

## Foreword

Dear Nixie tubes friend,

Thank you for purchasing this state-of-the-art Audio Analyzer DIY kit for 6 x IN-9 Neon or Argon Bargraph tubes. You have purchased a product that captivates as a DIY version a component quality and choice of materials that is outstanding in the market and will certainly draw the attention as an eye catcher of your acquaintances in the future.

However, this also means that you should not "cobble together" this kit in record time. Take a smooth evening and about four to five hours time to build.

Also, you should already have the necessary equipment and knowledge to be able to build such a high-quality DIY kit without complications. The resulting success will definitely reward you for your effort and stamina.

This instructions assume electronic fundamentals, i.e. you should already know that Electrolytic Capacitors, ICs, LEDs and Transistors are polarized components and may not be soldered in reverse direction. These parts are also very sensitive for electrostatic discharge. Furthermore, the usage of a temperature-controlled soldering station with max. 1 mm wide tip and corresponding fine electronic solder as well as appropriate tools (multimeter, TX10 and slotted screwdriver, side cutter, tweezers, magnifying glass, etc.) are recommended.

The tubes used in this kit are made of glass, evacuated and therefore very sensitive. The wires or the glasbulb of the tubes can therefore crack during rough handling - even when unpacking. Complaints due to such defects cannot be accepted.

**Please read and follow the steps and hints in this manual. These are all tested and allow you a trouble-free assembly.**

## Important Safety Instructions

During installation, commissioning and measurements and repair special care is required! Assembling of the circuit is at your own risk. The functionality can not be guaranteed, nor the suitability for certain purposes. The user himself has to check this and is responsible for this suitability.

No liability can be accepted for damages arising during or as a result of the assembly or operation, in particular for damages resulting from a lack of electronic skills.

The Analyzer may only be operated in a touch-proof housing in dry indoor environment. Operation without or with defective tubes is not permitted!

The person who has completed a kit or has made an assembly ready by extension or enclosure installation, is according to VDE 0869 a manufacturer and therefore provided to supply all documents when selling the device and also give his name and address.

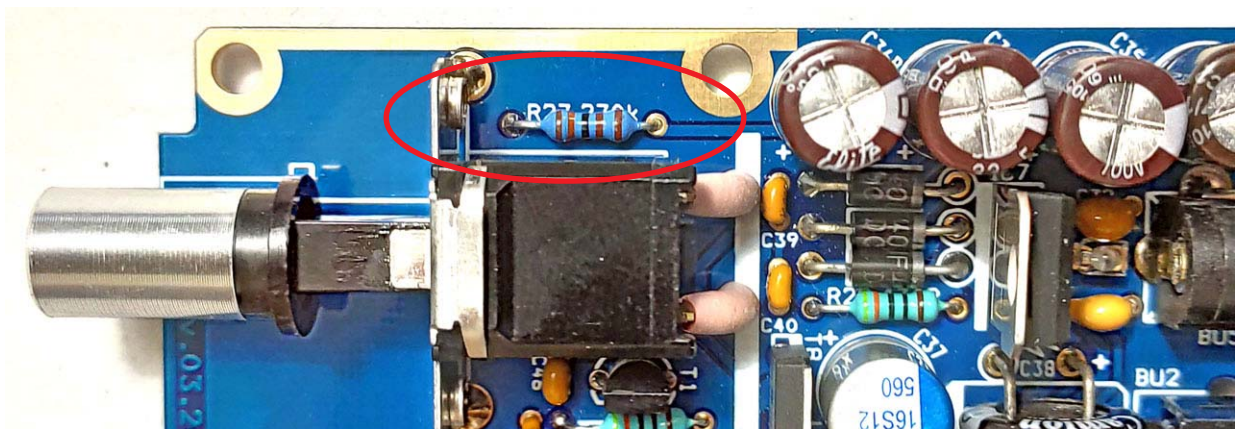
Devices which are assembled from kits themselves are to be considered as an industrial product in terms of safety.

**And now, after these necessary words - time to fire up your soldering station.**

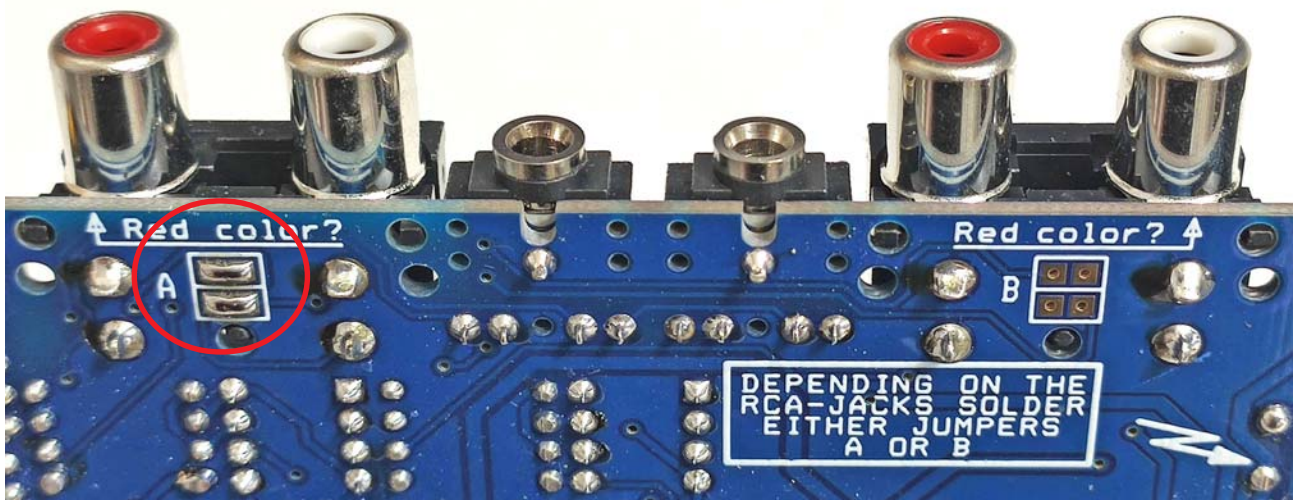
Addendum for the second batch of the IN-9 Nixielyzer

The second batch of the Nixielyzers was made with blue soldermask board including a few modifications:

- 1.: As stated on the beginning of the assembly manual you need not to trash any parts of the board. Keep all.
- 2.: For your assembly pleasure all resistors are also marked with their resistance values; but there's an error on the silk screen: R 27, next to the switch, is marked on the PCB with 270k, but it must have a value of 1k3.



- 3.: On solder side some jumpers are added to match the versions of the istereo RCA jacks (left / right colour). On this batch you need to solder only the jumpers marked on the photo.

