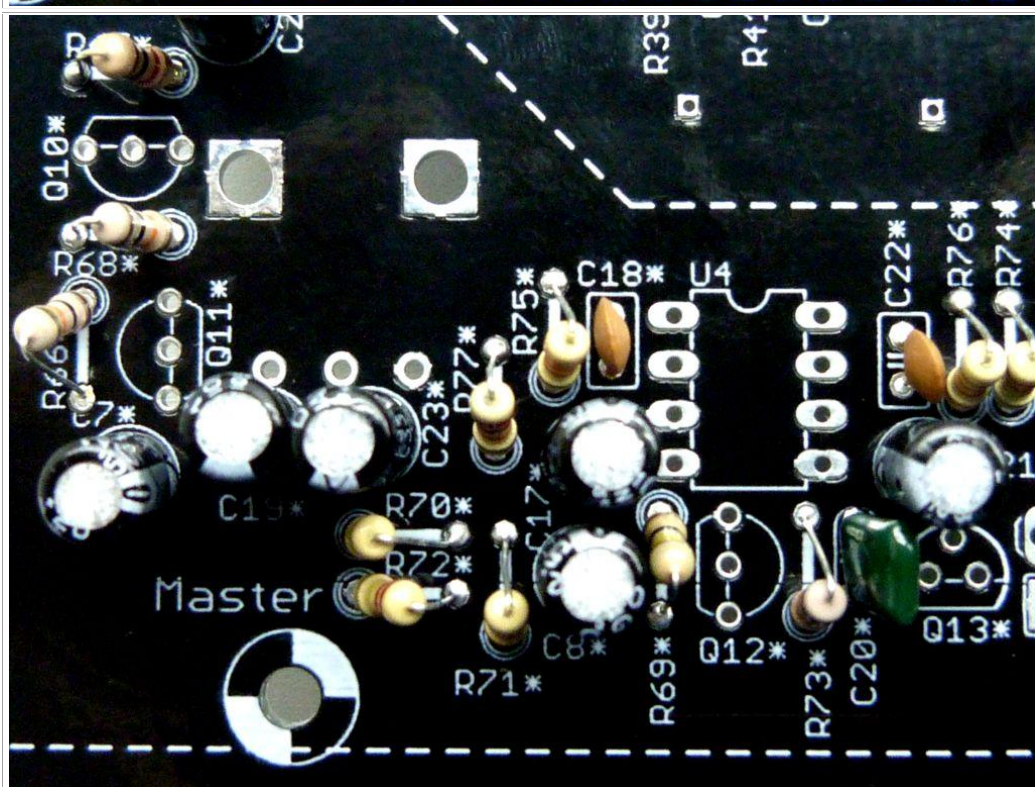


Solder both diodes 1N4148

**MAKE SURE
DIODES ARE IN
THE RIGHT
WAY**

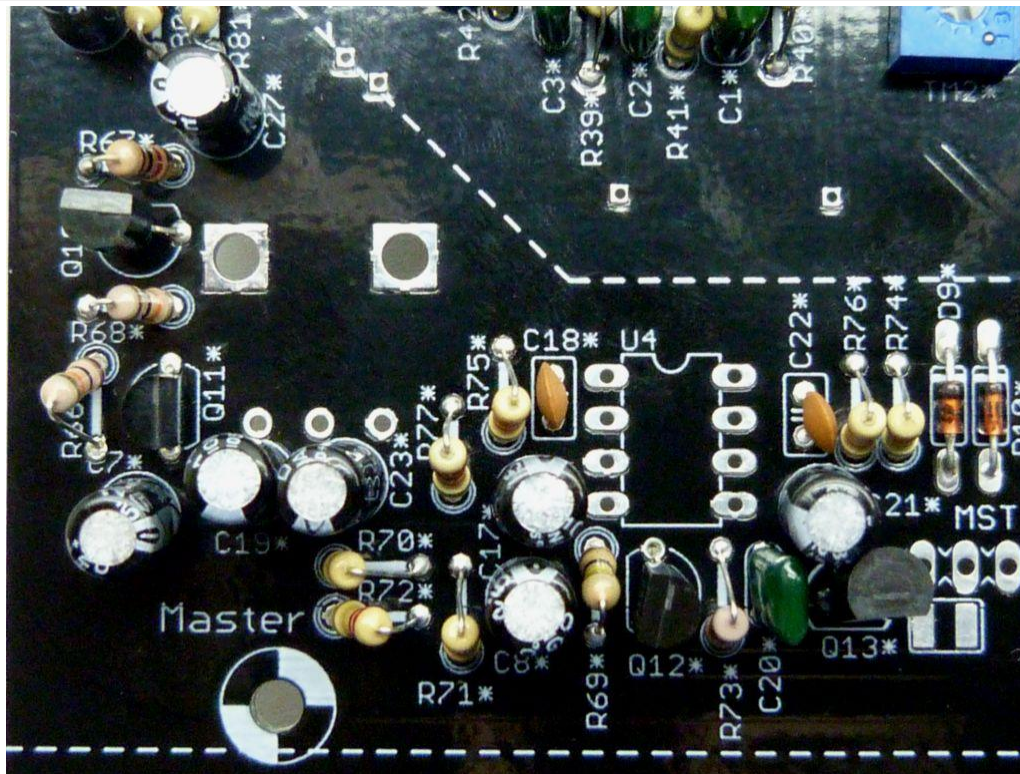


Solder polyester capacitors



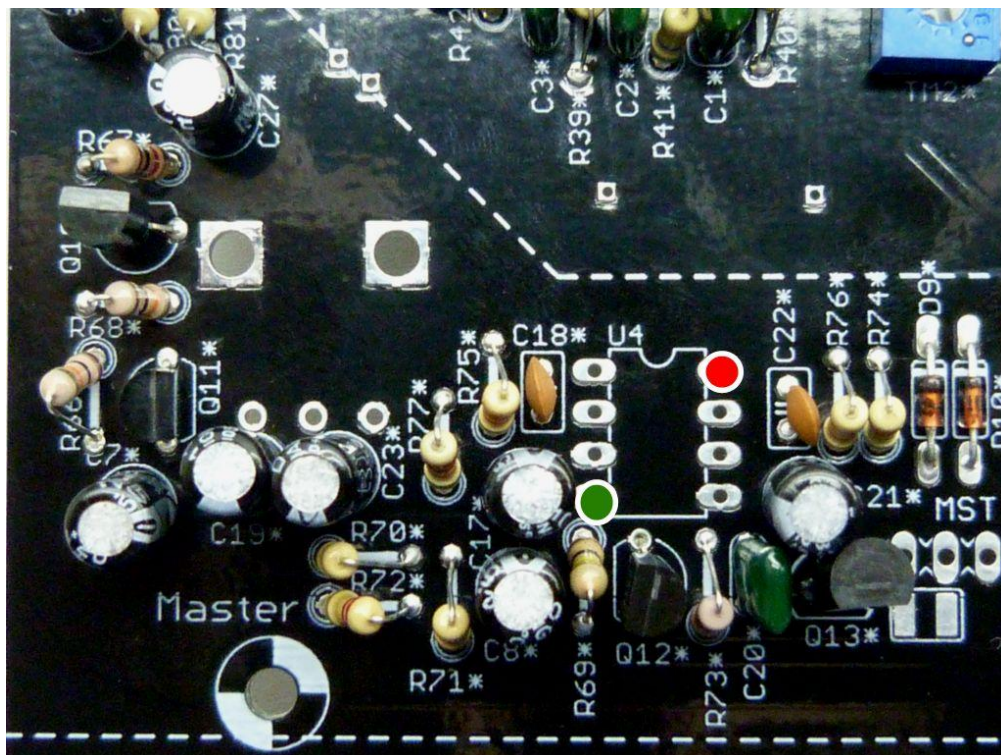
Solder electrolytic capacitors

**MAKE SURE
ELECTROLYTICS
CAPACITORS
ARE IN THE
RIGHT WAY**



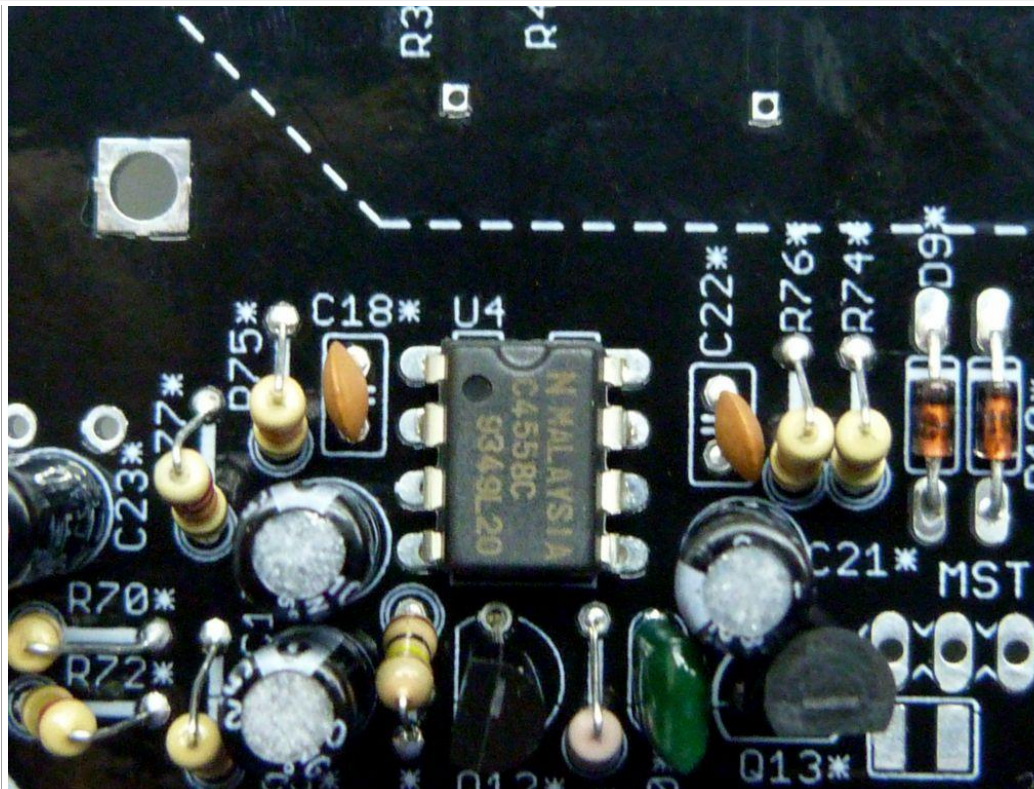
Bend the central lead of 2SK30. Install the transistors. Do not get confused between 2SC945, 2SA733 and 2SK30 are not the same transistors.

MAKE SURE ELECTROLYTICS CAPACITORS ARE IN THE RIGHT WAY

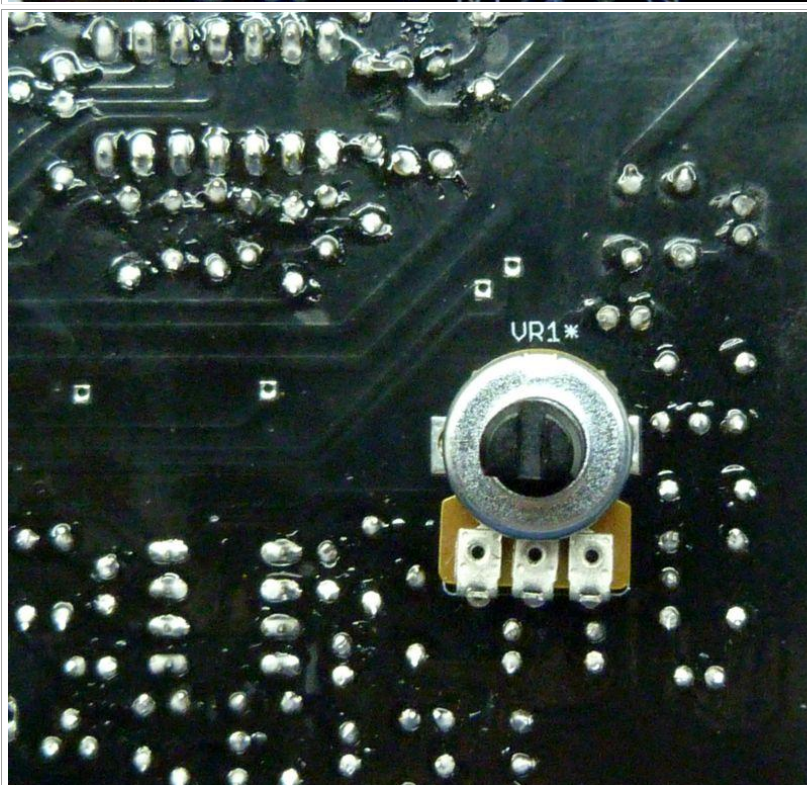


Connect the power transformer. Test 4558 power supply. The green dot is -15V, the red dot is +15 V (plus or minus 5%). You have the ground on the potentiometer big square pad . **Still check that the four wires from the power supply is well connected.**

THEN DONT FORGET TO DISCONNECT THE POWER TRANSFORMER . DO NOT SOLDER COMPONENT AS THE CIRCUIT IS POWERED !



