VAMISOUND

THE SOUND
IS YOURS

Schoeps LDC

BUILDING
INSTRUCTIONS

WE SOUND BETTER

Dear DIY friend,

first of all thank you for your support and choice of the VAMISOUND product. We wish you a happy DIY and the joy of a new microphone in your arsenal!!

Jan and Milan

VAMISOUND SCHOEPS LDC BUILDING INSTRUCTIONS

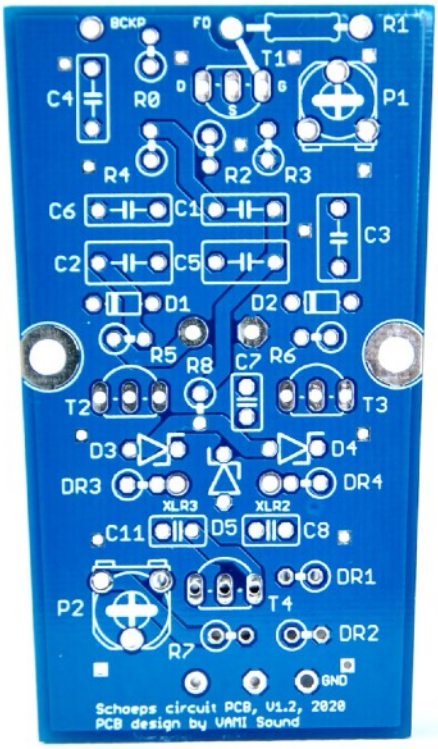
WE SOUND BETTER

Before you start building your new microphone please carefully read this building instructions.

Attention: Schoeps LDC is a medium-heavy project. The circuit is made up of only a few components. However, it should be borne in mind that certain manual skills will be required or the successful completion of the mic construction. Good soldering experience and soldering stations with fine soldering tip are recommended. If you do not have this, please delegate the construction to a more experienced technician with proper equipment. We are not responsible for malfunctioning construction or injuries associated with improper assembly of our kits.

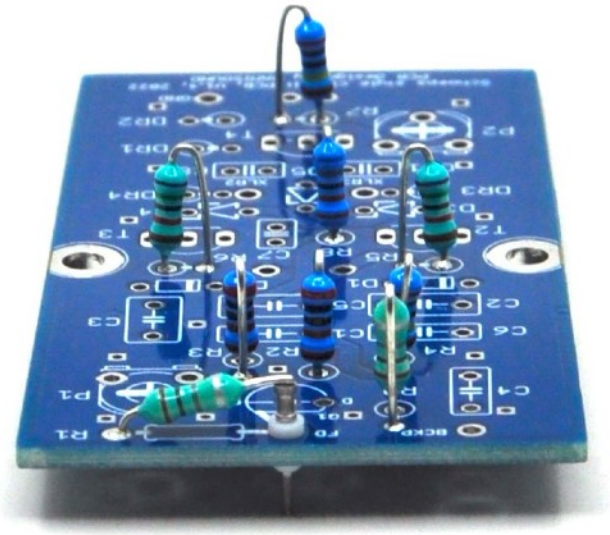
Document info	
Document name	Schoeps LDC building instructions
Document revision	1.1
PCB revision	1.1
Date	February 2024
Project difficulty	★★★★★
Complexity of soldering	★★★★★
Risk of electrick shock	★★★★★
Changes and notes	R0 and its value were added to the BOM.

The Schoeps style LDC board allows you to build a microphone that is based on the circuitry from the legendary Schoeps small diaphragm microphone. However, thanks to a small modification of the circuit, it can use a large diaphragm capsule. The circuit is frequency flat, with no internal equalizer, so capsules like the C12, M7 or K47 fit perfectly with it.



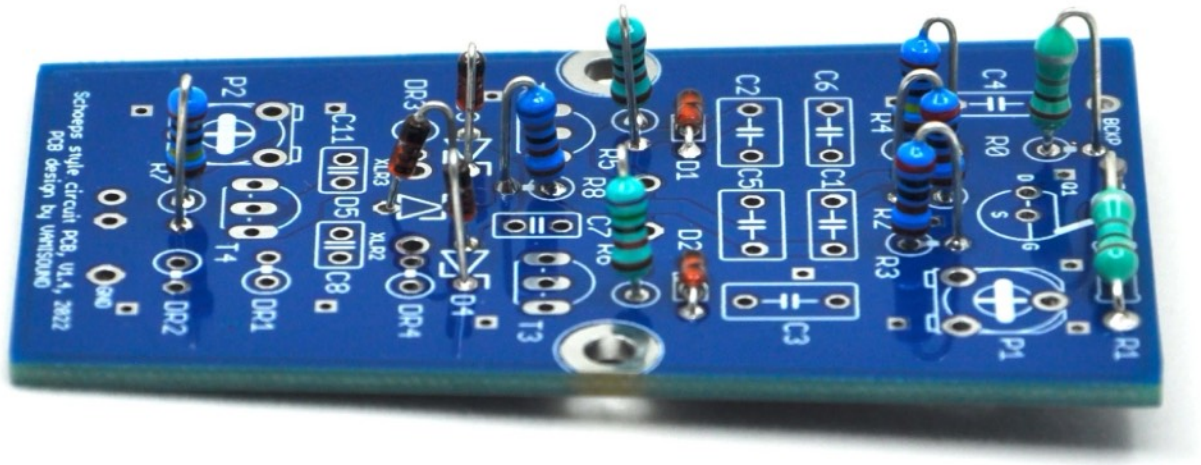
Solder all resistors according to the BOM first and install teflon pin by hole on the board marked as „FD". Note that R1 is soldered with one leg to this teflon pin – in the air.