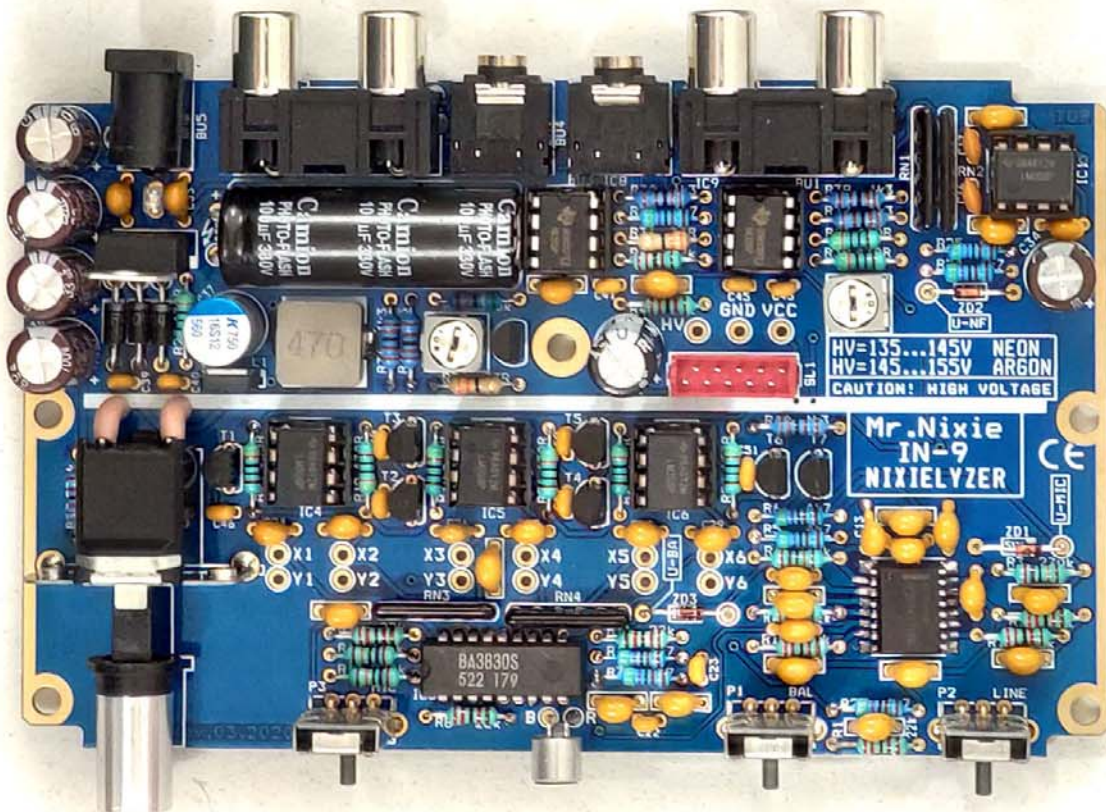
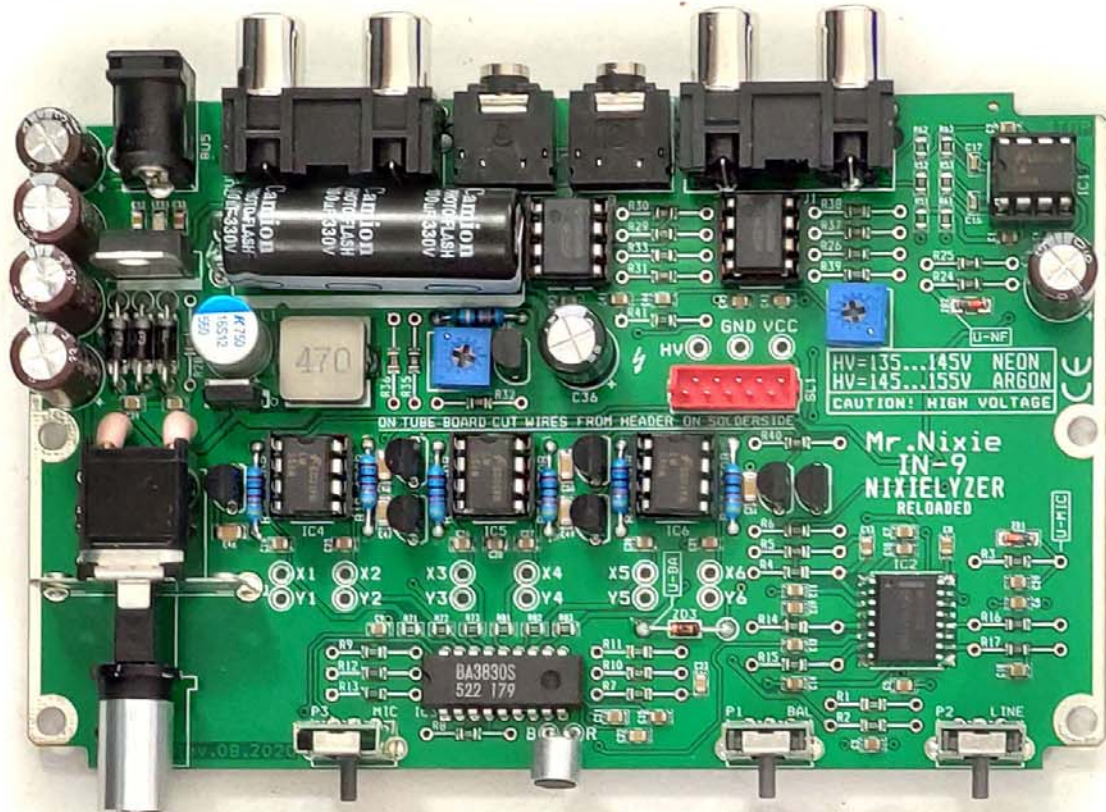


Setting these solder jumpers is also valid for the third batch !

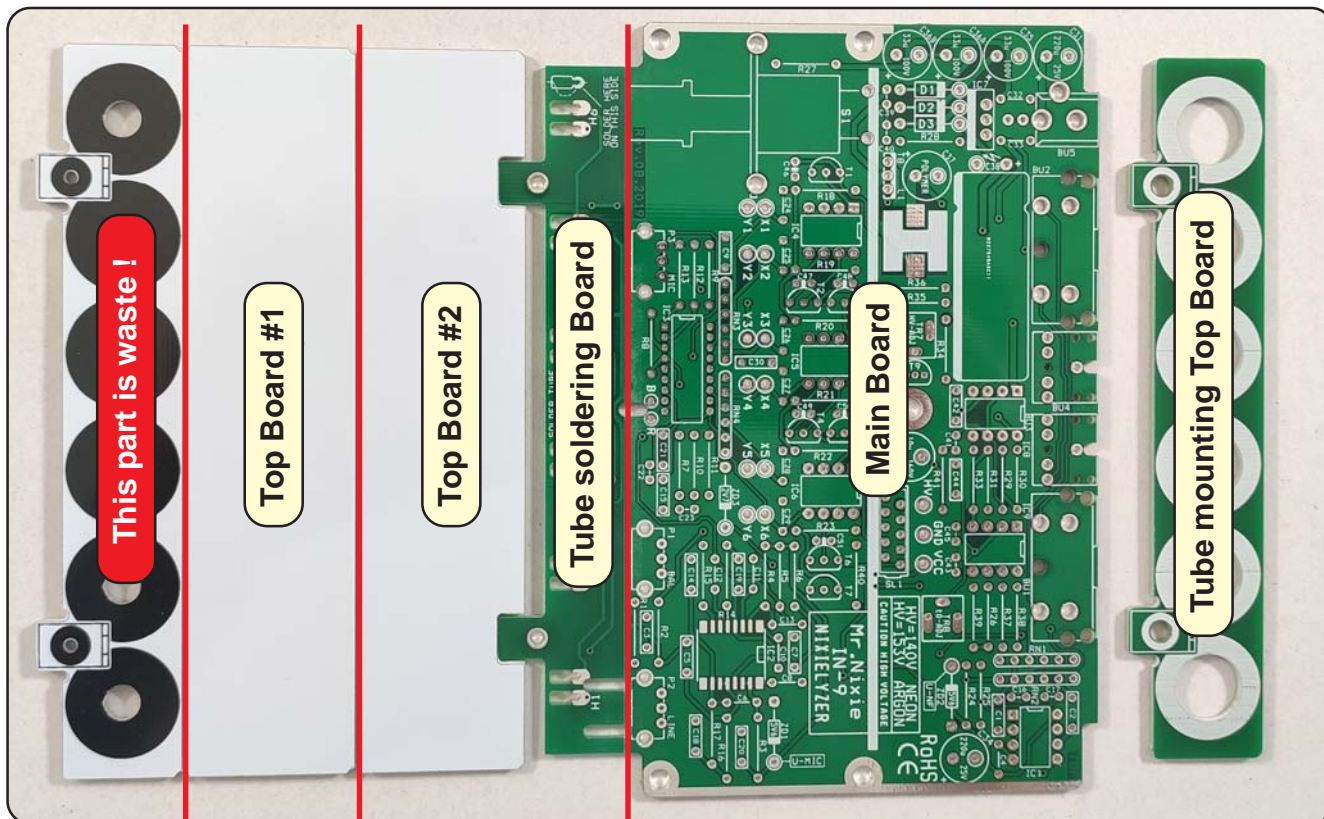
## Addendum for the third batch of the IN-9 Nixielyzer

The third batch of the Nixielyzers was made with green soldermask, and most of the resistors and capacitors are replaced by SMD for easier and smooth assembling.

These pre-assembled SMD parts are marked yellow in the BOM.



Locate the PCBs inside the components box



Crack the PCBs on the red market V-Cuts

Please print out in color the pages of the PDF manual with the BOM and parts locations shown on the Main Board

Let's first assemble the two SMD parts IC2 / L1 and IC3

Get from the **Semiconductor** bag the SMD IC2 **NCY9100**, the through hole IC3 **BA3830S** and from the **Divers** bag the SMD **47µH Inductor L1**.

Start with IC2 by soldering only one of the „fat“ pads in the corners. Next place the part in position and heat the lead / pad again until the the solder melts and anchors the part. Pay attention for the position of the IC's notch. Now solder the three connections in the other corners and finally the remaining 12 smaller pads. A desolder wick will help when you accidentally solder two pads together.

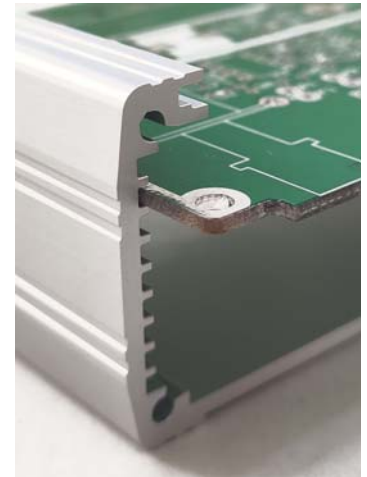
**When finished, inspect your solderwork carefully with the help of a loupe !**

Do it in the same way with the inductor L1. But, as this pads are very big and also the part itself will draw a lot of heat from the soldering, you need to set your solder iron temporarily to 400°C / 750°F for a good melting of the soldering tin. The polarization of the inductor is negligible.

When finished, set back the temperature of the solder iron and bend very carefully the legs of each side from IC3 until they will fit proper into the pads as this IC is assembled without socket. Take special care for correct orientation and solder carefully, as there's no easy way without damaging the part or the board when you need to swap / unsolder this part.

## We will build an assembling aid for the resistors and diodes

Pick up the **Main Board** and the **aluminum frame**. Slide the PCB in the second wider upper groove as shown in the picture. Pick up from the components box the bag with the **Resistors**. We will now start assembling **and soldering** the parts from **components side**. This is much faster and easier. Start assembling and soldering the resistors value by value, start with the lowest count = 590 kohms, followed by 2 x 33 ohms, etc. Stop when you reach the 9 x 430 ohms and clip all the soldered wires first on solder side. Then continue assembling. For assembling and soldering R3 and R16 you'll need to pull out the board a little as they are partially hidden by the frame on the right-hand side. **Don't assemble the Trimmers, Potentiometers and Arrays yet.**



Pick up now from the **Semiconductor** bag only all diodes and zener diodes (**D1...3** and **ZD1...3**) and assemble and solder them in the same way. Pay attention about the correct orientation and do not mismatch ZD3 (2V7) with ZD1...2 (5V6 each).