Solder the 4558. To insert it into the PCB you have to bend the leads a little.



Finally return the PCB and solder potentiometers on the opposite side of components.

You can then go to [Sequencer assembly](#)

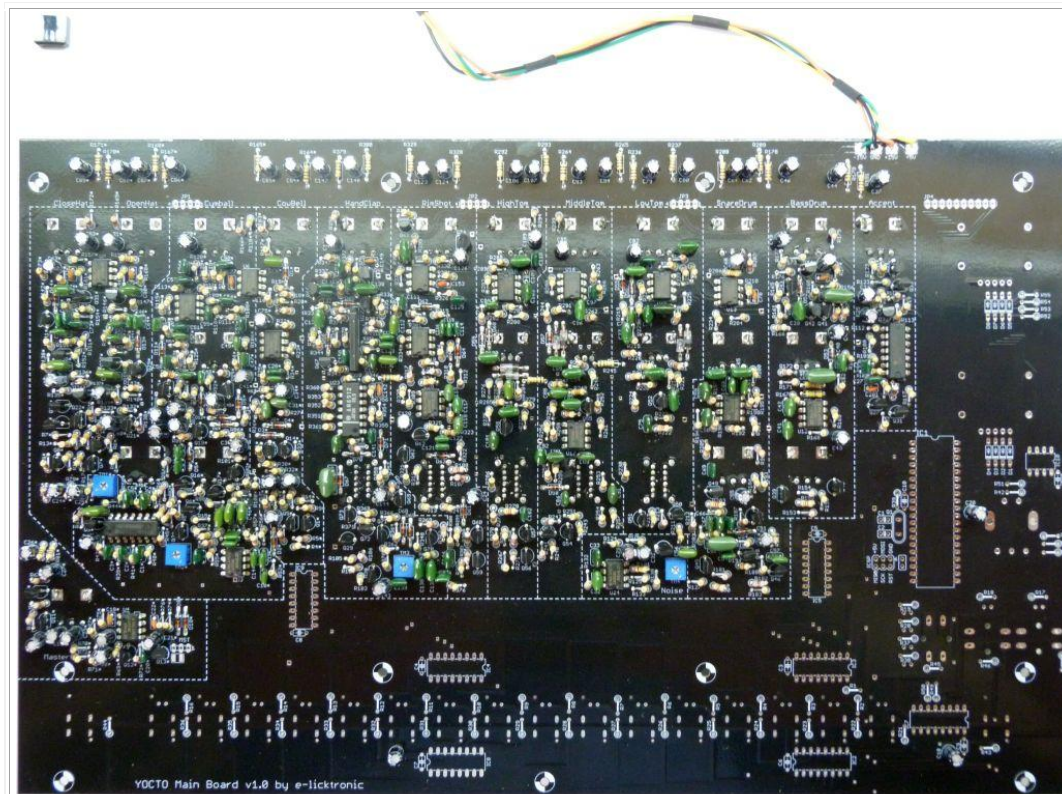
Sequencer:

The sequencer is a very large part to assemble. Do not reverse the IC. Continue to be careful and precise we soon reach the end. Courage. Prepare components to build the sequencer. List of components:

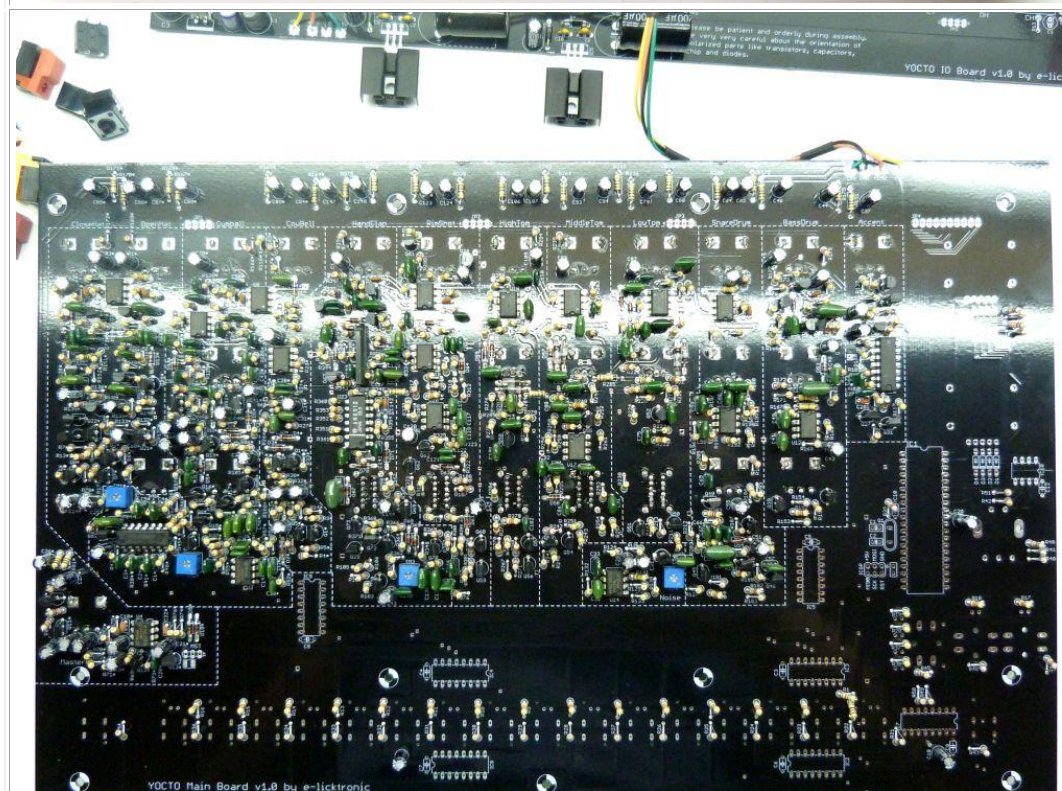
Image	Description	Part	Value	Qty
	Ceramic capacitor (22)	C1, C2	22p	2
	Multilayer ceramic capacitor (104)	C3, C4, C5, C6, C7, C8, C9, C10, C12	100n	9
	Diode	D1, D2, D3, D4, D5, D6, D7, D8	1N4148	8
	Microcontroller	IC1	MEGA1284-P	1
	40 Pin DIP IC socket	IC1"		1
	8-bit parallel load SHIFT REGISTER	IC2, IC7, IC8	74HC165N	3
	8-bit SHIFT REGISTER, output latch	IC3, IC4, IC5, IC9	74HC595N	4
	2-wire serial EEPROM	IC10	24LC512	1
	8 Pin DIP IC socket	IC10"		1
	Rotary switch	INST_SELECT, MODE_SELECT		2

	3mm Red led	LED1, LED2, LED3, LED4, LED5, LED6		6
	Led Holder 9mm			6
	Crystal	Q1	16MHz	1
	1/4w Carbon resistor	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R37, R38	220	22
	1/4w Carbon resistor	R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R39, R40, R41, R43, R44, R45, R46, R47, R48, R49, R50, R52, R53, R54, R55	10K	31
	1/4w Carbon resistor	R42, R51	1K	2
	Tact switch with led	S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16		16
	Tact switch large	S17, S18		2
	Tact switch	S19, S20, S21		3
	Switch cap			3
	Rotary encoder	TEMPO		1

Make it:

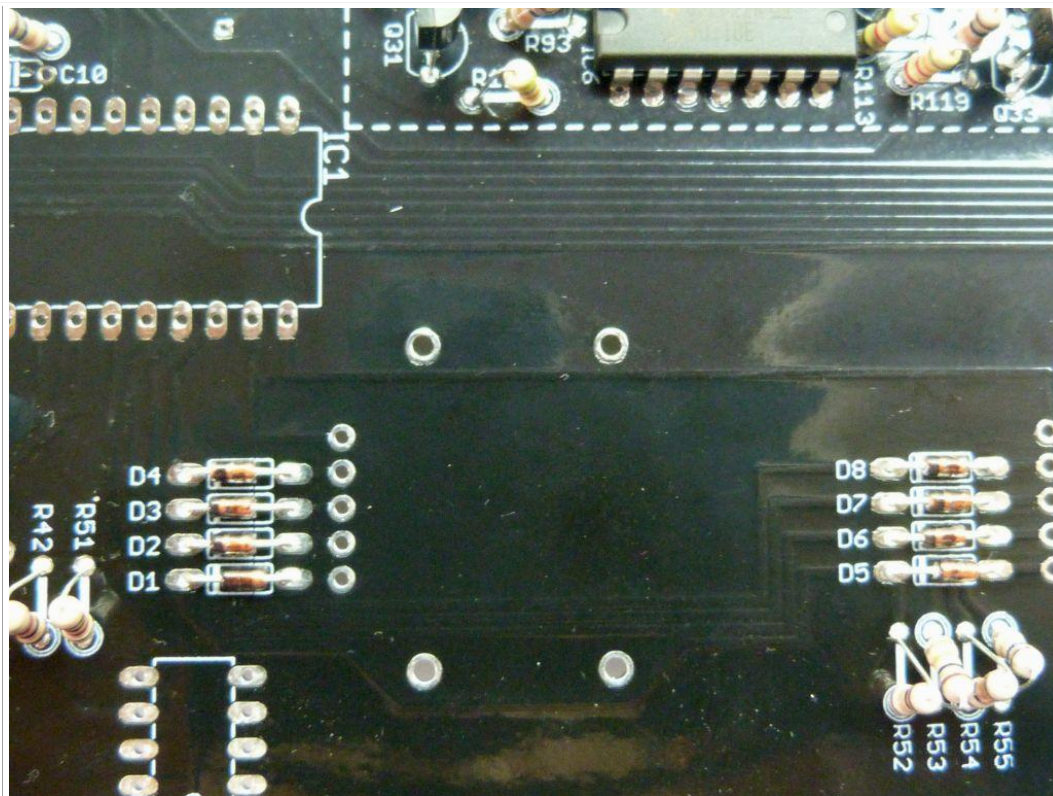


The components of the sequencer are outside the dotted line.