Here, for the sake of illustration, a different point of view.



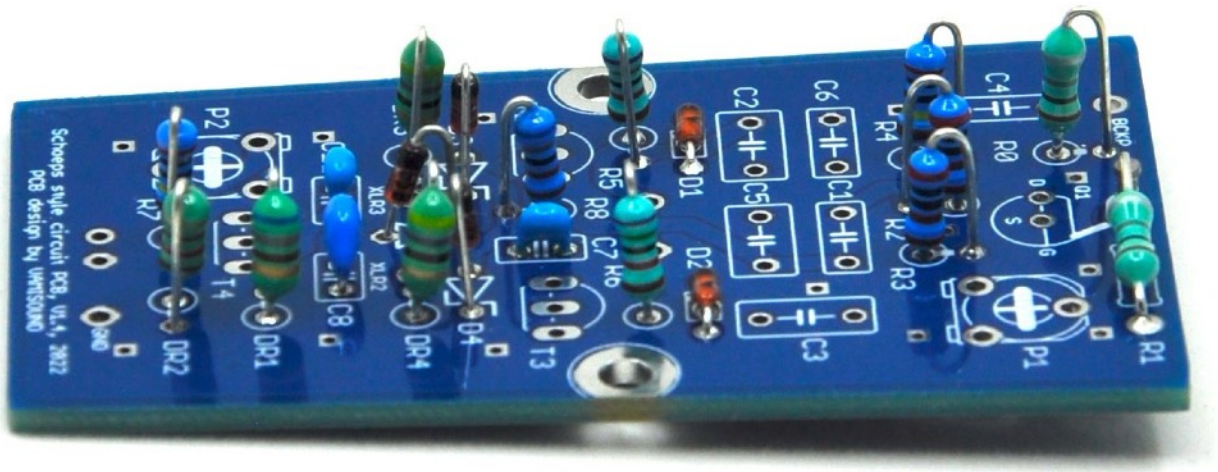
Continue by soldering diodes D1 and D2.

The zener diodes D3, D4 and D5 follow.

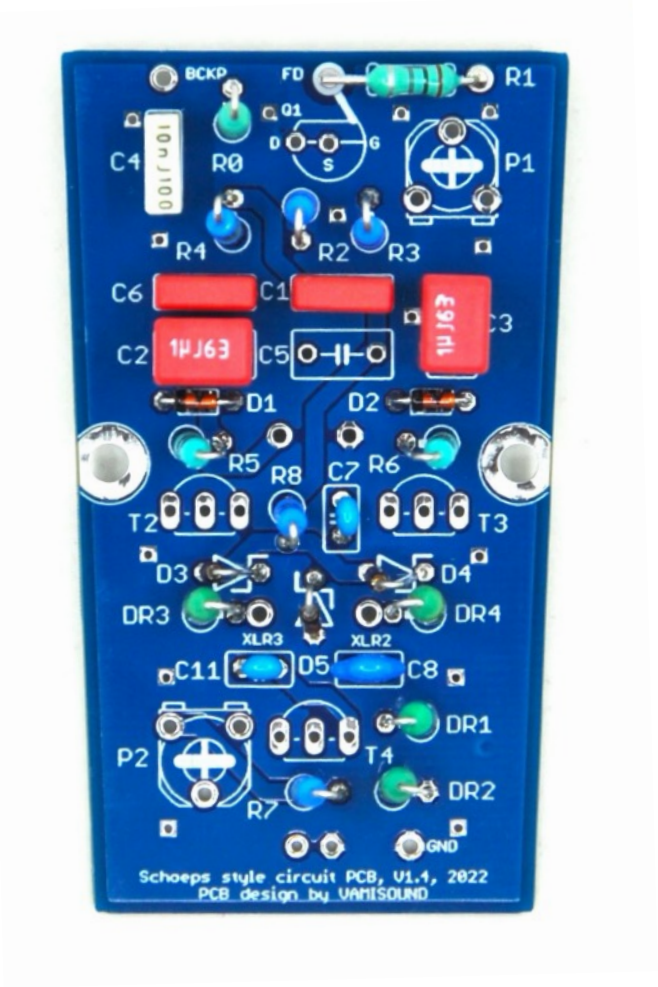


Next in order are inductors. There are 4 of them on the board.