When finished check all solderings and then clip all the wires on solder side.

**Now you can put the aluminum frame on a safe place.**

Assemble the four **Resistor Arrays RN1...4**. They have no preferred orientation, so you can neglect the dot on the part's silk screen.

Pick from the **Capacitor** bag the **two 220pF C16/17** and fit them next to RN2.

On the other hand the **six IC sockets** from the **Semiconductor** bag are well polarized, so take attention when fitting them. If you have done a mistake, try not to unsolder the sockets. When you later fit the IC's in the correct orientation, that will be fine.

Also fit the two jacks **BU3** and **BU4** from the **Divers** bag. Now solder all the parts.

Pick from the **Capacitor** bag the **six taped 1nF capacitors C46...51** and fit them. They are located between the transistors T1...T6 and are marked with a small filled box decal between their pads. Pick up the remaining **seven taped 10nF capacitors**, fit and solder them all parts.

Flip the board now and pick **LED1** from the **Semiconductor** bag. Bend its legs as shown on the PCB's silk screen. Note that the Anode is the longer wire and the Cathode (shorter wire) is marked with an annular ring on the PCB's silk screen. Fit the LED and solder it from solder side. Next clip the wires on component side.

Let's start now assembling the remaining ceramic capacitors, therefore only get the two small bags marked with **4u7** and **1u** from the **Capacitor** bag, but **keep them in their bags for the moment!**

Have first a close look on the PCB's silk screen for the 4u7 and 1uF capacitors. They are marked with different decalcs. The 1uF have only a single dash between its pad whereas the 4u7 have a squared decal. Let's start **first** by **assembling all 1uF capacitors**, **next** all **4u7 capacitors**. Note that there should be remain one capacitor for each value just for spare when you have dropped one as they are hard to find by the common suppliers. When finished, solder and clip all wires.

Pick up from the **Semiconductor** bag the **TO92 transistors** (seven taped MPSA42 in Ammo-Pack style and a BC546B), the **ipac MosFet T8** – be carefully as the MosFet is an electrostatic sensitivity device and do not fit the MosFet in wrong direction; it's heatsink must face away from you to the capacitor C37.

Fit from the **Resistor** bag the two Trimmers **TR7...8** and from the **Divers** bag the male Mircomatch connector **SL1**. Align this part correct in parallel to the PCB and have care about the position of it's nose.

Now solder all parts and clip the protruding wires.

Now we will fit the DC jack **BU5** from the **Divers** bag. Unfortunately two different mechanical versions are used in the kits. See the photo on right side. The jack with the „DC“ print fits fine into the PCB whereas on the other version the rear leg is too wide and needs to be bent or clipped first. Anyway, solder this leg for fixing the jack from component's side first.



Next prepare the **switch S1** together with the **knob** from the **Divers** bag and the pink **rubber tube** from the **Mechanic** bag: First cut the tube into two halves and slide them fully over the switches's legs. Than carefully push the aluminium coloured knob on the stamper of S1.



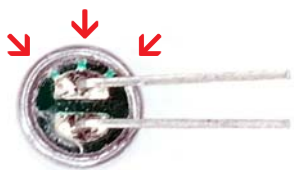
Next fit from the **Divers** bag the **two RCA jacks**, from the **Capacitors** bag all **electrolytic capacitors** except of the three 33µF 100V types and from the **Resistors** bag the remaining three slider potentiometer **P1...3**.

When soldering all these parts do not solder the metallic mounting bezel of the switch for an easier adjustment – if necessary – later during case assembly.

Next assemble and solder the three remaining capacitors **C35**, **C36a...b** from the **Capacitors** bag and the voltage regulator **IC7** from the **Semiconductors** bag. Take care about the orientation. The heatsink must face to the diodes D1...3.

If you are unsure about the correct orientation, take a close look to the assembled PCB on page 5

Prepare now the **electret microphone** from the **Divers** bag: One pad on rear is connected via two or three small tracks to the metallic round bezel of the microphone. This is the GND pin, marked with „B“ on the PCB, the other wire is the signal and market with „R“. Bend these wires as shown in the picture.



From the **Divers** bag pick the **microphone mounting tool** and slide it onto the PCB. Next fit from top the microphone with its bent leads and solder it. The tool gives the correct spacing from the PCB for later fitting fine into the front cover.



Now it's time – with ICs not fitted – to have a voltage check:

Plug in the 15VDC power supply and switch the device on. Have a first look at the LED on the bottom. Does the LED light up?

If not, remove at once the power supply and check for the fault!

When ok, check the MosFet and the inductor, that there's no self-generated heat.

Next do a voltage measurement on the test points above the red connector:

**VCC** is around 10V and **HV** is around 13V at the moment.

Now we'll power up the PCB with the high voltage converter:

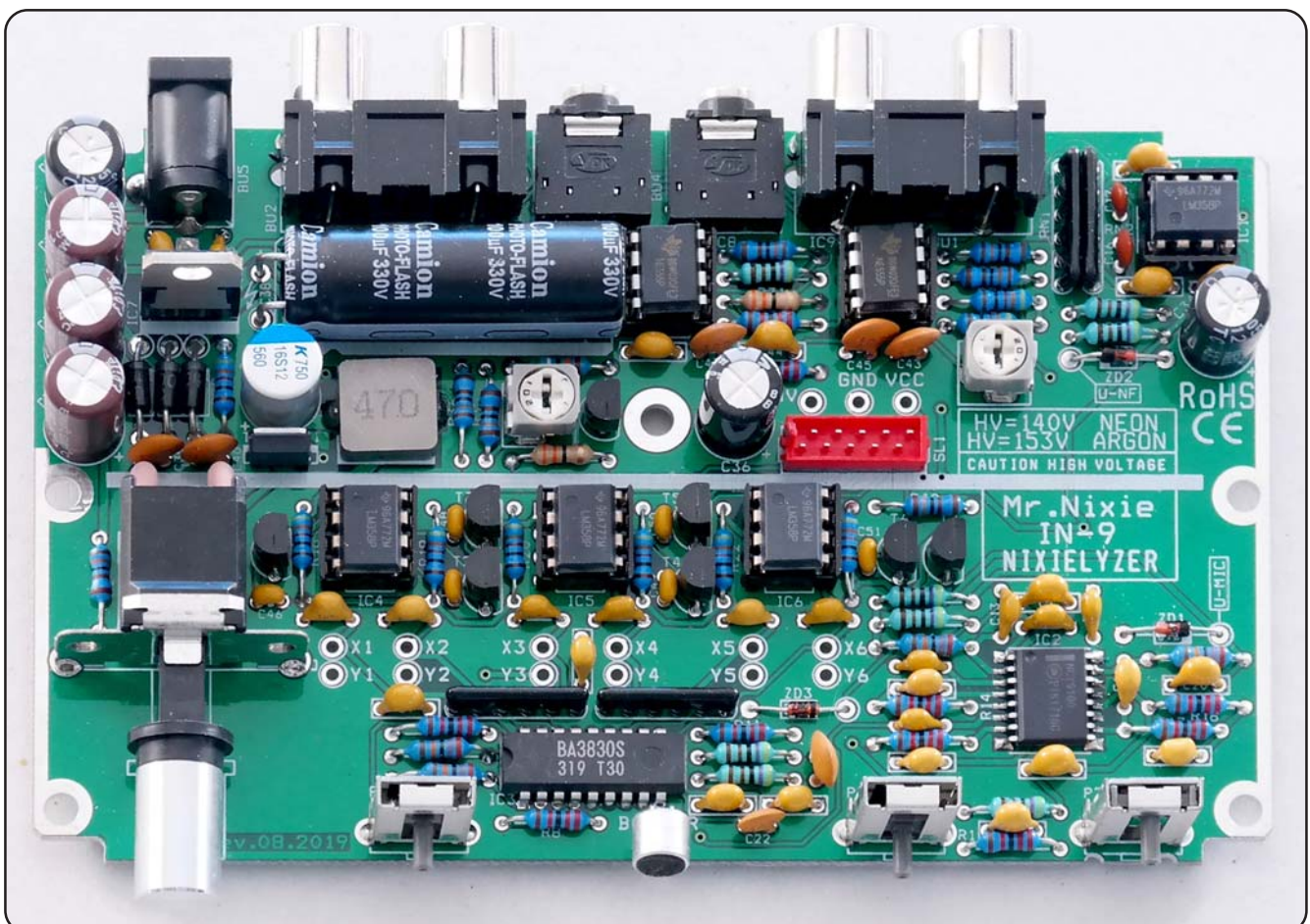
With the power removed from the PCB, install the 4x LM358 ICs and the 2x NE555 ICs in their sockets. Pay attention for the correct orientation of the IC's notch.

Plug in the power supply, turn on the device and do a voltage measurement again.