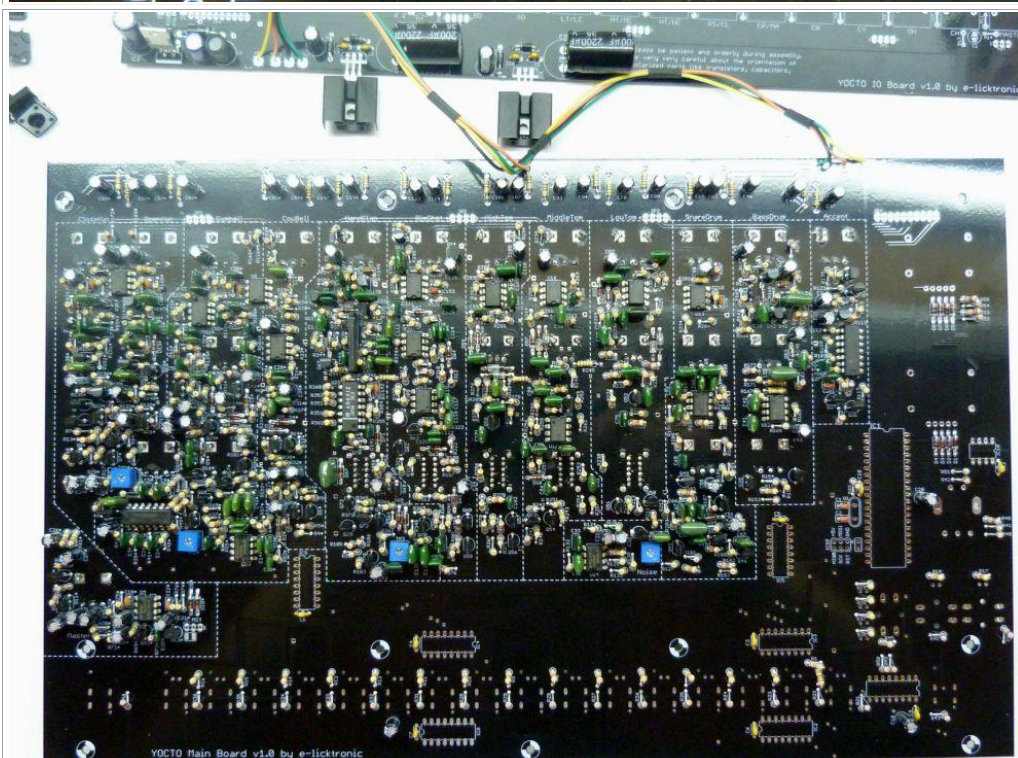
Solder all resistors.

Solder each value one after the other.

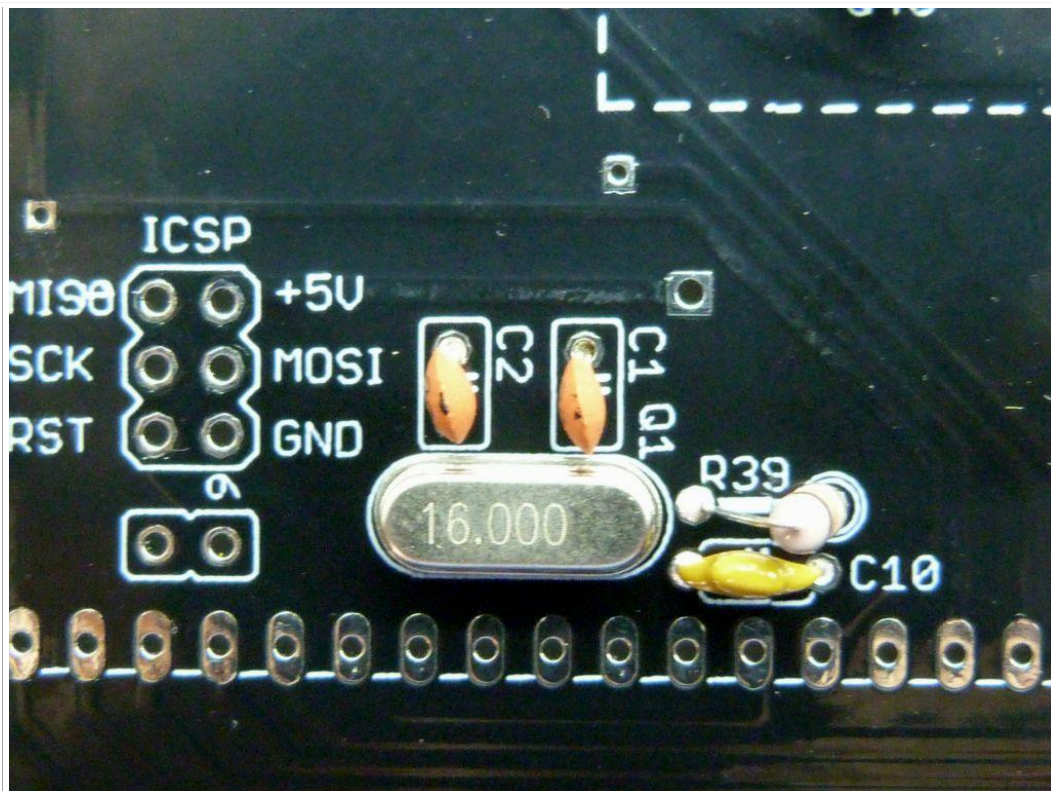


Solder diodes
1N4148

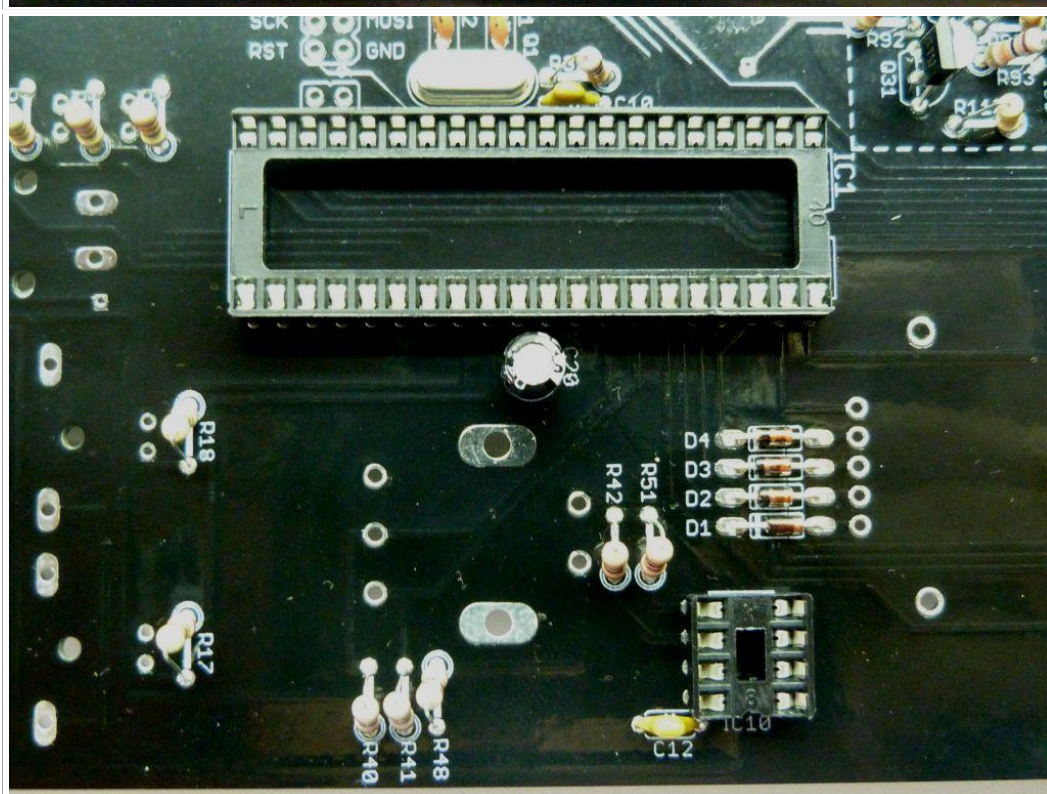
**MAKE SURE
DIODES ARE
IN THE RIGHT
WAY**



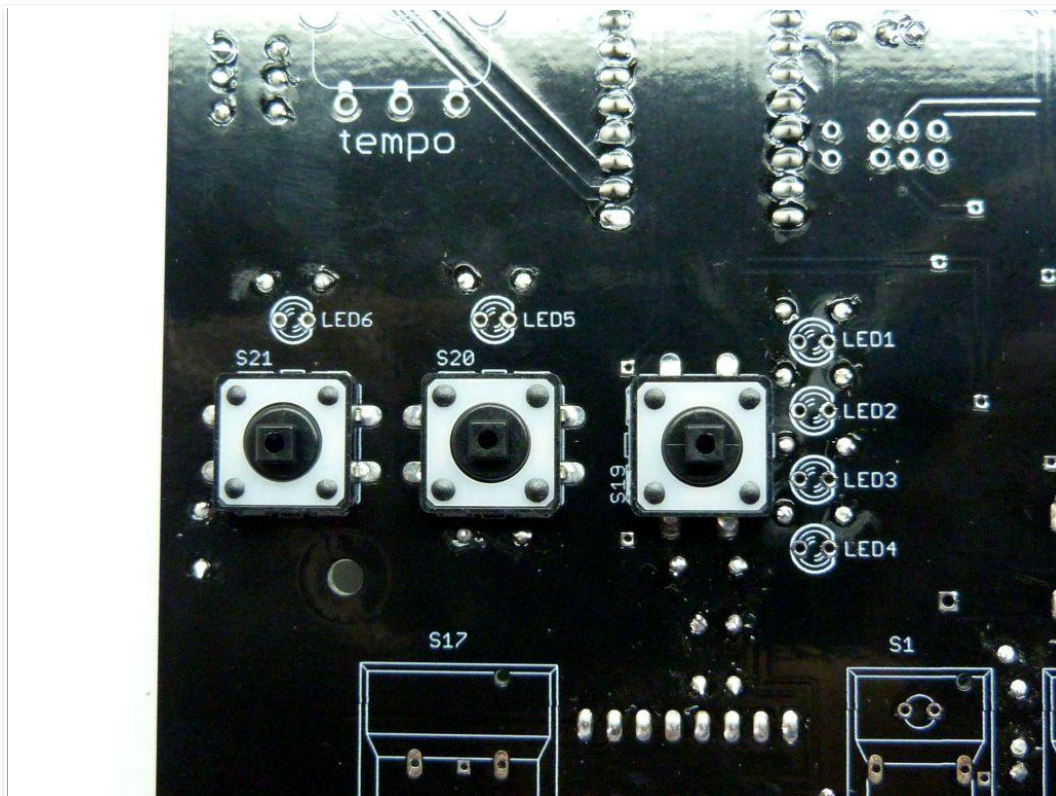
Solder
multilayer
capacitors (in
yellow on the
picture)



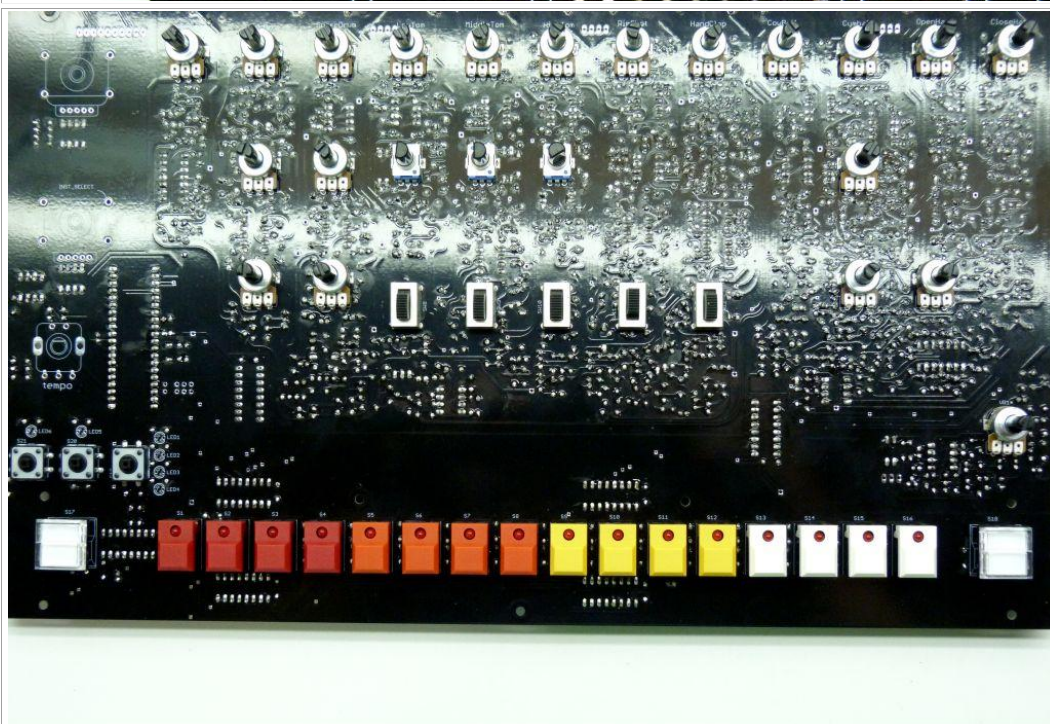
Solder the crystal



Assemble the two IC support.