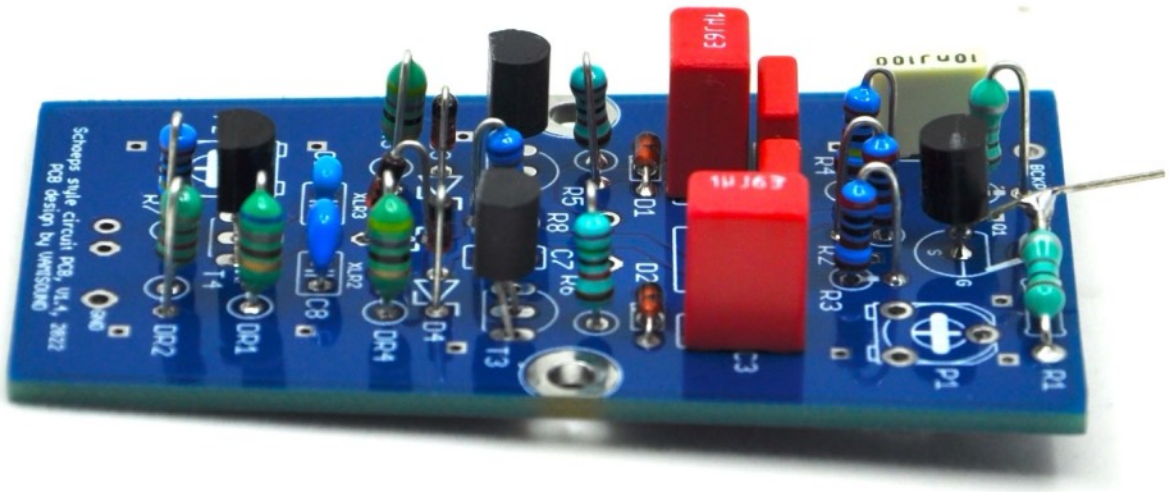
Continue with ceramic capacitors C7, C8 and C11.



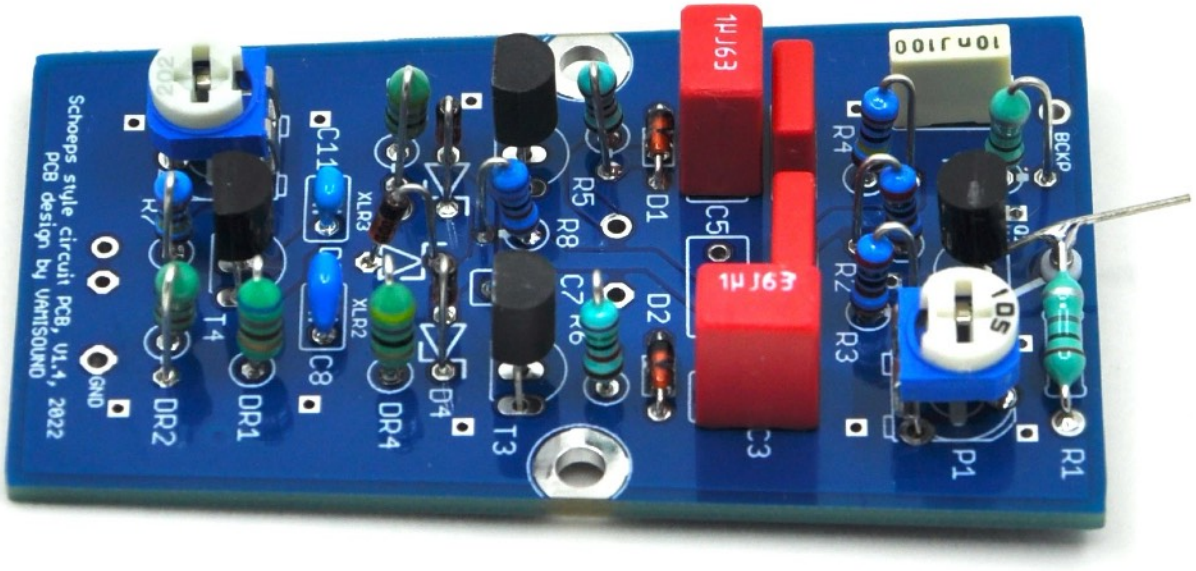
Film capacitors always light up the whole board :-) Don't install C5 now. You can use this with a very bright capsules. C5 forms LPF. Experiment with values around 22nF if necessary.