**Now be very careful as around 140 VDC are present in the region of the Flash capacitor and also in the Micromatch connector's region!**

Check the voltages on the testpoints again. **VCC** should remain at around **10V** and the **HV** is now at around **140VDC**. Adjust now slowly (!) with Trimmer TR7 (below the Flash capacitor) this voltage to **140V** when using **Neon** tubes and **153V** on **Argon** tubes.

When finished, switch off the device, and do not touch it within one minute, as first the capacitors needs to be discharged.



Now put the Main Board away as we now start assembling the tubes:

Empty first the **Mechanic** bag into a storage box.

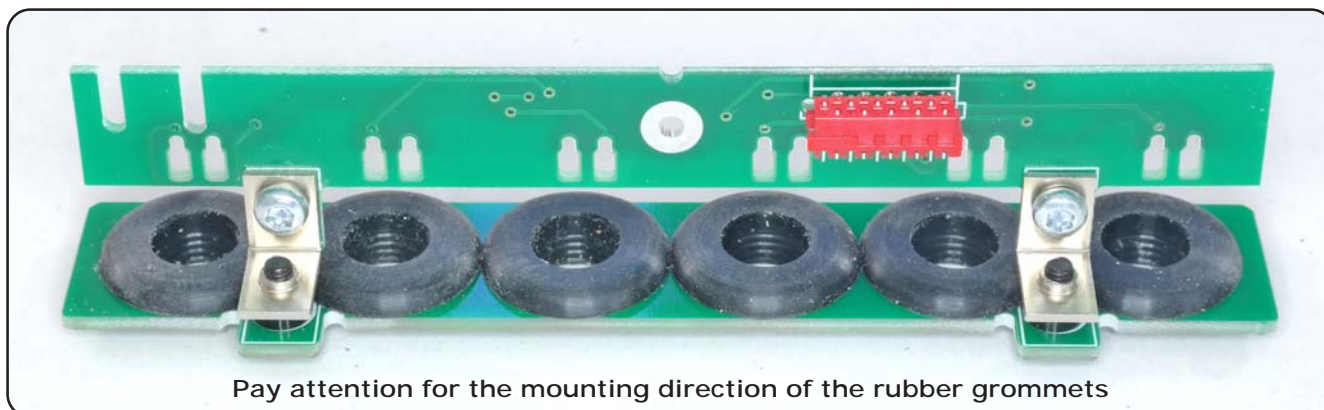
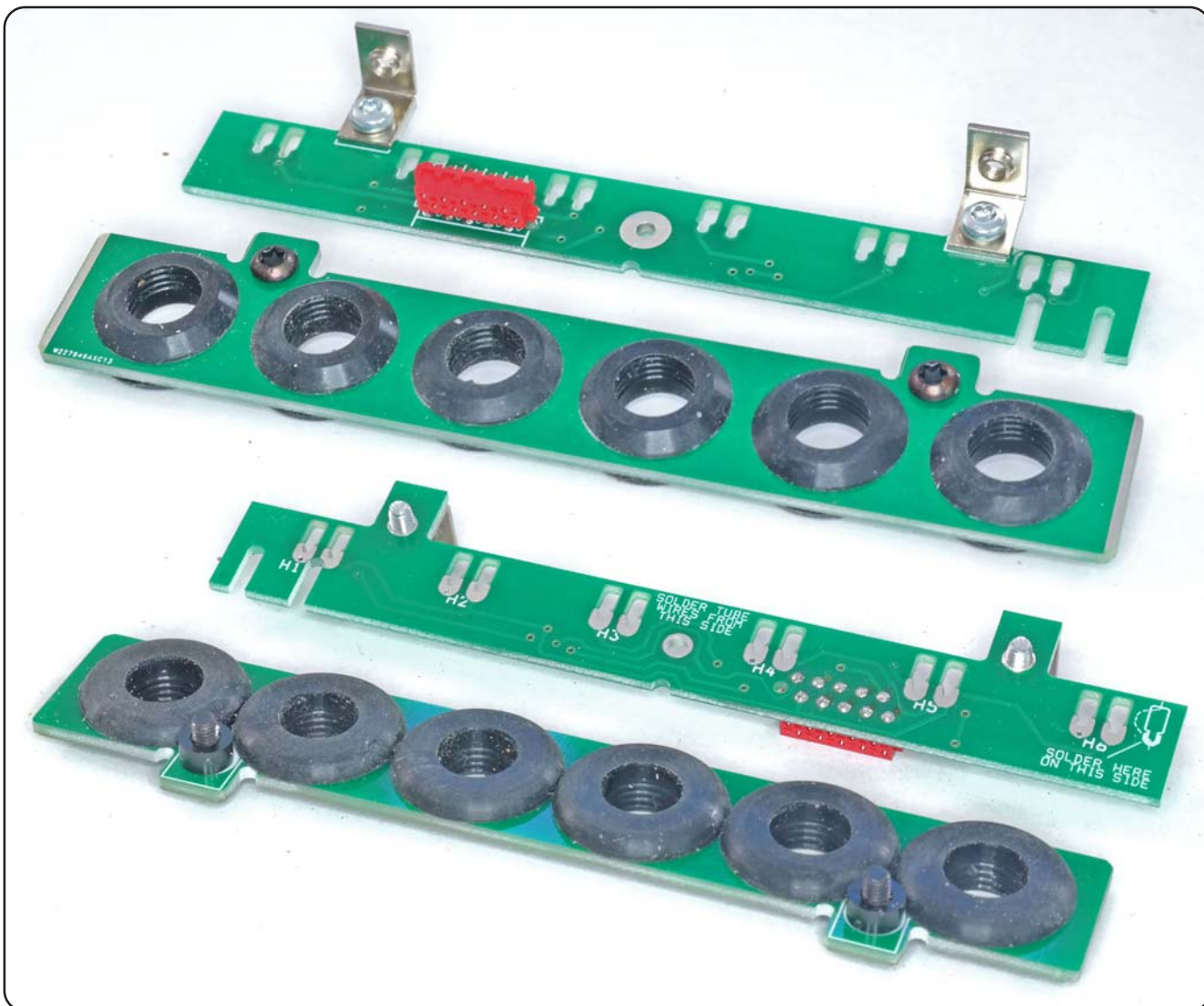
Pick up the **six Rubber Grommets** and insert them into the **Tube mounting board**. Pick up the **two black M3 x 8 Screws** and **both self-retaining 3 mm Plastic Spacers** and fit them on this board too.

Now fit (keep special care about the correct orientation) and solder the **female Micromatch Connector** on the **Tube soldering board**.

**!!! Cut all protruding wires of the connector as short as possible !!!**

Pick up the **two Mounting Brackets** and the **two self-tapping M3 x 6 Screws** and fix them on the board too; do not tighten them too hard.

Finally, mount all two boards together. The pictures will help you within this task.



Pay attention for the mounting direction of the rubber grommets



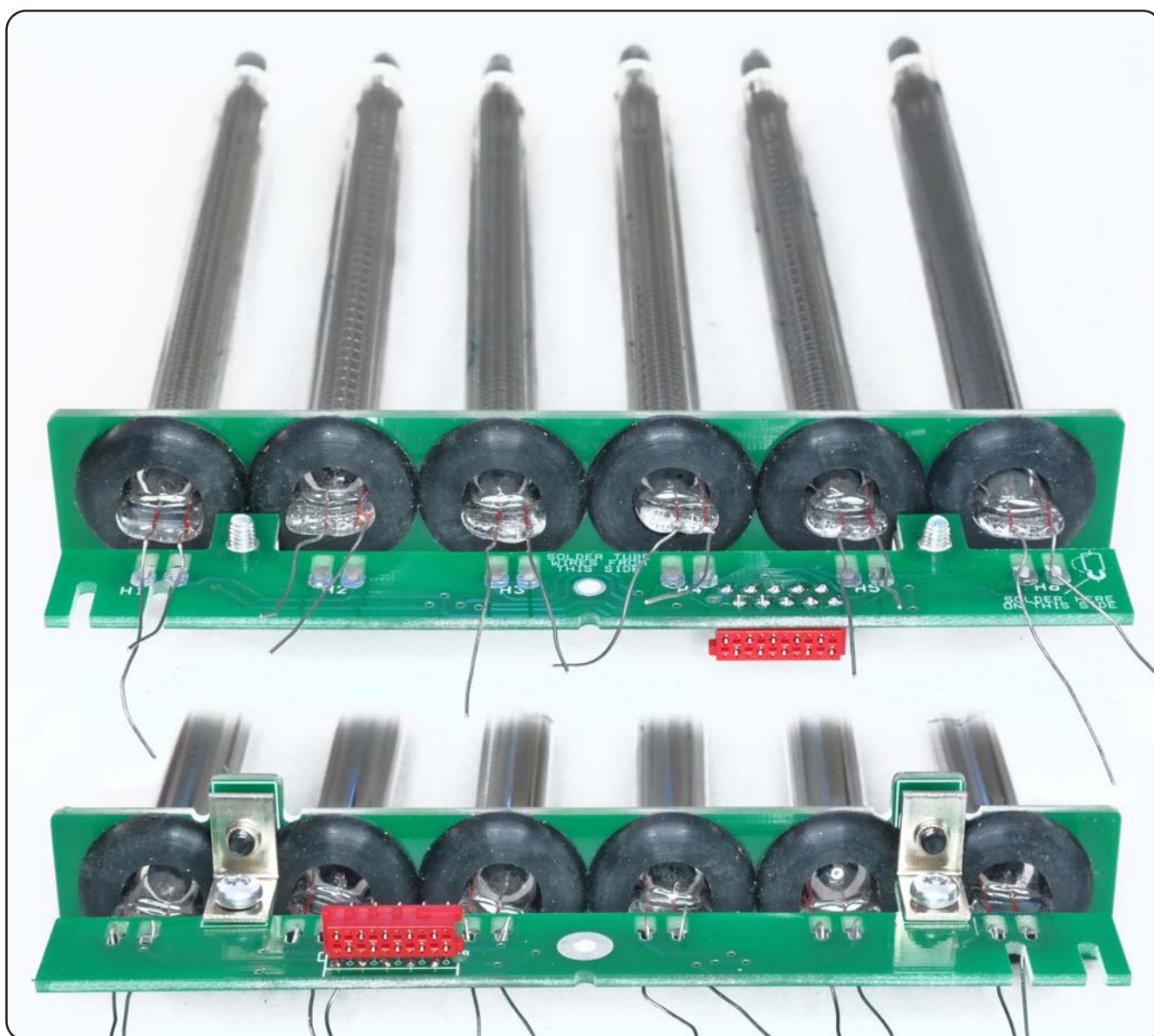
Next slide tube by tube through the rubber grommets, the **Anode mesh is facing to you**.