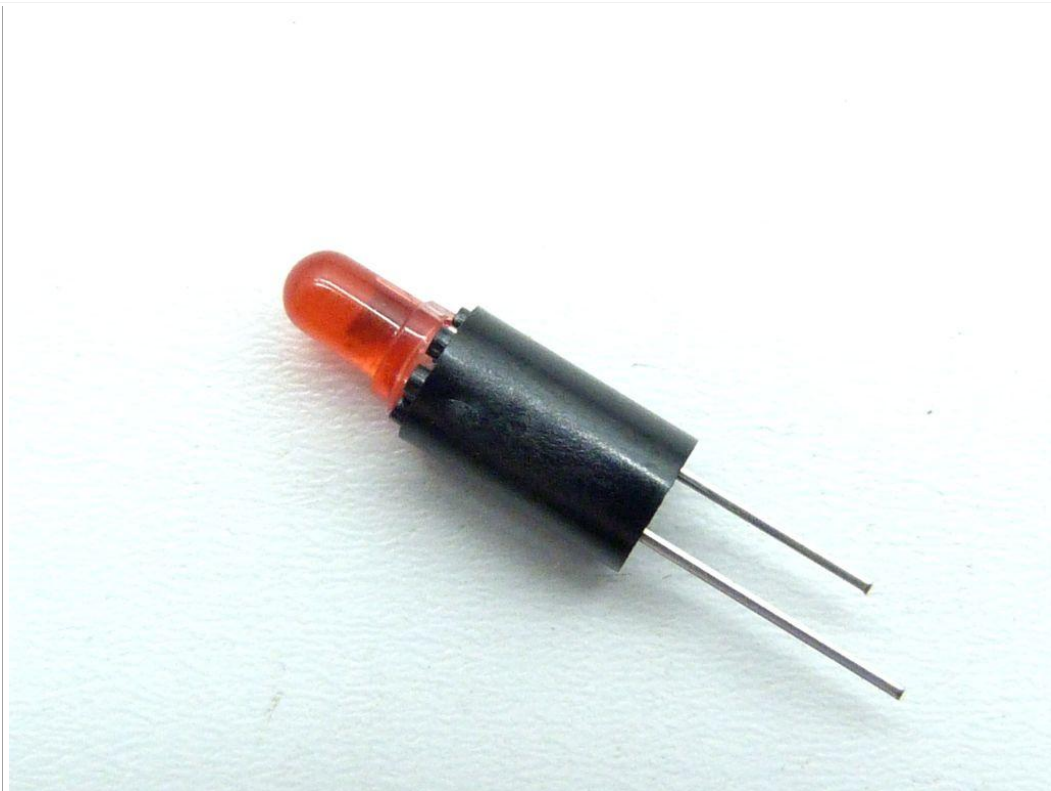


Solder the three pushbuttons.

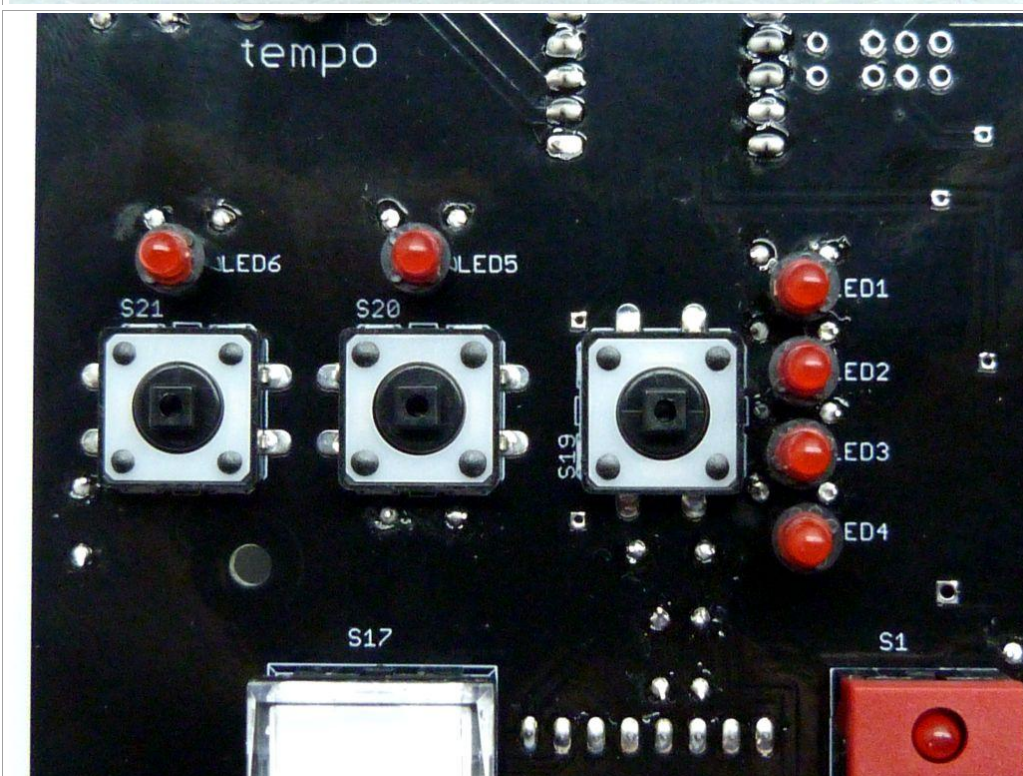


Solder the 18 color pushbuttons. You can arrange the color as you like.

They are a bit hard to implement but gently pressing it sinks without any problems.

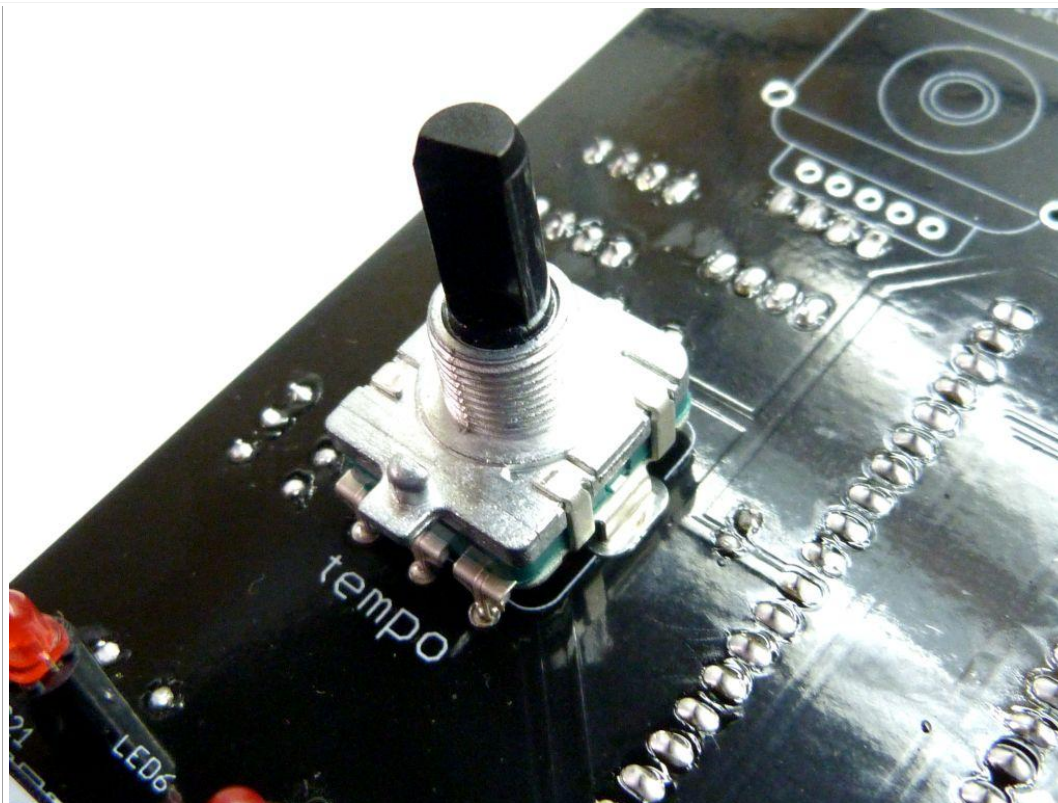


Prepare 6 LEDs and their supports.



Solder the 6 leds being careful plated supports to the PCB

CAUTION TO THE ORIENTATION OF LEDS. WE'LL PUT THE FLAT SIDE TO THE INDICATE SIDE BY SILKSCREEN!



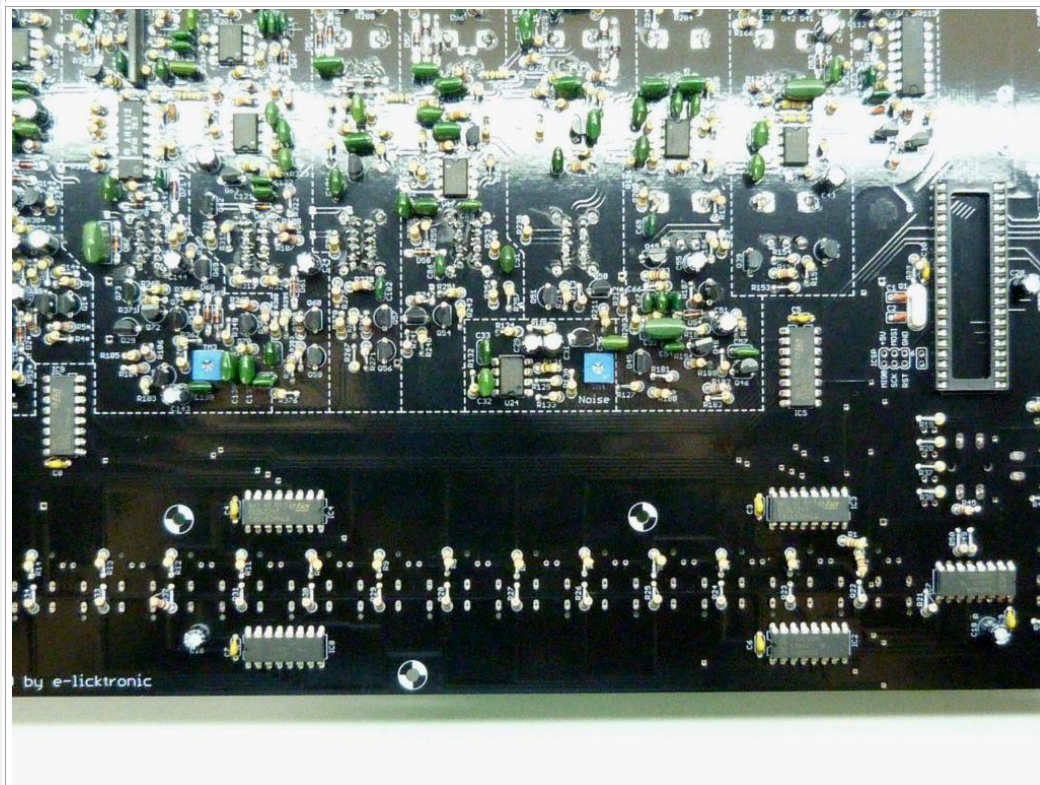
Solder the
encoder



To fix rotary
switch to the
PCB take four
pieces of wire
or bare copper
and bend
them the
width of the
Rotary switch
(see picture).



Assemble and solder rotary switch with clamp.











Install the 74hc595 and 74hc165.