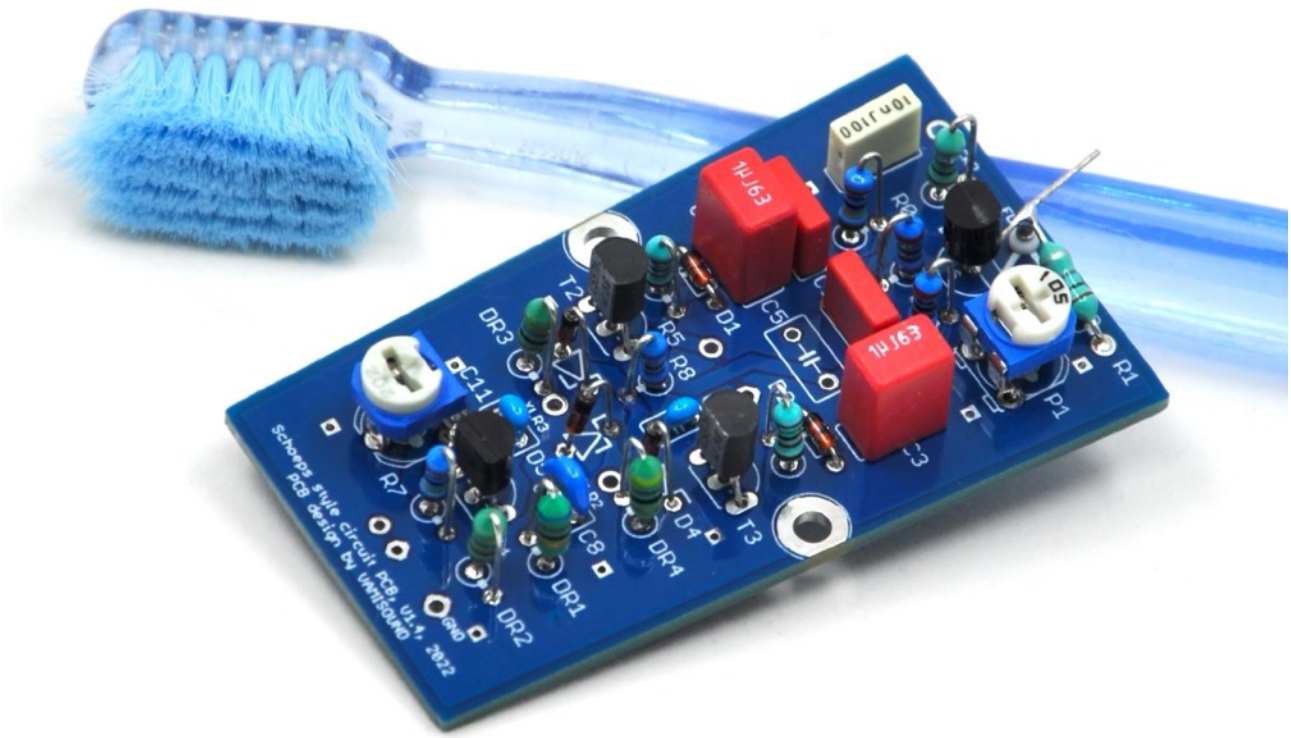
Now solder the transistors to the board. Notice that on the board around the footprint of the FET transistor there are small marks D, S and G (= drain, source and gate). Make sure that the selected FET transistor uses the same footprints. If necessary, adjust according to the markings on the board. Gate leg of FET transistor solder to teflon pin as if in air. T1 pcb footprint on the board match BC264 (original FET) pin out. If you plan to use 2N3819 FET tranzistor keep in mind that the GATE pin is the middle one (always check it against the FET transistor datasheet).



Solder the two trimmer resistors into their place.