Be very careful not to bend the leads near the melted glass socket as they are very fragile and might break.

Specially take care that the wires are located only on upper side (which is facing to you) of the board.

Now push wire by wire with the help of tweezers or a tiny slotted screw driver through the cutouts of the PCB to have a kind of loop to avoid mechanical stress to the wires while soldering and adjusting the height when assembling the case.

See also the picture below for reference.



Solder the wires on the PCB pads on the connector solder side and cut the wires.

Now it's time for a first height adjustment. Use as horizontal „reference“ the upper colored ring above of the Anode mesh, whereas a white ring indicates a Neon inert gas, and a pink ring is for Argon filled tubes.

By adjusting the height, the glass sockets should have at least a 1 mm gap between the board. Adjust also the viewing angle for paralleling sockets with respect to the board and an around 90° angle for all tubes.

Fit next the complete assembled tube board onto the main board.

## Powering up and „Burning-In“ the IN-9 Nixie Bargraph tubes:

Connect the 15VDC power supply again and turn the IN-9 Nixielyzer on. Set the most left-hand slider potentiometer (Microphone) to maximum and speak something. Now all the tubes should react to your voice - for sure the most left-hand tube (63Hz) will better react with „boom“ music signal.

**Tip:** If the left hand tube (63Hz) looks very „responsible“ (mains hum pickup from the electronics) so try inserting the 15VDC power supply 180° reversed into the mains outlet or adaptor to minimize this effect, as actual no enclosure is fitted.

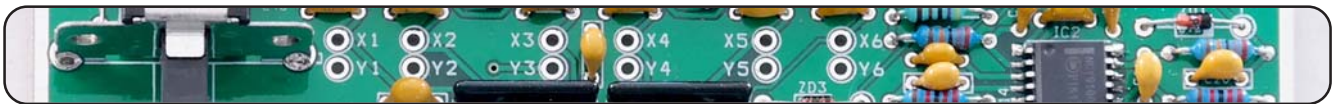
If ok, check the Line and Aux-In Inputs with a line music signal from a MP3 player or Amazon Echo output for example.

Therefore, set the Microphone slider to minimum, the middle slider (Balance) to middle and the right-hand slider (Line level) to maximum.

Check also by adjusting the middle slider, if left and right channel is displayed.

Due to the long storage time of 30 years many of these tubes are not able to display the full length of their glow when first powered up, so don't worry about this issue when powering up the IN-9 Nixielyzer, this will be now solved.

A „burn-in“ procedure was introduced whereas the tubes are continuously driven with over-current until they have reached their maximum display range.



First locate the **Trimmer T8** on the board and **turn** for burn-in **fully clockwise**. Next, locate the pad combinations **X1/Y1, X2/Y2 ... X6/Y6** on the board. By **short-circuit this pads** with a piece of wire each, the **corresponding tube is powered with over-current**. We will describe next the function of this Trimmer:



Set the left-hand slider (Microphone level) to maximum and clap in your hands. Watch all tubes what happens with the glow:

Sometimes it will go off from button and start from the middle. If this happens, turn the Trimmer TR8 anti-clockwise while clapping in your hand with your 3<sup>rd</sup> hand ;-)) until this issue will disappear. Keep this trimmer setting for later in your mind and turn first fully clockwise for burn-in to get the maximum possible effective current.

The trimmer adjusts the duty cycle of the blanking time (80...100 Hz) for the tubes. Specially the Argon filled tubes are sometimes a little picky for proper signal form. A lower blanking time (turning TR8 clockwise) will also give a sharper visible margin of the glow.

If you are unsure, set the trimmer after burn-in to middle position. This might work reliable for the most of the tubes.

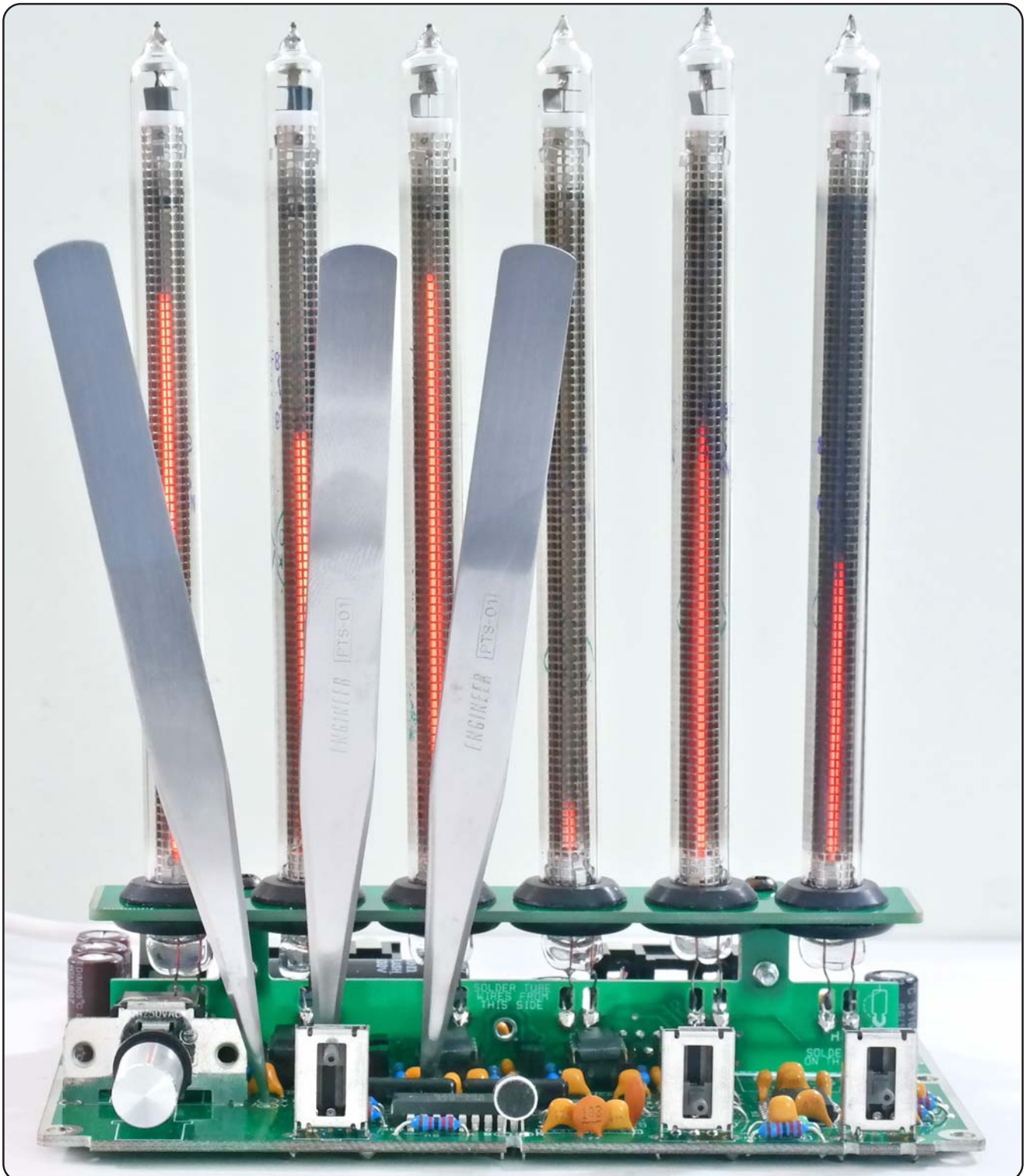
Start burn-in by **short-circuit X1/Y1** and watch the left-hand **tube's glow rising**.

### Some tips:

These pads have low voltage level, so there's no need to turn the IN-9 Nixielyzer off when inserting or removing a wire jumper.

You can burn-in three tubes at the same time. Please don't burn in more tubes simultaneously as this will overload the inductor and MosFet.

You can also use up to three tweezers to short-circuit the pads, and the tweezers can even touch each other without any hazzle.



*Burning-in the tubes with the help of three tweezers as short-circuit jumpers*

The inductor / MosFet / Flash capacitor and even the tubes, which are over-current powered, will become warm during this procedure. Depending on the tube this procedure may take up to 15 minutes.