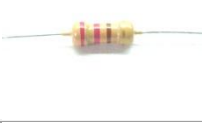


Do not connect the power until the IO Board is completely connected to the Main Board because the ground of the sequencer is not common to the analog ground.

Now to assemble the [IO Board](#)

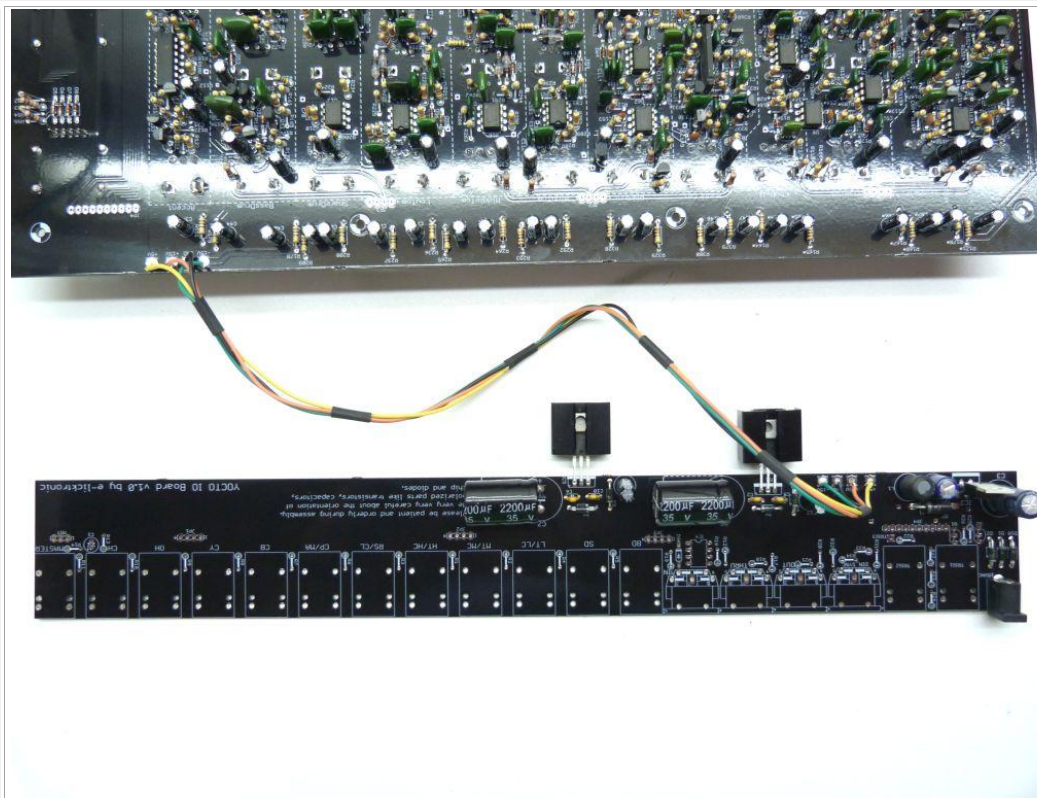
IO Board:

Here is the part list:

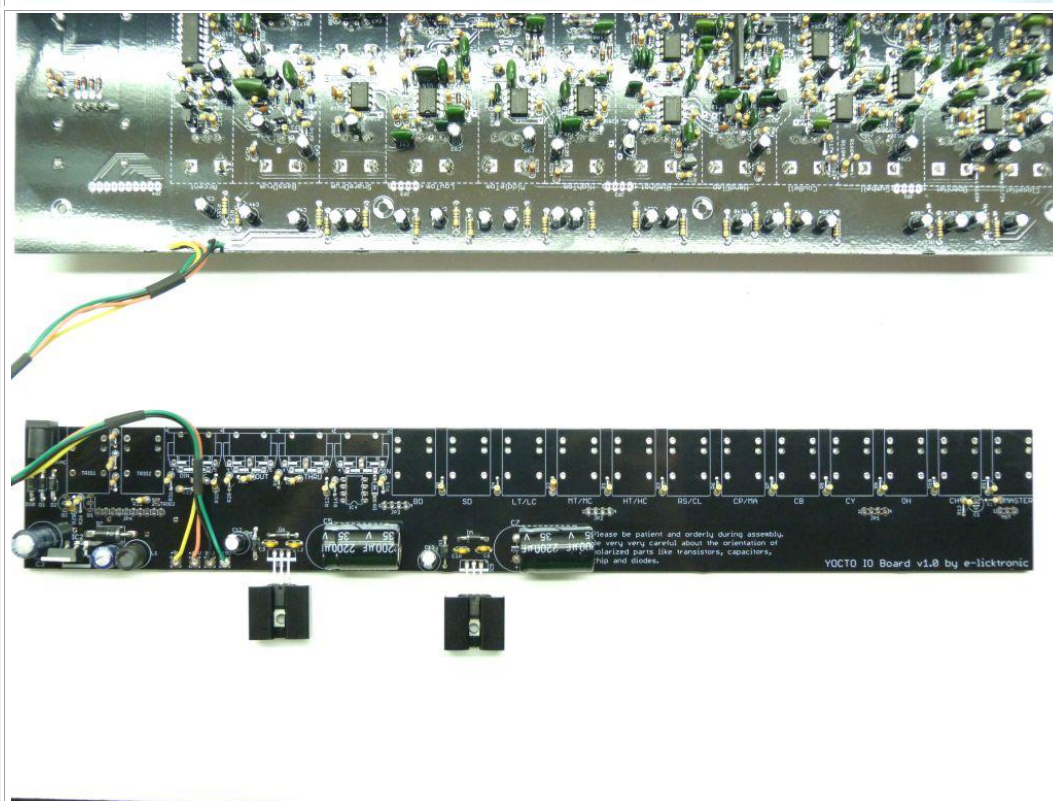
Image	Description	Part	Value	Qty
	Jack 6,35 NRJ4HF	BD, CB, CH, CP/MA, CY, HT/HC, LT/LC, MASTER, MT/MC, OH, RS/CL, SD, TRIG1, TRIG2		14
	Electrolytic capacitor	C1	10/25	1
	Diode	D9	1N4148	1
	Din connector	DIN_SYNC, IN, OUT, THRU		4
	Optocoupler	IC4	6N138	1
	Cable 4Pos	JP1, JP2, JP3		3
	Cable 10Pos	JP4		1
	Audio Cable	MST	25cm	1
	PNP Silicon Transistor	Q1, Q2	2SA733	2
	1/4w Carbon resistor	R1, R2, R3, R4, R6, R7, R13	33K	7
	1/4w Carbon resistor	R5, R23, R26	22K	3

	1/4w Carbon resistor	R8, R9, R11, R22, R25	47K	5
	1/4w Carbon resistor	R10	56K	1
	1/4w Carbon resistor	R12	1K2	1
	1/4w Carbon resistor	R14, R24, R27	1K	3
	1/4w Carbon resistor	R16	5k6	1
	1/4w Carbon resistor	R17, R18, R19, R20, R21	220	5
	1/4w Carbon resistor	R31, R32	2K2	2
	1/4w Carbon resistor	R33, R34	100K	2

Make it:

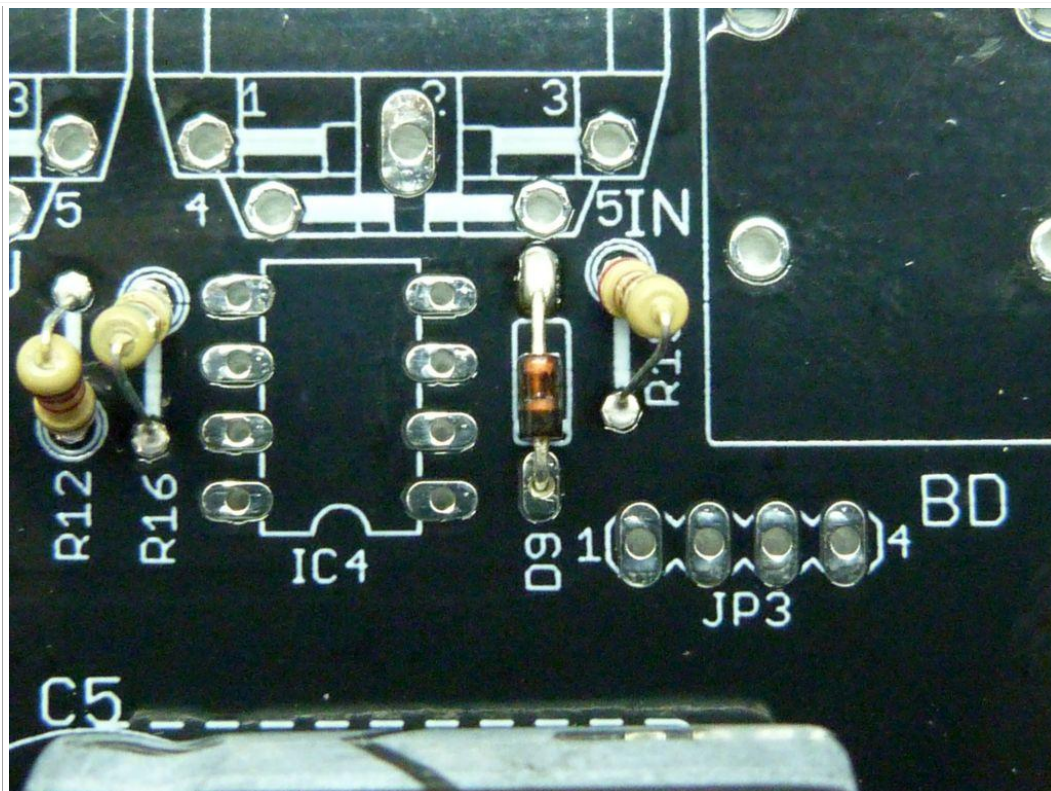


Here is the
IO_Board



Solder all
resistors.

Solder each
value one after
the other.