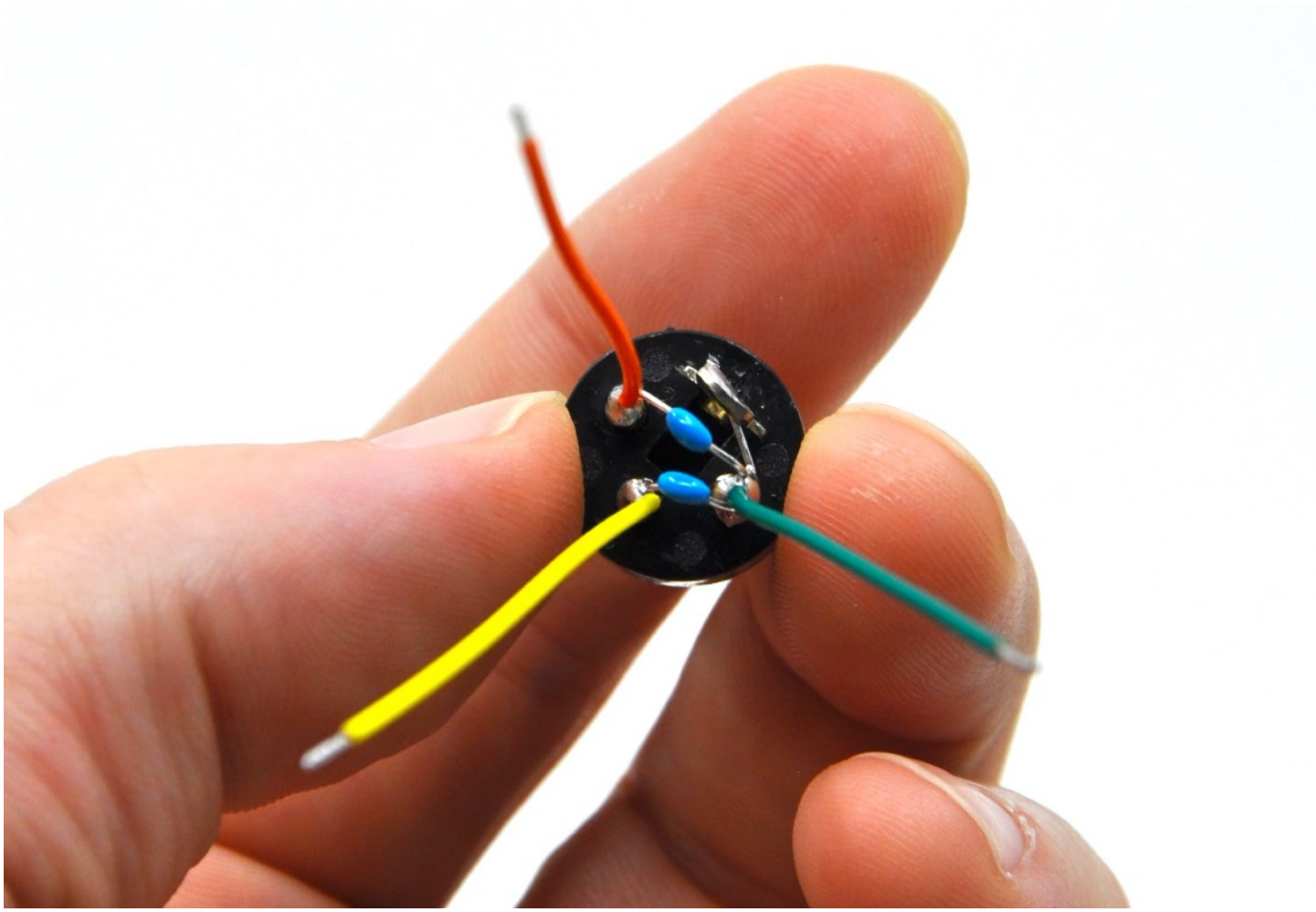


Now it's time to carefully clean the bottom side of the printed circuit board. Isopropyl alcohol and a toothbrush is your good helper.