When a tube will not light up but it has glown during normal operation, simply increase a bit the HV voltage, as it will drop due to this heavy load.

Burn-in is finished when the glow reaches the **upper end of the darkened Anode mesh**, this threshold is around 7 mm below the white or pink colored ring.

**After burn-in allow the electronic parts and tubes a few minutes to cool down**, play a bit in the meantime with the Nixielyzer, next remove the power cord.

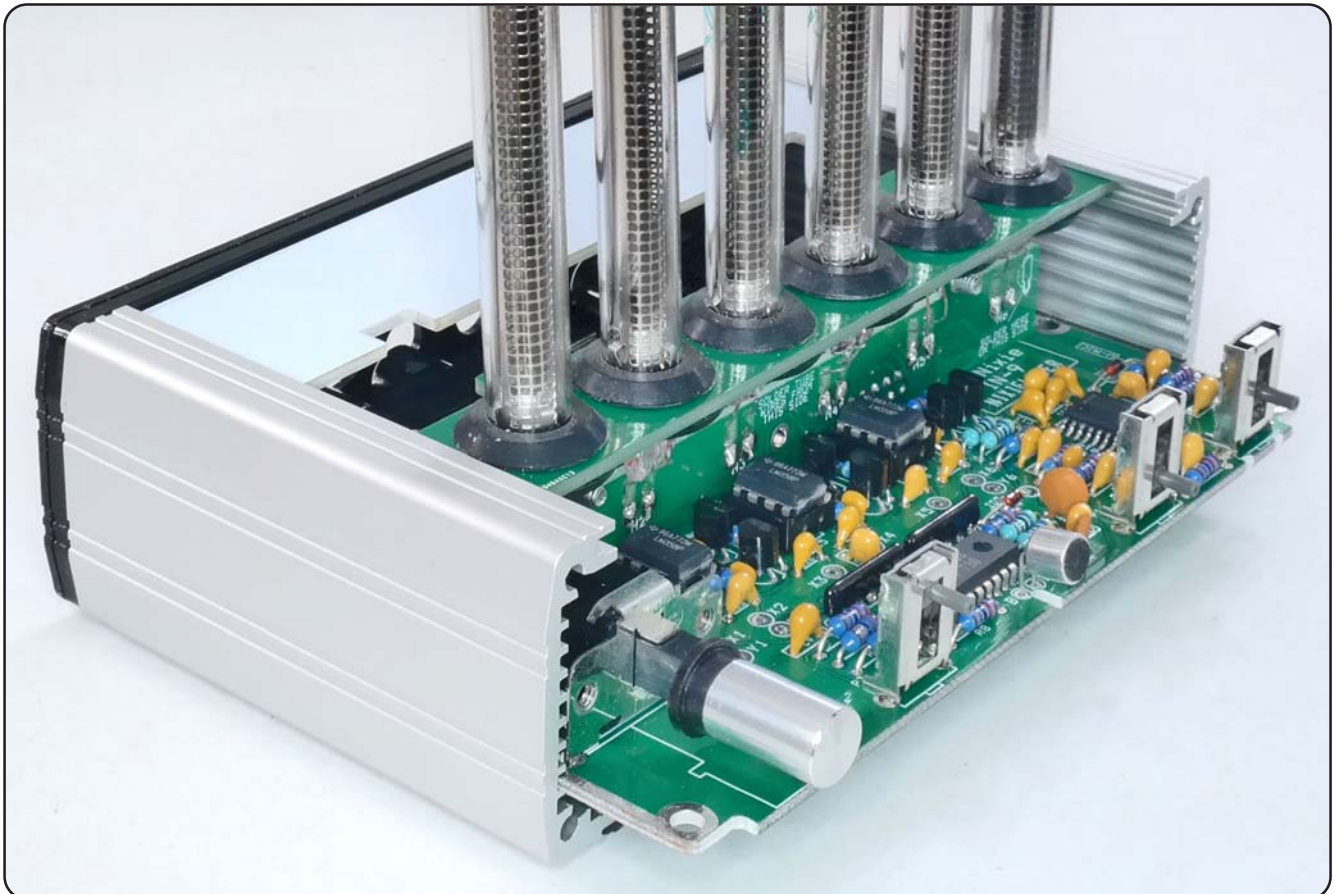
## Assembling the enclosure

Pick up the **aluminum frame** and glue on bottom the **four self-adhesive bumpers**. Next pull off from one 3 mm **black acrylic frame** the protective foils from both sides and **fix** the frame with **four self-tapping M3 x 10 screws** on one side of the aluminum frame.

Pick up the 1.6 mm **rear panel**, pull off the 3M protective film and carefully **slide it over** the black frame and the four screws.

Pick up the **white Top Board #2** and slide it with the **cut-outs facing to front** into the **most upper groove** of the aluminum frame.

Net slide the complete electronics into the aluminum frame as shown in the photo.



Slide **white Top Board #1** into the most upper groove to cover the top.

Pull off from the remaining 3 mm **black acrylic frame** the protective foils from both sides and **fix** the frame with the remainig **self-tapping M3 x 10 screws** on front side of the aluminum frame.

Pick up the 1.6 mm **front panel**, pull off the 3M protective film and carefully **slide it over** the black frame and the four screws. Pay attention for the microphone !

Next pick up the 1.6 mm **silvery top frame** with the six big holes, pull off the protectivte film and glue it on top.

- **Only on 1st and 2nd batch:** Pick up the golden „**audio spectrum**“ frame, pull off the 3M protective foil and glue it in correct direction – 63Hz is on left-hand side – onto the silvery top.

- **3rd batch:** Please keep care for the correct orientation of the top frame with respect of the frequency engraving.

And finally **slide the 6-fold tubes clamb** – after you have removed both protective foils – **very carefully (!) over the tubes** for a proper alignment.

**Congratulation.** Now your IN-9 Nixielyzer is ready assembled. Have a lot of fun !

Stückliste / BOM IN-9 Nixielyzer reloaded • Blue = SMD pre-assembled

Check	Qty.	Value	Package	Ref.
<b>Widerstände / Resistors</b>				
	22	22k	0805	R1,R8,R9,R11,R14,R15,R16,R17,R33,R41,R51,R52,R53,R61,R62,R63,R71,R72,R73,R81,R82,R83
	3	390R	0805	R26,R28,R39
	8	4k7	0805	R2,R5,R6,R7,R10,R24,R25,R29
	5	1k8	0805	R27,R30,R35,R37,R40
	2	820R	0805	R36,R38
	4	270k	0805	R3,R4,R12,R13
	2	33R	0805	R31,R32
	6	430R	0207	R18,R19,R20,R21,R22,R23
	1	590k	0207	R34
	2	1k Trimmer		TR7,TR8
	3	5k Mini-Slider		P1,P2,P3

Check	Qty.	Value	Package	Ref.
<b>Kondensatoren / Capacitors</b>				
	15	1u 25V Ceramic	0805	C4,C6,C8,C10,C11,C12,C13,C24,C25,C26,C27,C28,C29,C32,C33
	15	4u7 25V Ceramic	0805	C1,C2,C3,C5,C7,C9,C14,C15,C18,C19,C20,C21,C30,C42,C44
	2	220p Ceramic	0603	C16,C17
	6	1n Ceramic 500V	1206	C46,C47,C48,C49,C50,C51
	7	10n Ceramic	0805	C22,C23,C39,C40,C41,C43,C45
	1	10u 160V Low ESR	8 x 11 mm	C36
	3	33u 100V Low ESR	8 x 16 mm	C35,C36b,C36a
	1	100u 330V Photoflash	12 x 35 mm ax.	C38
	1	560u 16V Polymer	8 x 11 mm	C37
	2	220u 25V / 330u 16V Elko	8 x 11 mm	C31,C34

Check	Qty.	Value	Package	Ref.
<b>Halbleiter / Semiconductors</b>				
	1	LED gelb	0805	LED1
	2	5V6 Zenerdiode	MiniMelf	ZD1,ZD2
	1	2V4 / 2V7 Zenerdiode	DO-35	ZD3
	3	UF4003 / 4004	RM10	D1,D2,D3
	1	7808	TO220	IC7
	2	NE555P	DIL-8	IC8,IC9
	4	LM358N	DIL-8	IC1,IC4,IC5,IC6
	6	IC-Socket	DIL-8	
	1	AOI4286 N-Ch. MosFet 100V 10A	IPAC	T8
	1	BC546B NPN	TO-92	T9
	7	MPSA42 NPN (auf Band / on tape)	TO-92 Ammo	T1,T2,T3,T4,T5,T6,T7
	1	NCY9100 Compandor IC (SMD)	SO-16W	IC2
	1	BA3830S Spectrum Analyzer IC	DIL-18 shrink	IC3