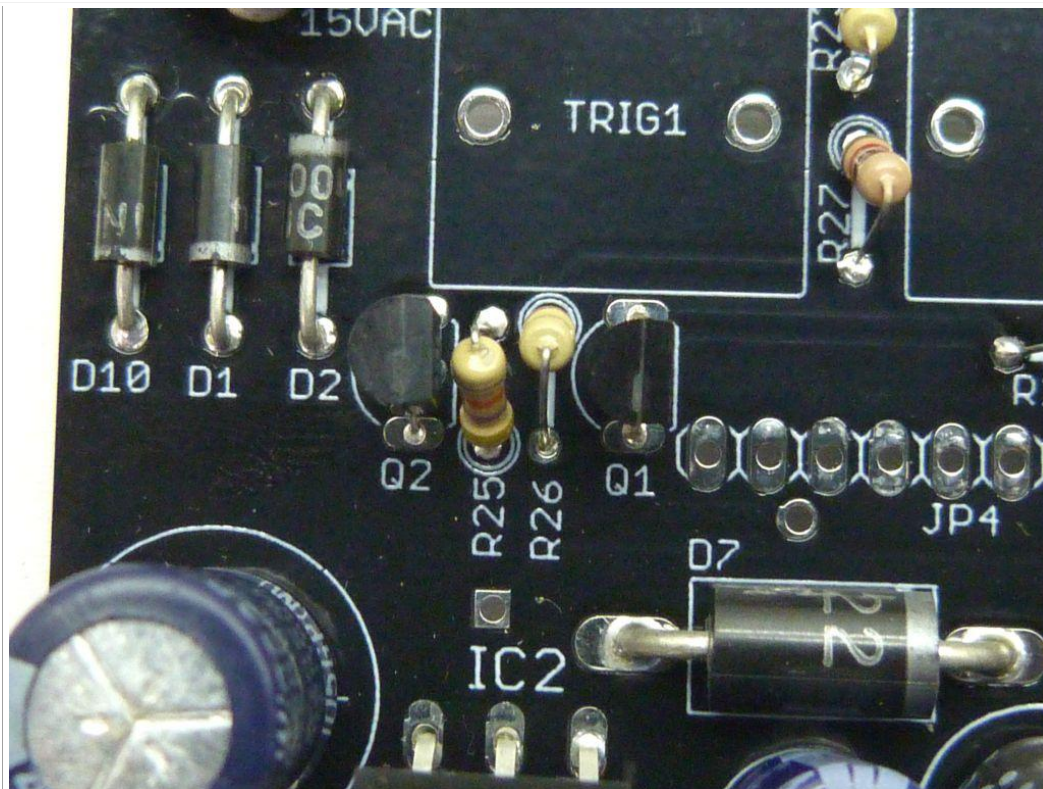
Solder D9
diode 1N4148

**MAKE SURE
DIODE IS IN
THE RIGHT
WAY**



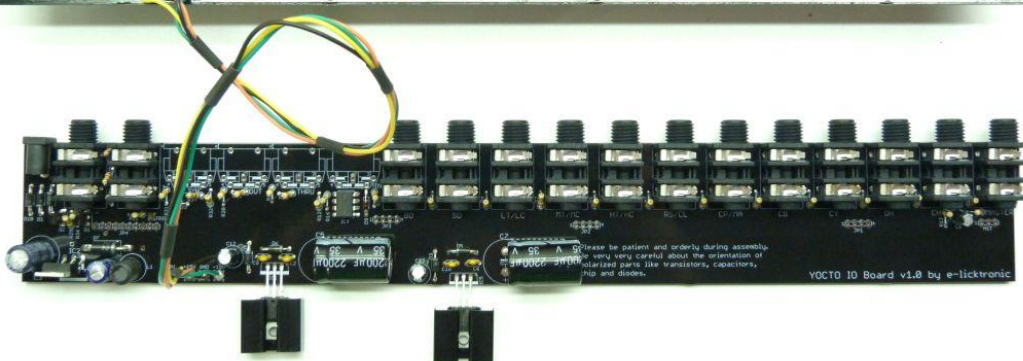
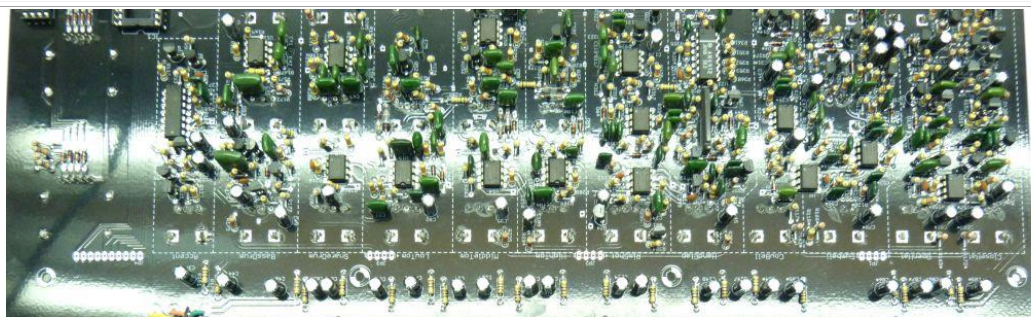
Solder the
electrolytic
capacitor

**MAKE SURE
ELECTROLYTI
C CAPACITOR
IS IN THE
RIGHT WAY**

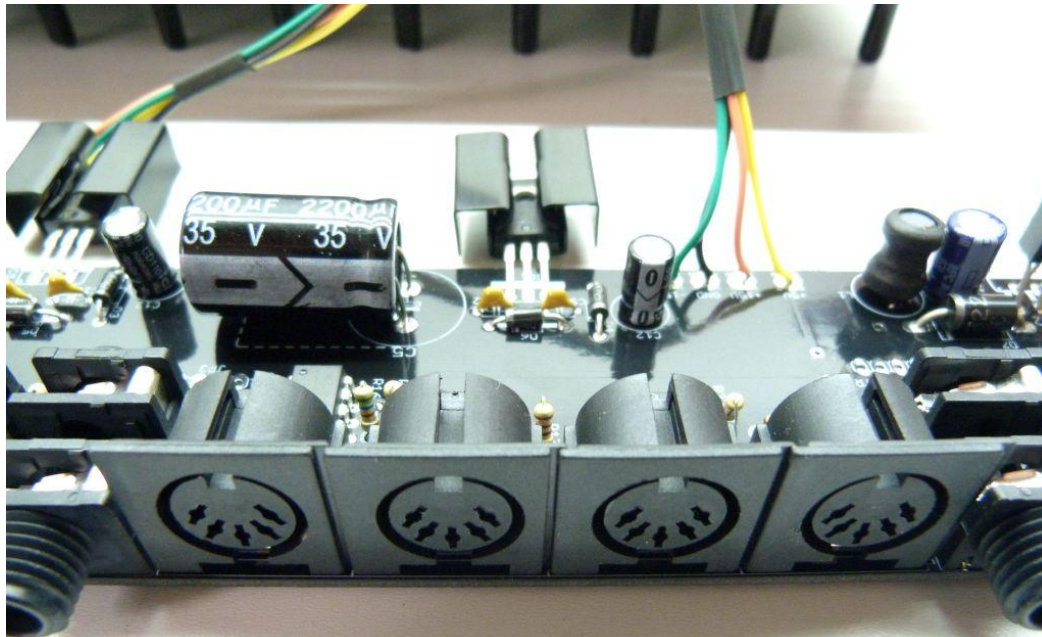


Assemble the two 2SA733 transistors they are the output buffers of TRIG1 and TRIG2

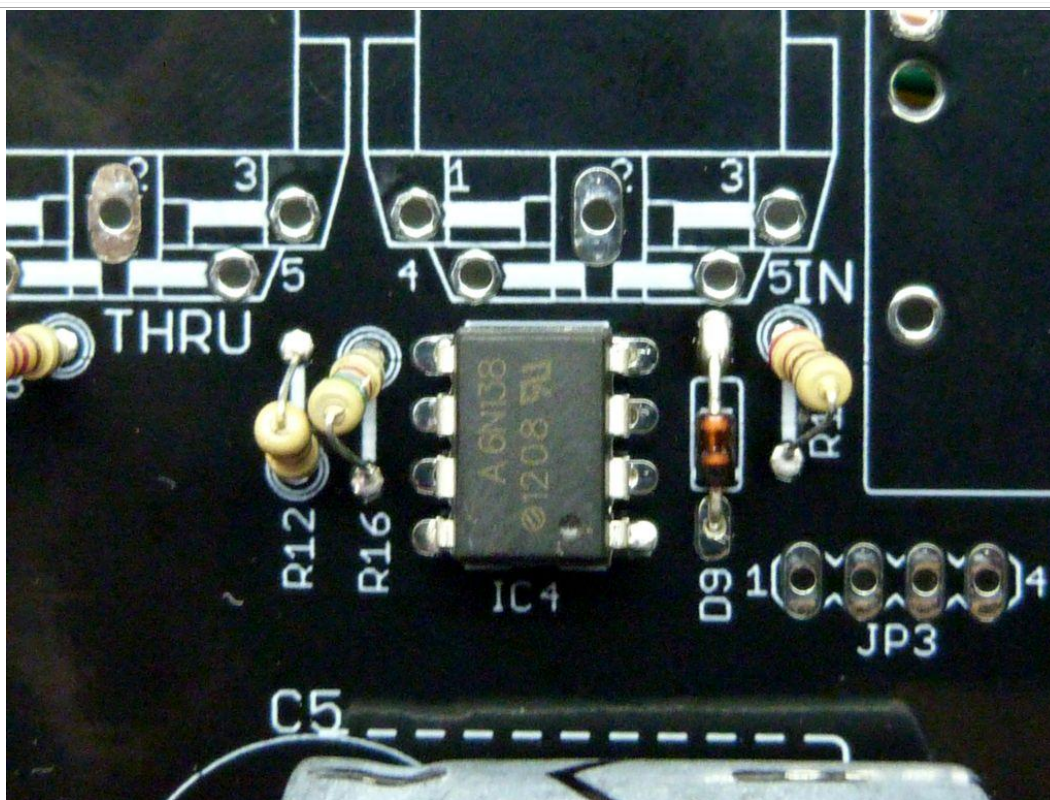
MAKE SURE TRANSISTORS ARE IN THE RIGHT WAY