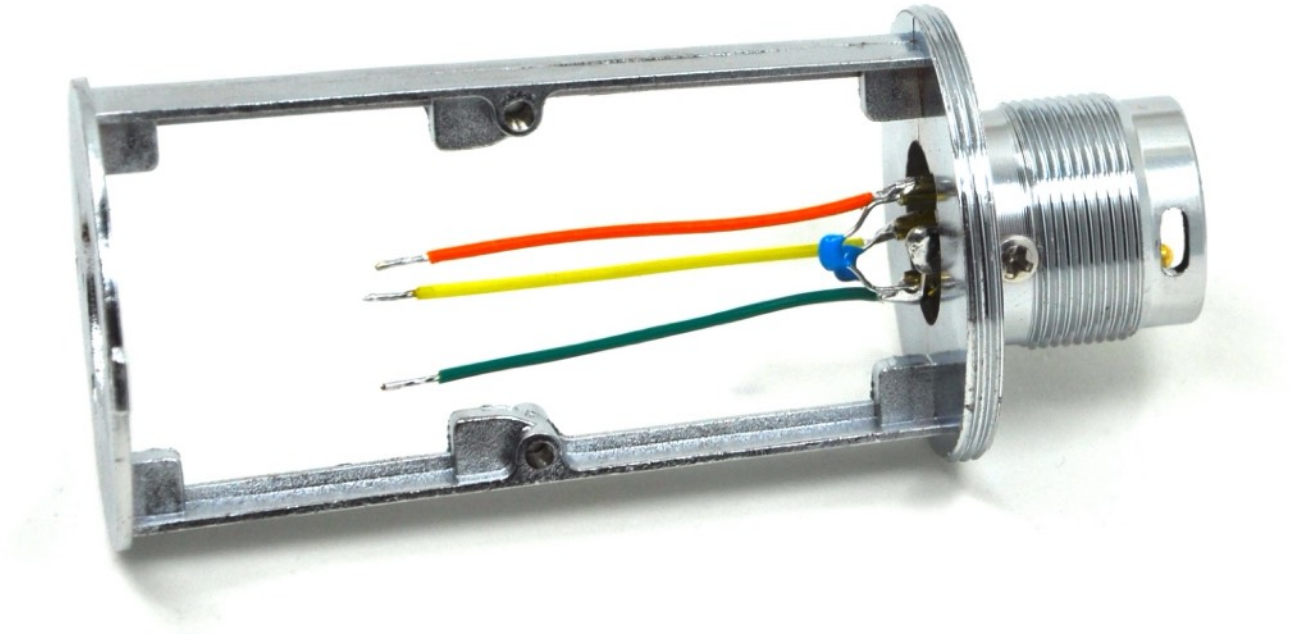


After cleaning the board, solder two electrolytic capacitors from the bottom side of the board.

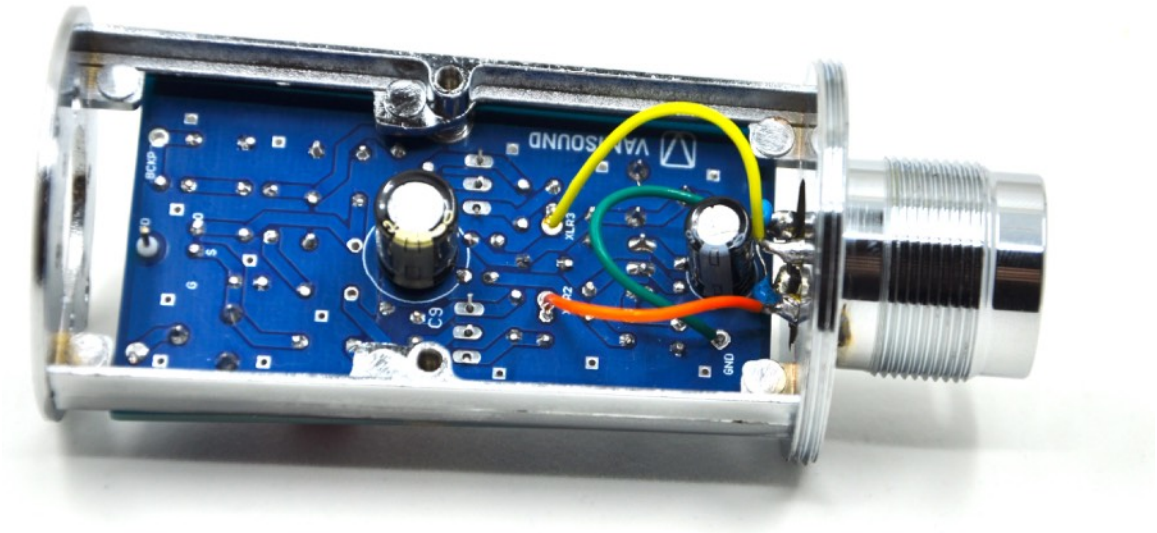
Now it's time to create a filter directly on the XLR connector insert. Connect the first capacitor between pin 1 and pin 2 of the XLR connector and the second between pin 1 and pin 3. At the same time connect pin 1 via resistor leg to the ground lug of the XLR connector insert and solder the three cables too. It can be a bit of a challenge but I'm sure you can handle it.