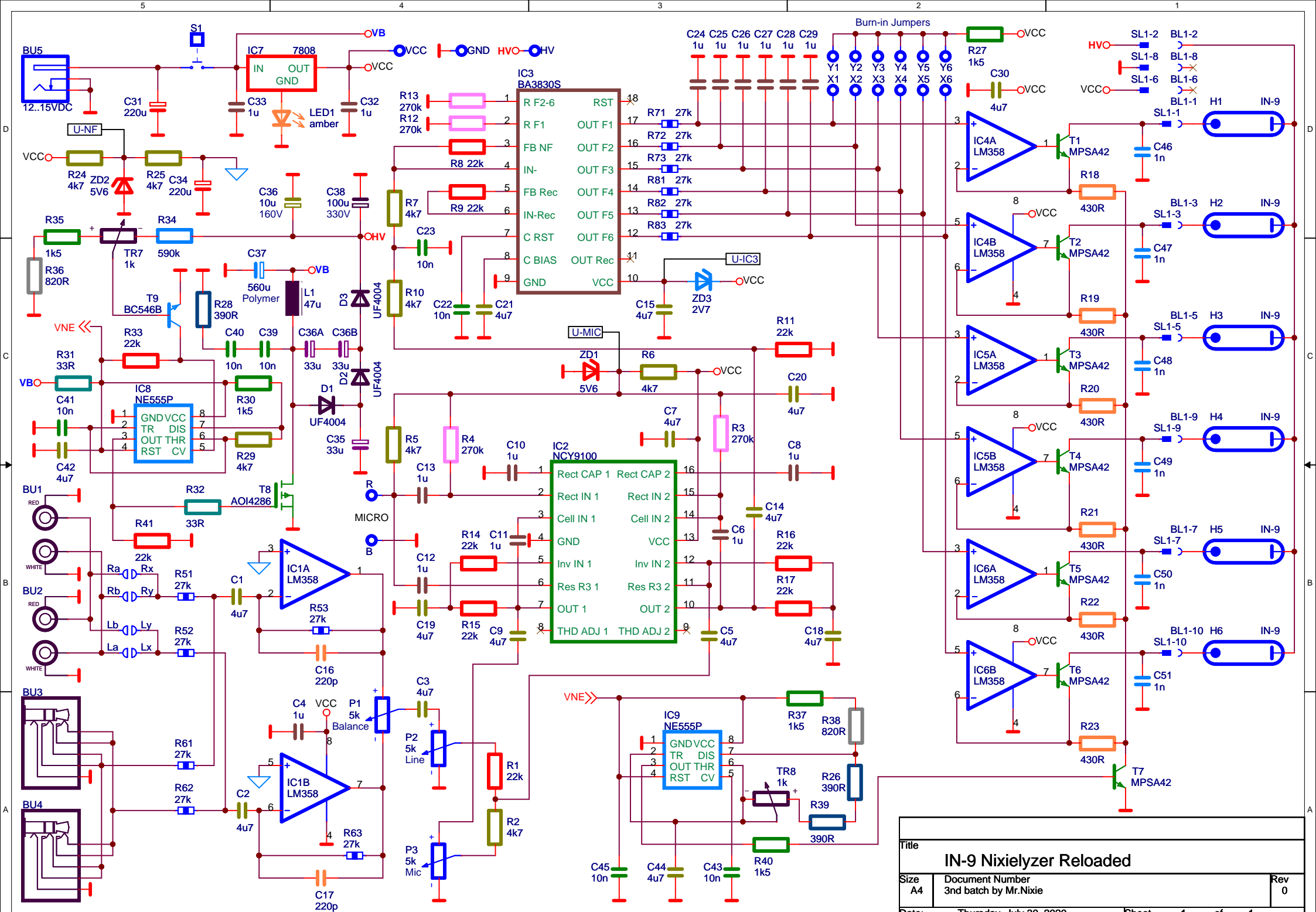
Check	Qty.	Value	Package	Ref.
<b>Divers</b>				
	1	Schalter / Switch	ALPS SDKL	S1
	1	Knopf / Knob	9 mm DM	S1
	1	Micromatch 10-pol. male	Micromatch	SL1
	1	Micromatch 10-pol. female 90°	Micromatch	BL1
	1	Electret-Micro	6050	R/B
	1	DC-Buchse / DC jack	HEBW21	BU5
	2	3.5 mm Buchse / 1/8" TRS jack	EBSF 35	BU3,BU4
	2	Stereo-Cinch 90°	AV2-5	BU1,BU2
	1	47uH 2.5A Spule / Inductor	10 x 10mm	L1
	1	Mikrofon Montagehilfe / Micro Mounting Tool		

Check	Qty.	Value	Package	Ref.
<b>Mechanik</b>				
	1	Gummischlauch pink / rubber tube pink	20 mm	für / for S1
	6	Gummitüllen für IN-9 Befestigung / Rubber fixing for IN-9		
	4	Selbstklebe-Füße / Self adhesive Bumpers		für / for GB83-75
	2	Montagewinkel / Mouting Bracket	M3 + 3.2mm	
	2	Distanzhülse / Spacer	3.4 x 6 x 3 mm	DI 3.4 x 3
	2	Schraube / Screw M3 x 8 blk	M3 x 8 Tx	Flachkopf schwarz / flat hat black
	2	Schraube / Screw M3 x 6	M3 x 6 Tx	Gewindefurchend / Self tapping
	8	Schraube / Screw M3 x 10	M3 x 10 Tx10	Gewindefurchend / Self tapping

	1	Acrylglas-Gehäuseteilesatz / Frame Set for enclosure		
	1	U-Gehäuseprofil / U-profile	GB83-75 SA	
	1	Leiterplatte #1 + #2 + #3 / PCB		

	6	OPTION: IN-9 Röhren / tubes		
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	1	Netzteil 15V 2A		
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Title		
<b>IN-9 Nixielyzer Reloaded</b>		
Size	Document Number	Rev
A4	3rd batch by Mr.Nixie	0
Date:	Thursday, July 30, 2020	Sheet 1 of 1

## Stückliste / BOM IN-9 Nixielyzer

Check	Qty.	Value	Package	Ref.
<b>Widerstände / Resistors</b>				
	10	22k	0207	R1,R8,R9,R11,R14,R15,R16,R17,R33,R41
	9	430R	0207	R18,R19,R20,R21,R22,R23,R26,R28,R39
	8	4k7	0207	R2,R5,R6,R7,R10,R24,R25,R29
	7	1k3	0207	R27,R30,R35,R36,R37,R38,R40
	4	270k	0207	R3,R4,R12,R13
	2	33R	0207	R31,R32
	1	590k	0207	R34
	4	22k Array	SIL6-3	RN1,RN2,RN3,RN4
	2	1k Trimmer		TR7,TR8
	3	5k Mini-Slider		P1,P2,P3

Check	Qty.	Value	Package	Ref.
<b>Kondensatoren / Capacitors</b>				
	15	1u 50V Ceramic in Tüte / in bag	RM 5.04	C4,C6,C8,C10,C11,C12,C13,C24,C25,C26,C27,C28,C29,C32,C33
	15	4u7 50V Ceramic in Tüte / in bag	RM 5.04	C1,C2,C3,C5,C7,C9,C14,C15,C18,C19,C20,C21,C30,C42,C44
	2	220p Ceramic (lose / odd)	RM 2.54	C16,C17
	6	1n Ceramic (auf Band / on tape)	RM 2.54	C46,C47,C48,C49,C50,C51
	7	10n Ceramic (auf Band / on tape)	RM 2.54	C22,C23,C39,C40,C41,C43,C45
	1	10u 160V Low ESR	8 x 11 mm	C36
	3	33u 100V Low ESR	8 x 16 mm	C35,C36b,C36a
	1	100u 330V Photoflash	12 x 35 mm ax.	C38
	1	560u 16V Polymer	8 x 11 mm	C37
	2	220u 25V oder / or 330u 16V Elko	8 x 11 mm	C31,C34

Check	Qty.	Value	Package	Ref.
<b>Halbleiter / Semiconductors</b>				
	3	UF4004 (auf Band / on tape)	DO-41	D1,D2,D3
	1	LED amber	1.8 mm oblong	LED1
	1	2V7 Zenerdiode (lose / odd)	DO-35	ZD3
	2	5V6 Zenerdiode (auf Band / on tape)	DO-35	ZD1,ZD2
	1	7808	TO220	IC7
	2	NE555P	DIL-8	IC8,IC9
	4	LM358N	DIL-8	IC1,IC4,IC5,IC6
	6	IC-Socket	DIL-8	
	1	AOI4286 N-Ch. MosFet 100V 10A	IPAC	T8
	1	BC546B NPN (lose / odd)	TO-92	T9
	7	MPSA42 NPN (auf Band / on tape)	TO-92 Ammo	T1,T2,T3,T4,T5,T6,T7
	1	NCY9100 Compondor IC (SMD)	SO-16W	IC2
	1	BA3830S Spectrum Analyzer IC	DIL-18 shrink	IC3