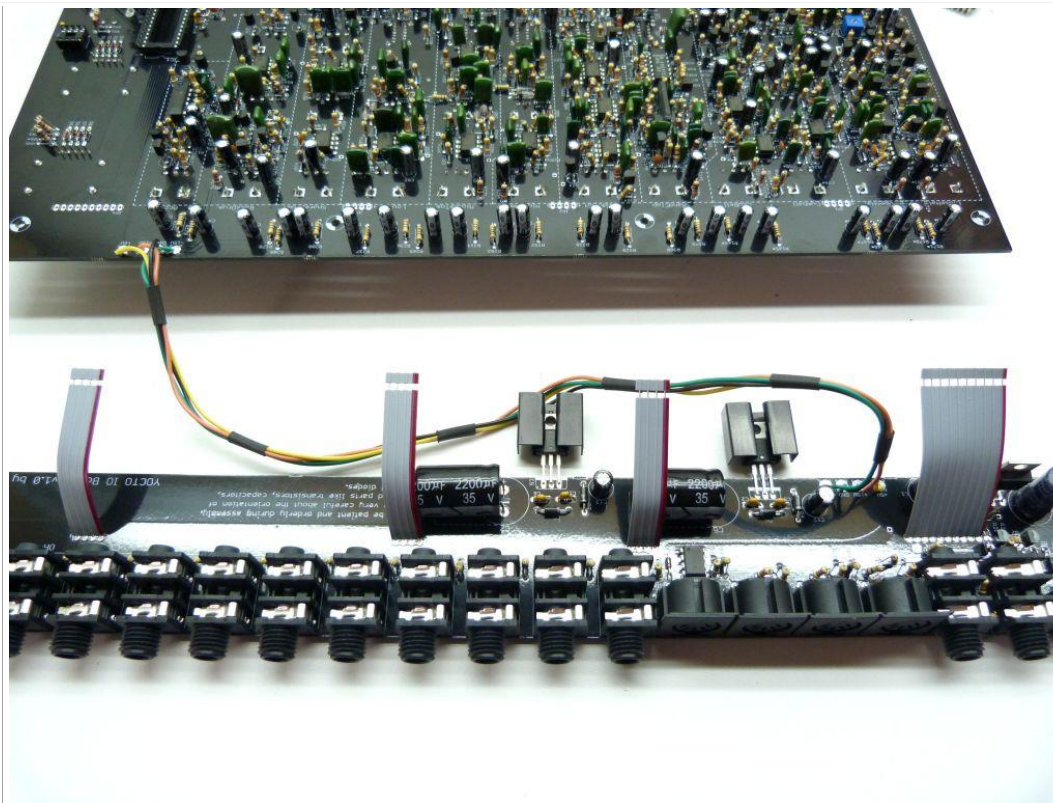
Solder the 14 6.35mm Jacks



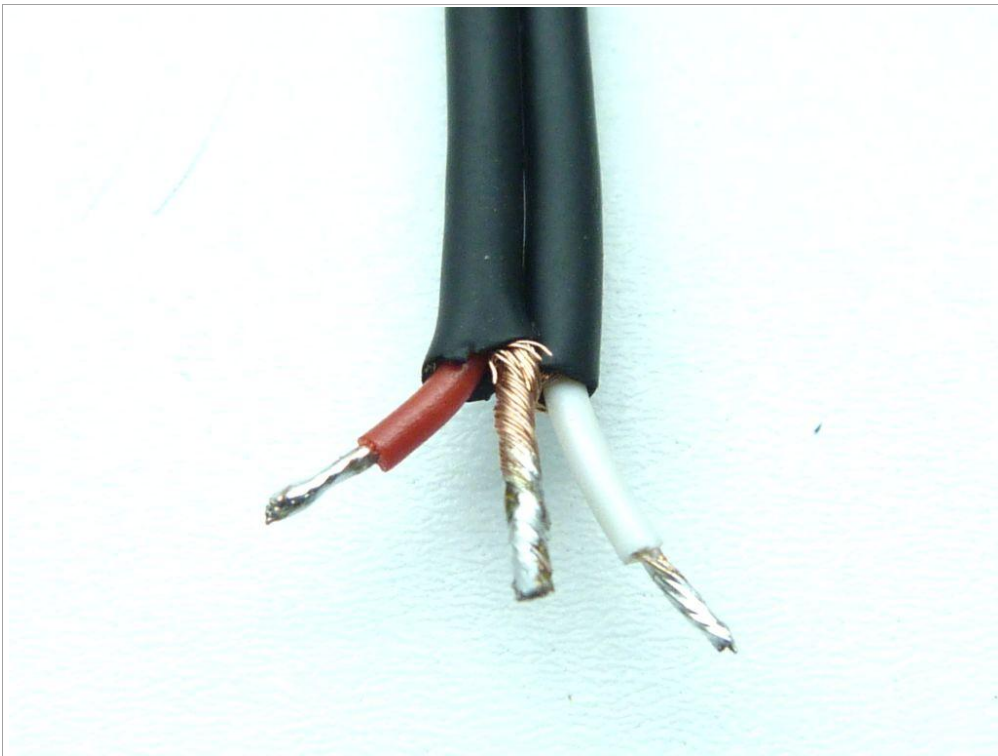
Solder the four
Din connectors



Solder the
6N138
optocoupler



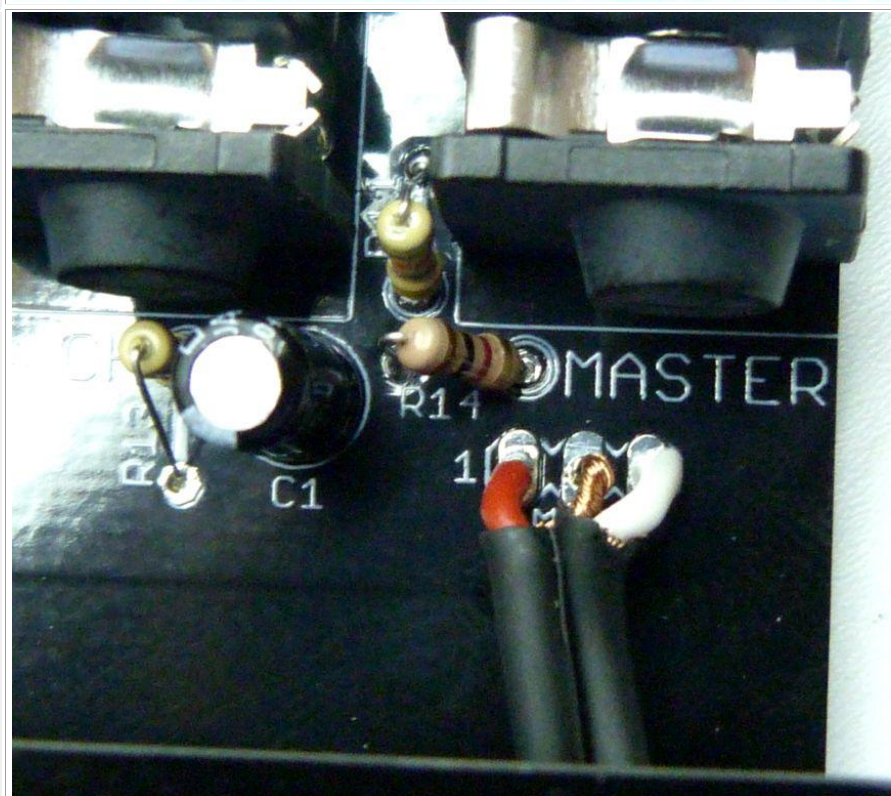
Solder the three cable 4 wires and the cable 10-wire on IO_Board.



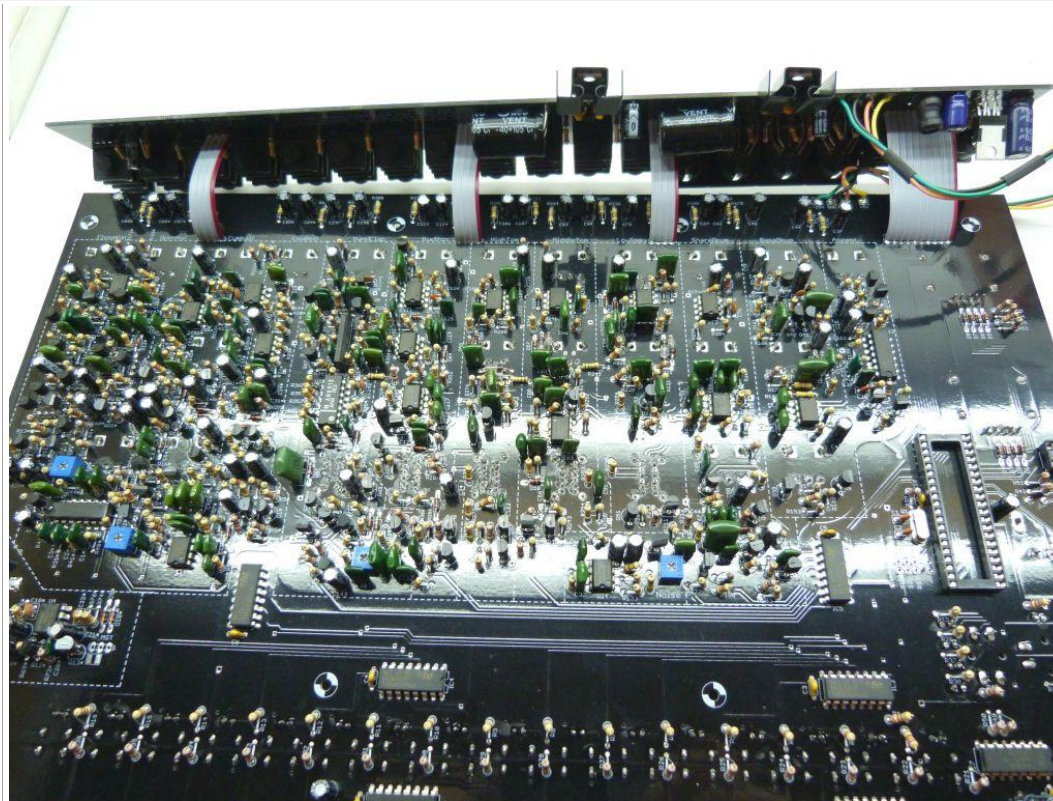
Strip one end of the audio cable and connect both ground together as a on the picture. Tin your cable.



Strip the other side and cutting both grounds. Tin it.

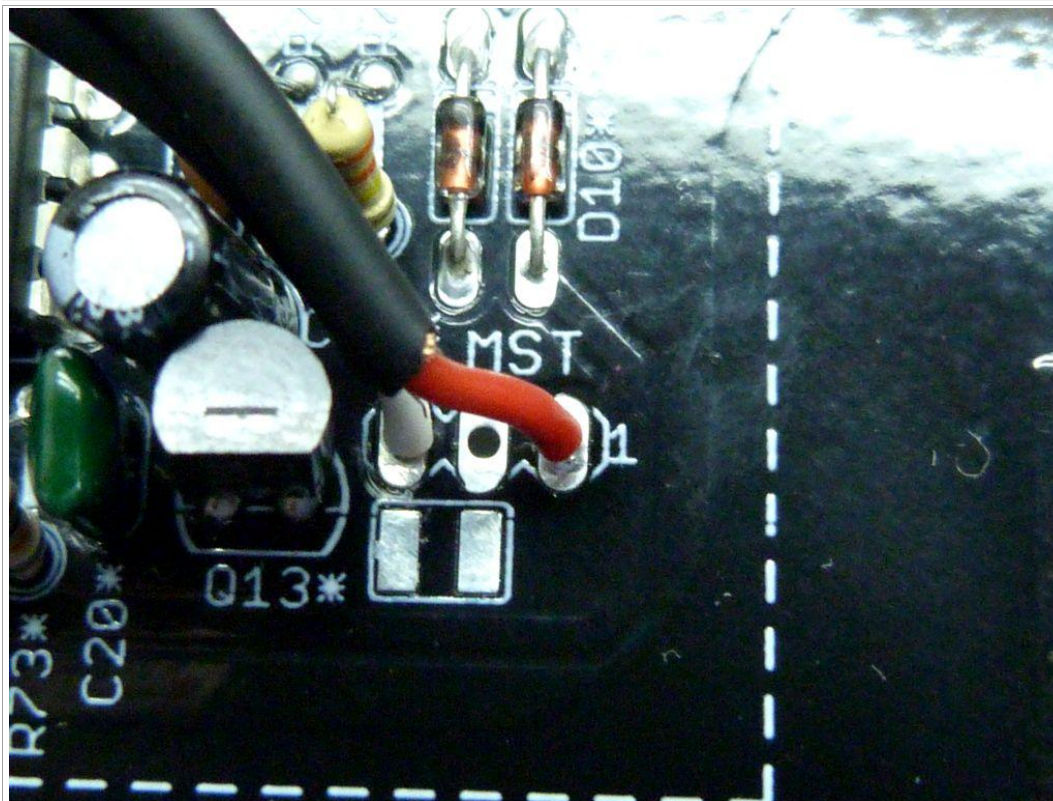


Solder the end of the cable that has three wires (red, white and ground) to IO_Board. Take the red wire to No. 1, the ground in the middle and white for the No. 3 as the picture.



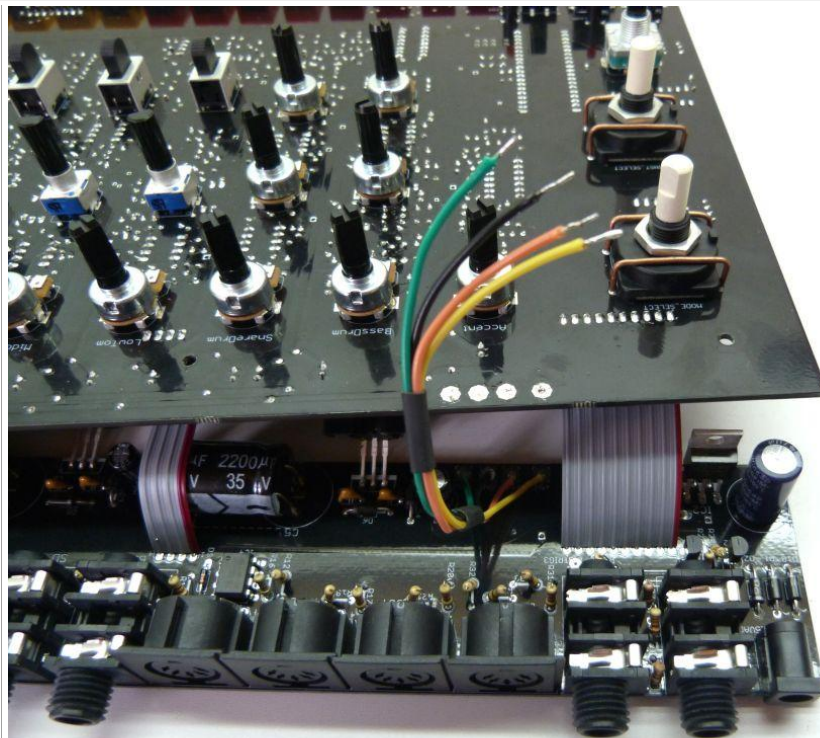
Now solder the cables 4-wires and 10-wires to the Main_Board.

This is a bit tricky. Be careful.