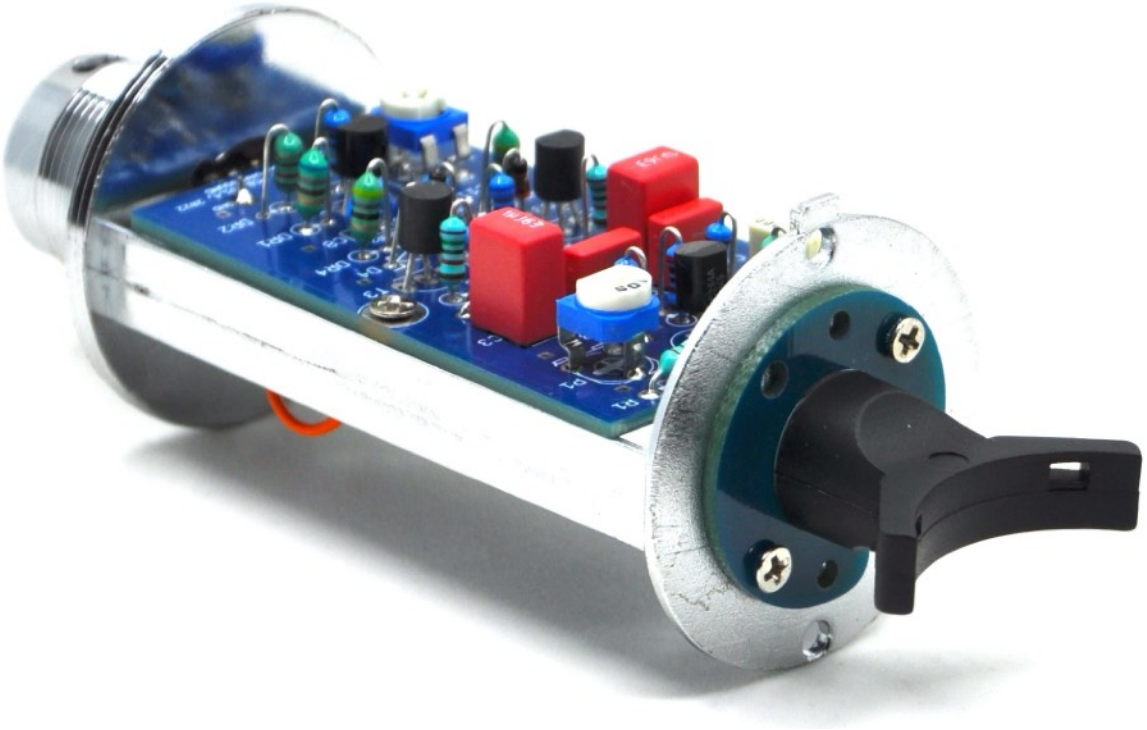
Screw the prepared XLR connector into the microphone chassis.



Screw the microphone board to the chassis and solder the three cables to the appropriate pads on the board.



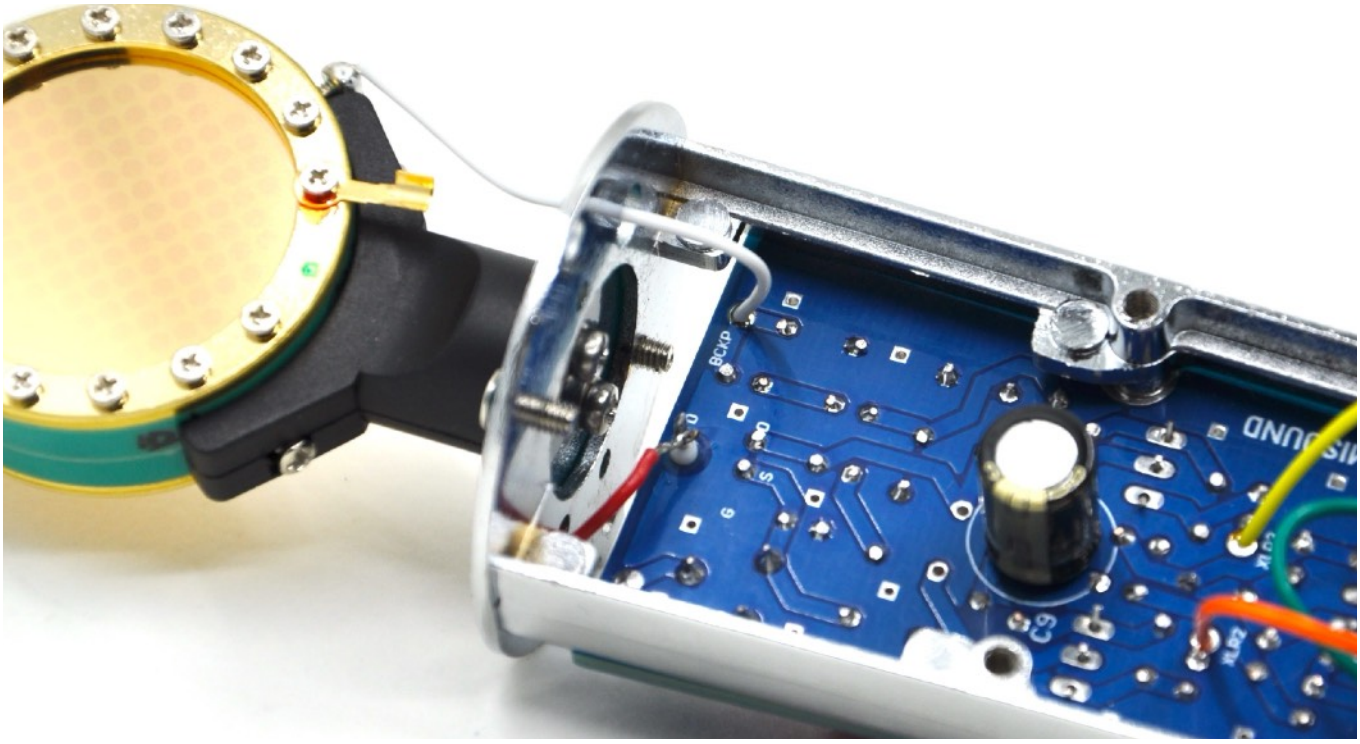
Install the capsule holder.