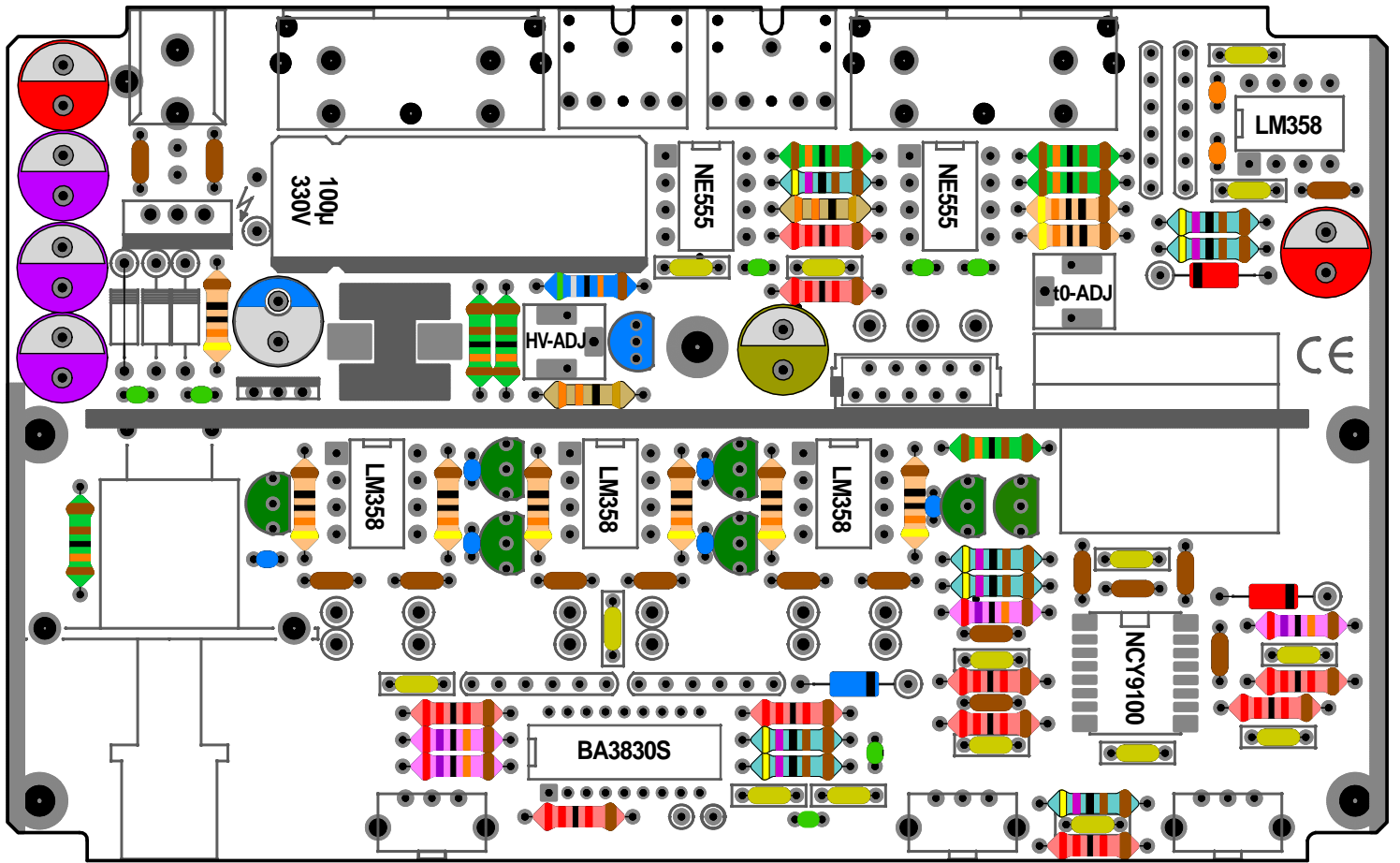
Check	Qty.	Value	Package	Ref.
<b>Divers</b>				
	1	Schalter / Switch	ALPS SDKL	S1
	1	Knopf / Knob	9 mm DM	S1
	1	Micromatch 10-pol. male	Micromatch	SL1
	1	Micromatch 10-pol. female 90°	Micromatch	BL1
	1	Electret-Micro	6050	R/B
	1	DC-Buchse / DC jack	HEBW21	BU5
	2	3.5 mm Buchse / 1/8" TRS jack	EBSF 35	BU3,BU4
	2	Stereo-Cinch 90°	AV2-5	BU1,BU2
	1	47uH 2.5A Spule / Inductor	10 x 10mm	L1
	1	Mikrofon Montagehilfe / Micro Mounting Tool		

Check	Qty.	Value	Package	Ref.
<b>Mechanik</b>				
	1	Gummischlauch pink / rubber tube pink	20 mm	für / for S1
	6	Gummitüllen für IN-9 Befestigung / Rubber fixing for IN-9		
	4	Selbstklebe-Füße / Self adhesive Bumpers		für / for GB83-75
	2	Montagewinkel / Mouting Bracket	M3 + 3.2mm	
	2	Distanzhülse / Spacer	3.4 x 6 x 3 mm	DI 3.4 x 3
	2	Schraube / Screw M3 x 8 blk	M3 x 8 Tx10	Flachkopf schwarz / flat hat black
	2	Schraube / Screw M3 x 6	M3 x 6 Tx10	Gewindefurchend / Self tapping
	8	Schraube / Screw M3 x 10	M3 x 10 Tx10	Gewindefurchend / Self tapping

	1	Acrylglas-Gehäuseteilesatz / Frame Set for enclosure		
	1	U-Gehäuseprofil / U-profile	GB83-75	
	1	Leiterplatte #1 + #2 + #3 / PCB		

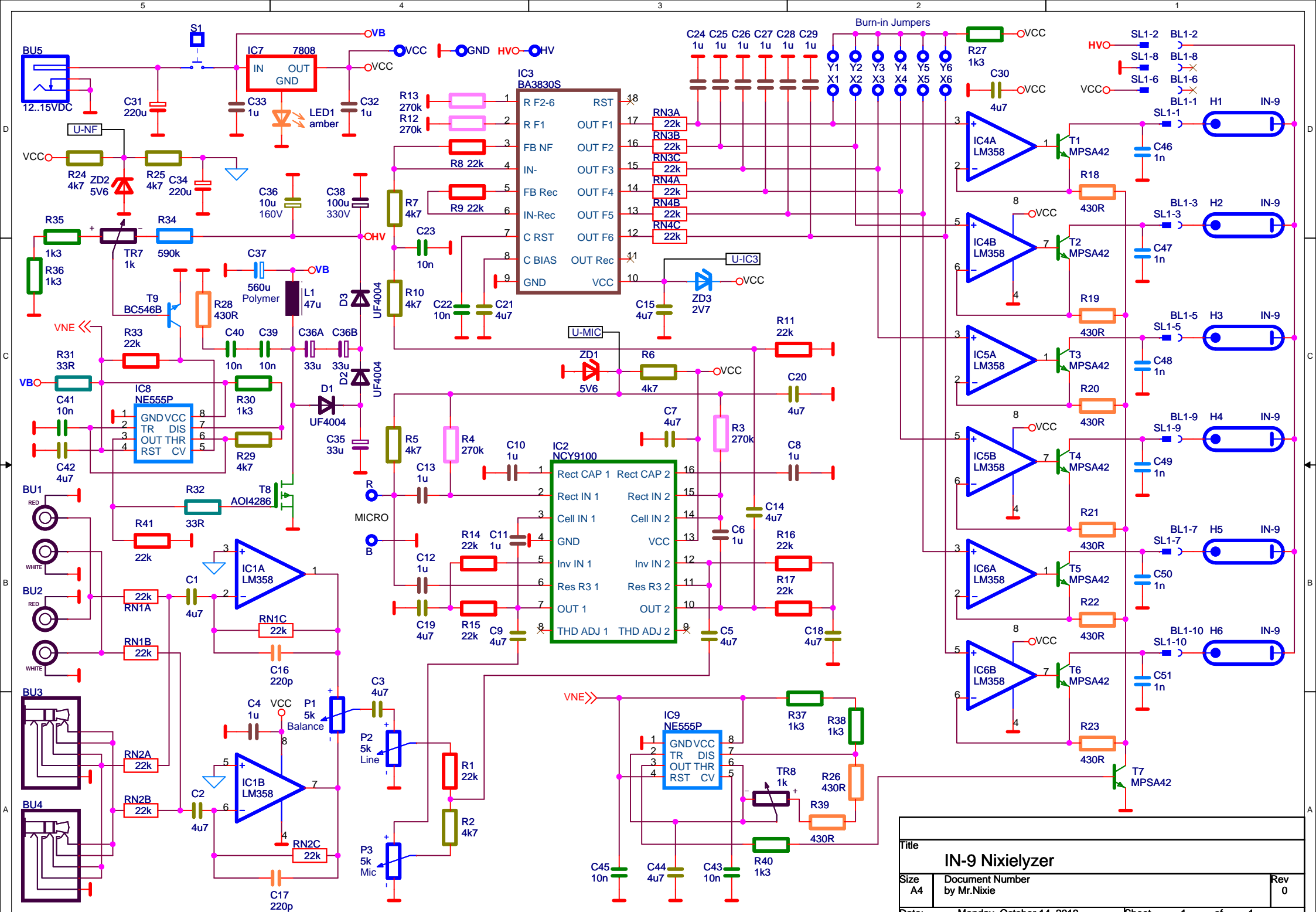
	6	OPTION: IN-9 Röhren / tubes		
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	1	Netzteil 15V 2A		
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Stk / pcs.	Symbol	Stk / pcs.	Symbol	Stk / pcs.	Symbol
10	22k	15	1u	1	10u
9	430R	15	4u7		
8	4k7	2	220p	3	33u
7	1k3	6	1n	1	560u
4	270k	7	10n		
2	33R			1	560u
1	590k	1	BC546B		
1	2V7	7	MPSA42	2	220/330u
2	5V6				





Title		
<b>IN-9 Nixielyzer</b>		
Size	Document Number	Rev
A4	by Mr.Nixie	0
Date:	Monday, October 14, 2019	Sheet 1 of 1