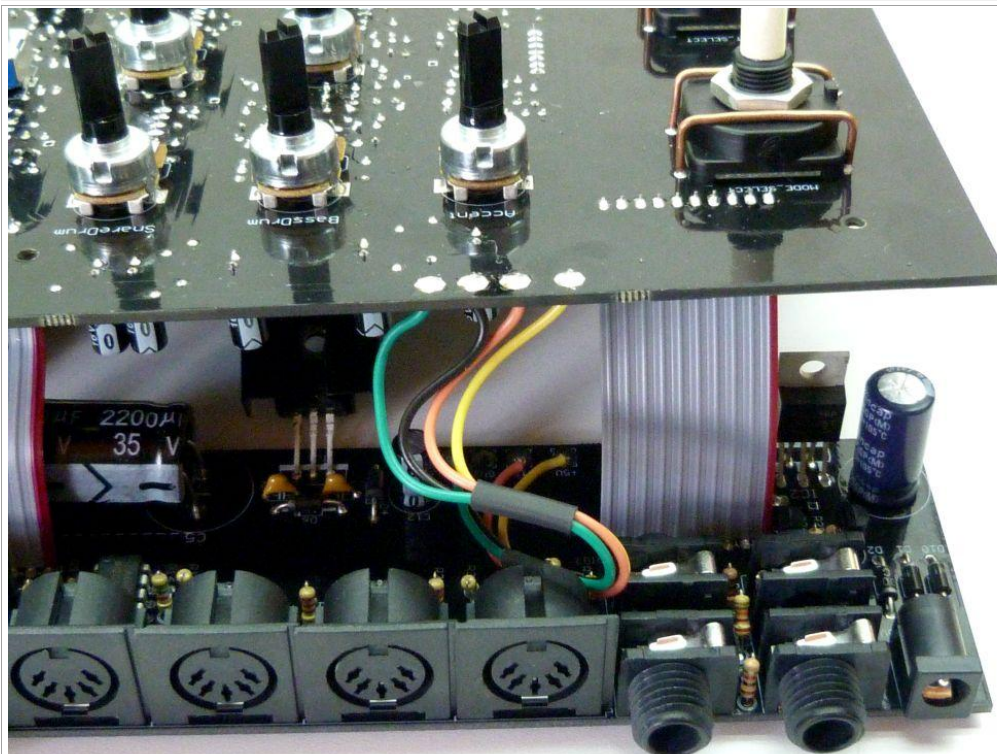


Now solder the other end of the audio cable to the Main_Board in the master section. Take the red wire as No. 1 and No. 3 for white.

There is nothing to solder on the pad in the middle.



Desolder and cut power cables with a length of 8cm.

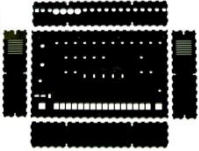











Resolder the power supply cables.

RESPECT THE ORDER OF WIRING. LOOK WELL THE PICTURE. THE PADS ARE FACING EACH OTHER!

You can then go to [Finished assembly](#)

Finishing:

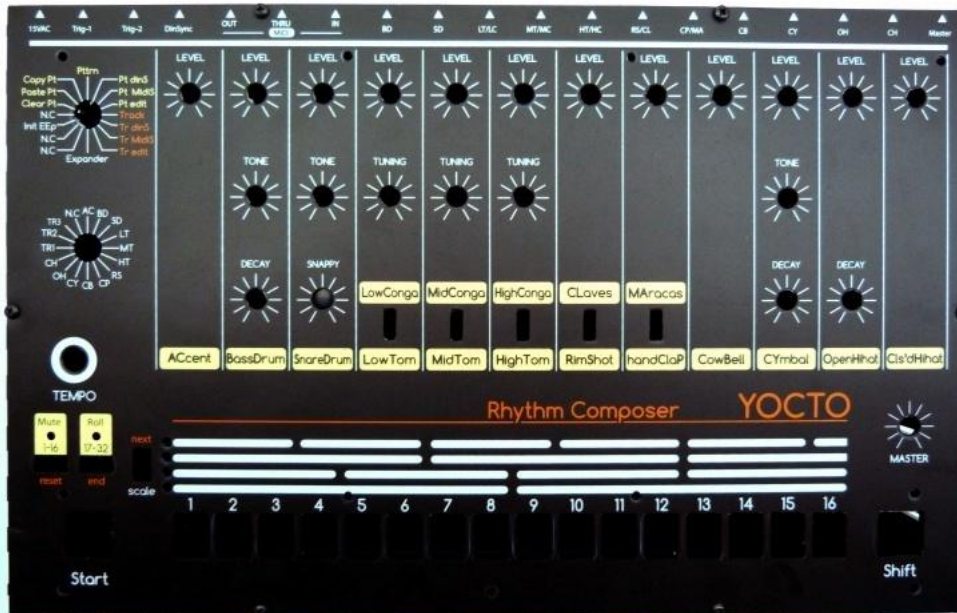
	Description	Qty
	Acrylique case (not included)	1
 1	3M Overlay Yocto	1
	Long M3 screw	16
	M3 nuts	16
	Short M3 screw	11
	Short M3 screw	11
	Entroise M3 10mm	11
	White line knob	10
	Orange line knob	14
	Rotary switch knob	2



Nuts for Jack

14

Make it:



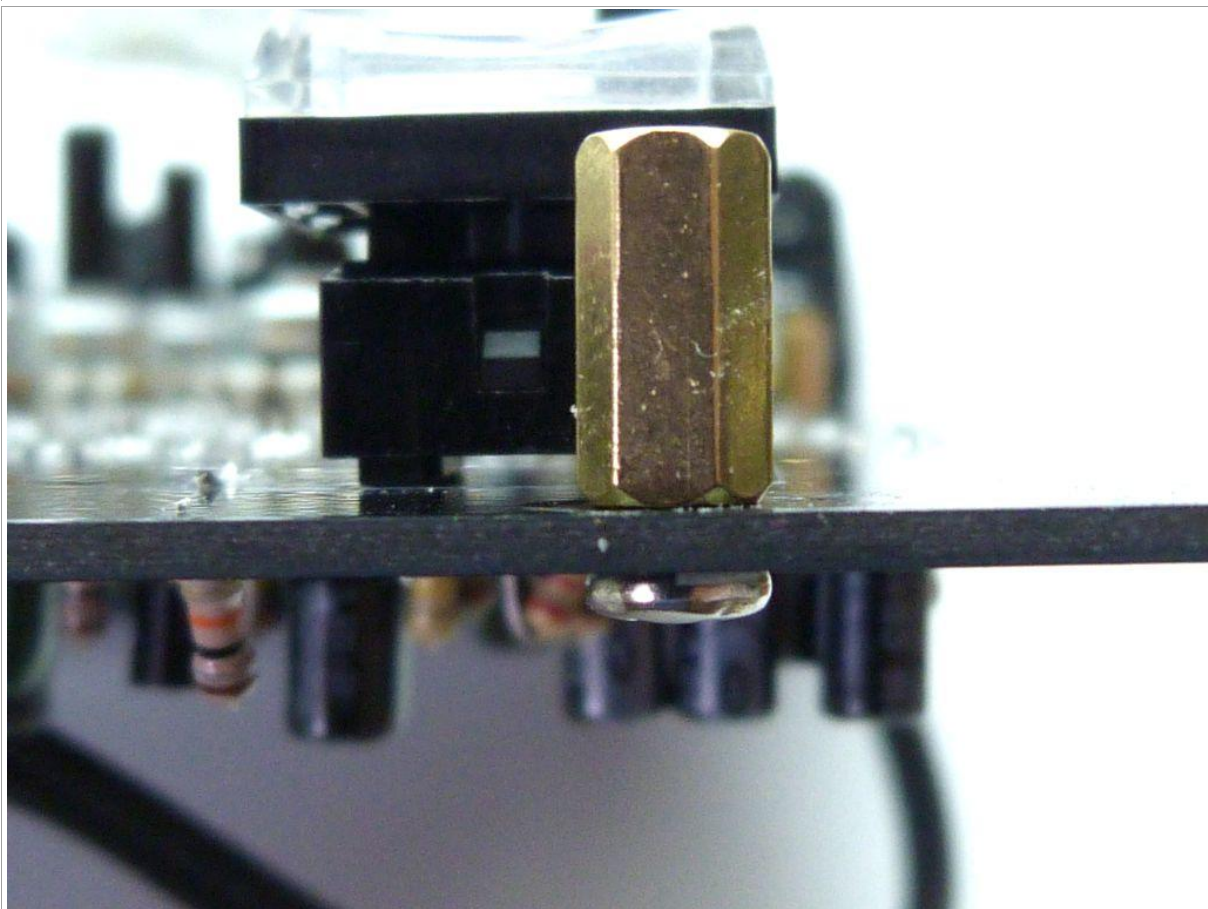
Stick the overlay on the front panel.

REMEMBER TO REMOVE THE PROTECTIVE FILM ON ACRYLIC.

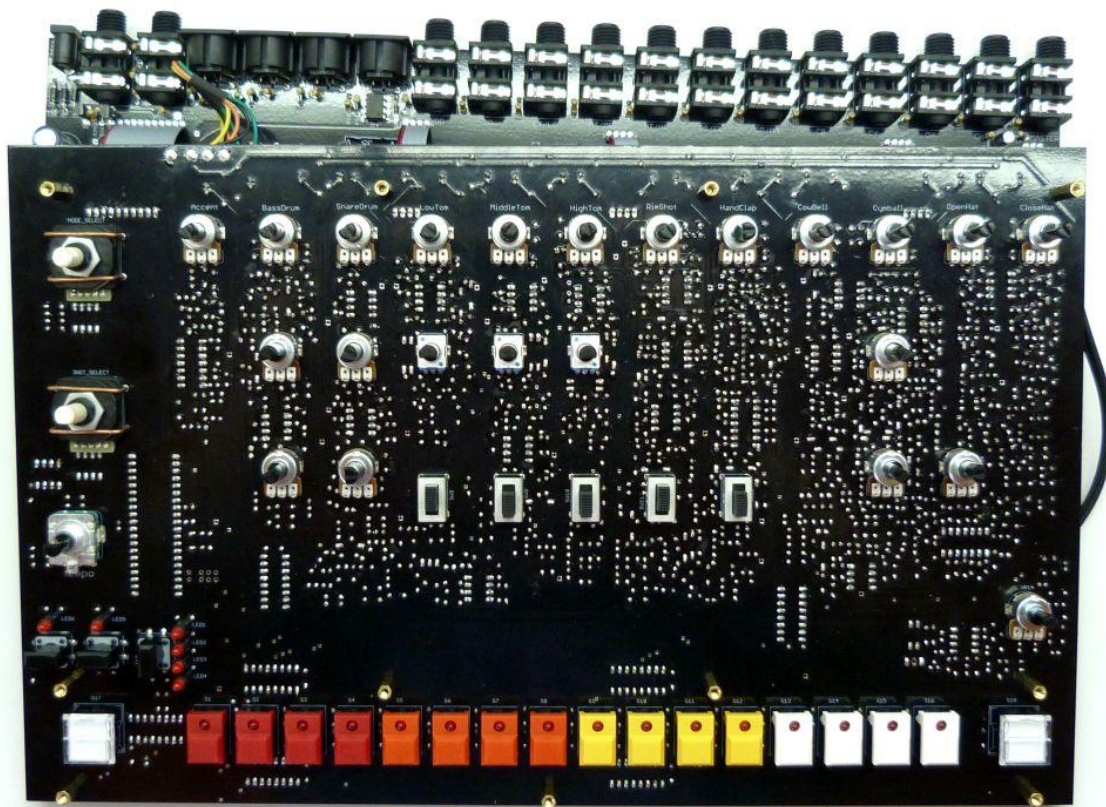
The OVERLAY GLUE VERY STRONG YOU HAVE TO GLUE IT ON THE RIGHT PLACE THE FIRST TIME. ALIGN WITH THE TOP EDGE AND STICK IT SLOWLY.



Assemble the Acrylic box with long black screws and nuts. Do not install the base before the circuit inside;)



Install the 11 spacers with short chrome screws .



Circuits are now ready to be put in the box.



Attach the circuit with short black screws.

Embed IO_Board in the rear face.

Add buttons.



Now screw the 14 nuts of the jack and you're done. It'll just initialize eeprom and have fun.

To initialize EEPROM set the switch to "Init EEPROM" and press the "Play" and "Shift" button. The LEDs will scroll the time of initialization.

Are you ready to have fun! ;)