Now it's time to attach your favorite capsule to the holder. As stated earlier the Schoeps LDC is a frequency flat circuit very suitable for capsules like C12, K47 or M7 that do not need frequency correction.

Solder the cable from the front diaphragm to the teflon pin on the underside of the board.

Solder the cable from the backplate to the pad marked BCKP on the circuit board.



Put the head basket on the microphone and you can proceed to the first test of the microphone. Connect the microphone via cable to the preamp and activate phantom power. Adjust the voltage on trimmer P2 so that you measure 55V to 60V (higher voltages could damage your capsule!!!!) at the cathode of diode D1 against 0V (ground) on the board. Use a digital multimeter to do this. The voltage measured at the cathode of D1 (the leg on the side of the diode with the black stripe) is the polarization voltage that goes to the capsule.

As for the P1 trimmer, set it so that you measure about 4.5V on the drain leg of the FET transistor and 6.1V and the D5/R2 point. Please check the original schematic (Schoeps CMC3) for more info about operating voltages.

Congratulations! Your new microphone is now complete and ready to use!!!

WIRRING INFO

1) **Capsule wiring: Front membrane cable to teflon pin marked as FD from the bottom side of pcb. Cable from capsule backplate to BCKP pad on the mic pcb.**
2) **Its always great idea to check phase of DIY microphone against commercial microphone.**

ADDITIONAL INFO

Take you time when soldering the XLR insert. You don't want to burn the plastic of the XLR insert. Take a break while soldering the individual wires.

BILL OF MATERIAL

Part	Value	Tol.	Min.Volt.	Dimmensions	link 1	link 2	notes
Resistors							
R0	1G	10 %		6.5x2.5mm	mouser link		
R1	1G	10 %		6.5x2.5mm	mouser link		
R2	2K	1 %		6.3x2.4mm	mouser link		matched to R3
R3	2K	1 %			mouser link		matched to R2
R4	2M	1 %			mouser link		
R5	75K	1 %			mouser link		matched to R6
R6	75K	1 %			mouser link		matched to R5
R7	2M	1 %			mouser link		
R8	6K8	1 %			mouser link		
P1	1M	20 %			mouser link		trimmer
P2	2K	20 %			mouser link		trimmer

Part	Value	Tol.	Min.Volt.	Dimmensions	link	type	notes
Capacitors							
C1	0.1uF		50V		mouser link	film	
C2	1uF		50V		mouser link	film	
C3	1uF		50V		mouser link	film	
C4	0.01uF		50V		mouser link	film	
C5	22nF		50V		mouser link	film	forms LPF
C6	0.1uF		50V		mouser link	film	
C7	1nF		50V		mouser link	ceramic	
C8	6.8pF		50V		mouser link	ceramic	
C9	47uF		50V		mouser link	electrolytic	
C10	220uF		16V		mouser link	electrolytic	
C11	22pF		50V		mouser link	ceramic	
C12	2.2nF		50V		mouser link	ceramic	filter on XLR
C13	2.2nF		50V		mouser link	ceramic	filter on XLR

Part	Value	Tol.	Min.Volt.	Dimmensions	link	type	notes
Diodes							
D1	1N4148				mouser link		
D2	1N4148				mouser link		
D3	6.2V				mouser link	zener	
D4	6.2V				mouser link	zener	
D5	6.2V				mouser link	zener	
Inductors							
DR1	680uH				mouser link		
DR2	120uH				mouser link		
DR3	47uH				mouser link		filter on XLR
DR4	47uH				mouser link		filter on XLR
Tranzistors							
T1	2N3819				mouser link		alternative BC264, PCB footprint match BC264 pin out
T2	BC559C				mouser link		alternatives: 2N5087, BC560 HFE matched to T3
T3	BC559C				mouser link		alternatives: 2N5087, BC560 HFE matched to T2
T4	BC550				farnell link		
Other							
Capsule	Maiku K87 (without C5 instaled), Maiku C12, K47, 3U Audio C12, K47, M7, Wgtcenter K47						
Teflon pin					mouser link		