

RossKeeled Compressor Building instructions V1.1

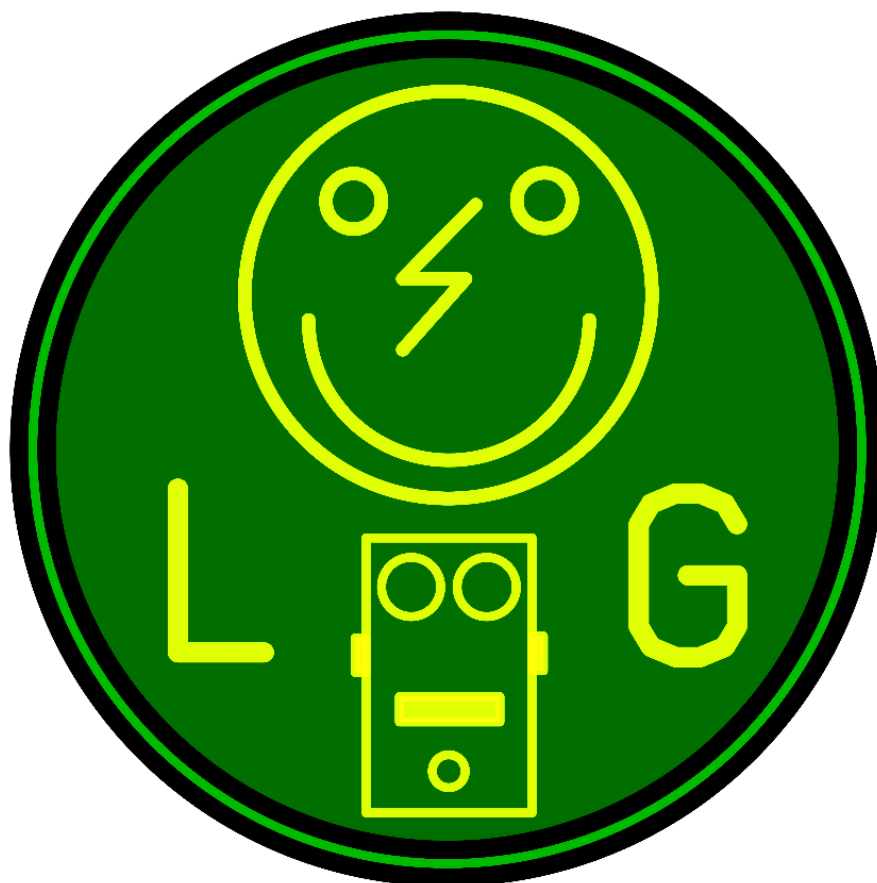


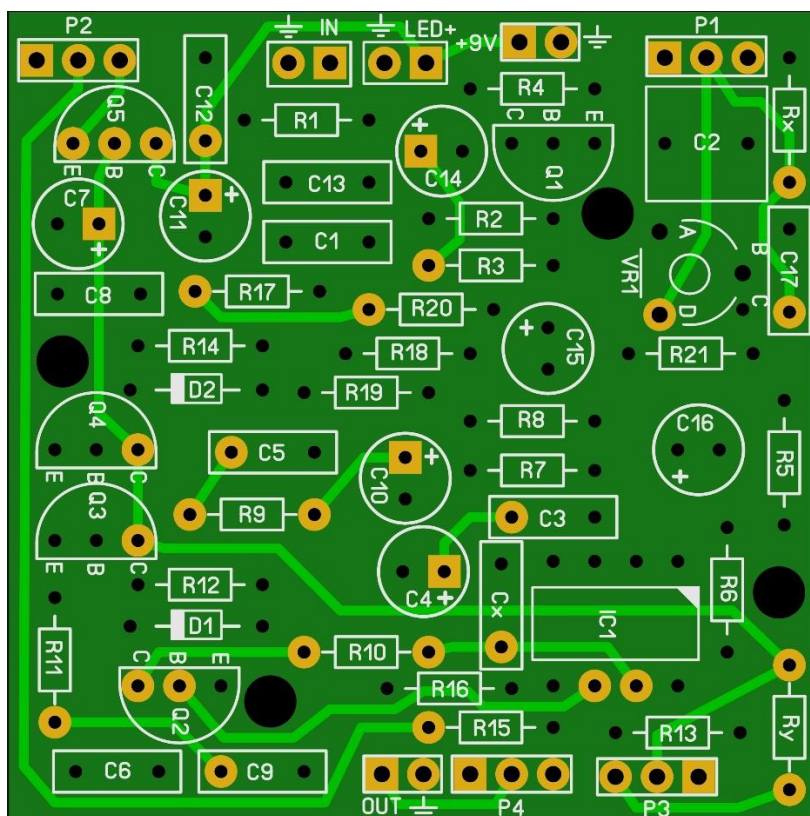
Table of contents

Components	3
General guideline for components.....	4
General building tips	4
Modifications.....	5
Off board wiring	5
Troubleshooting	6
Schematic	7

Read this entire manual thoroughly before you start to building the effect! Decide before building the effect which mods or options you want to try so that you do not need to desolder parts later.

Components

Name	Value	Comment	Name	Value	Comment	Name	Value	Comment
C1	10n	SMF	R1	4M7		P1	B150K	Clip
C2	1u	SMF	R2	10k		P2	C500K	Sustain
C3	10n	SMF	R3	470k		P3	C150K	Attack
C4	1u	Electrolytic	R4	10k		P4	B50k	Volume
C5	1n	SMF	R5	1M				
C6	10n	SMF	R6	220k		VR1	2k	Trim
C7	10u	Electrolytic	R7	1M				
C8	10n	SMF	R8	15k		Q1	2N5088	
C9	47n	SMF	R9	150k		Q2	2N5088	
C10	1u	Electrolytic	R10	10k		Q3	2N5088	
C11	100u	Electrolytic	R11	10k		Q4	2N5088	
C12	100n	MKT	R12	1M		Q5	2N5088	
C13	150p	MLCC	R13	10k				
C14	1u	Tantalum	R14	1M				
C15	1u	Electrolytic	R15	27k				
C16	1u	Electrolytic	R16	10k				
C17	2n2	SMF	R17	56k				
Cx	100n	optional (MKT)	R18	27K				
			R19	470k				
D1	1N914		R20	10k				
D2	1N914		R21	220k				
			Rx	390k	optional			
IC1	CA3080AE/LM3080		Ry	390k	optional			



General guideline for components

You can use this guideline if components on the previous page are not marked as a specific type.

- Capacitors: All values under 1nF should be ceramic disks. From 1nF up to 1uF should be SMF/MKT (foil/metal film capacitors) and over 1uF use electrolyte caps (or tantalum) 16V+ rated and watch out for polarity!
- Resistors: use 1% metal film for the best results.
- Socket all transistors and IC. This way you can easily mod them or replace them if they break.

General building tips

For this build it is important that you match the transistors in position **Q1** with **Q2** and **Q3** with **Q4**. To get matched transistors you can use a digital multi meter (DMM) to read out the H_{fe} (amplification factor). Matched transistors have around the same H_{fe} .

Soldering this board can be complicated for some people since the solder pads are very close together. Use a magnifying glass to make the job easier.

Start by soldering the diodes and then the resistors. **Rx** and **Ry** are optional in case you cannot obtain 150k pots for **P1** and **P4**. If so, you can use a more common B250k for **P1** pot and place 390k resistor in Rx. You have some more options for **P4**. Either use a C100k for **P4** and use a 62k for **R13** and omit **Ry** or use a C250k for **P4** and a 390k for **Rx**. With the first option you keep the taper response but lose some sweep range. The second option gives you the full sweep range but you lose some taper response.

Now solder the IC socket and transistor sockets. Solder the small ceramic capacitor **C13** next. Solder the smallest MKT capacitors and then **C2** and the electrolytic capacitors.

Finally solder the Bias trim pot **VR1**. Place the IC and the transistors and you are almost ready to rock.

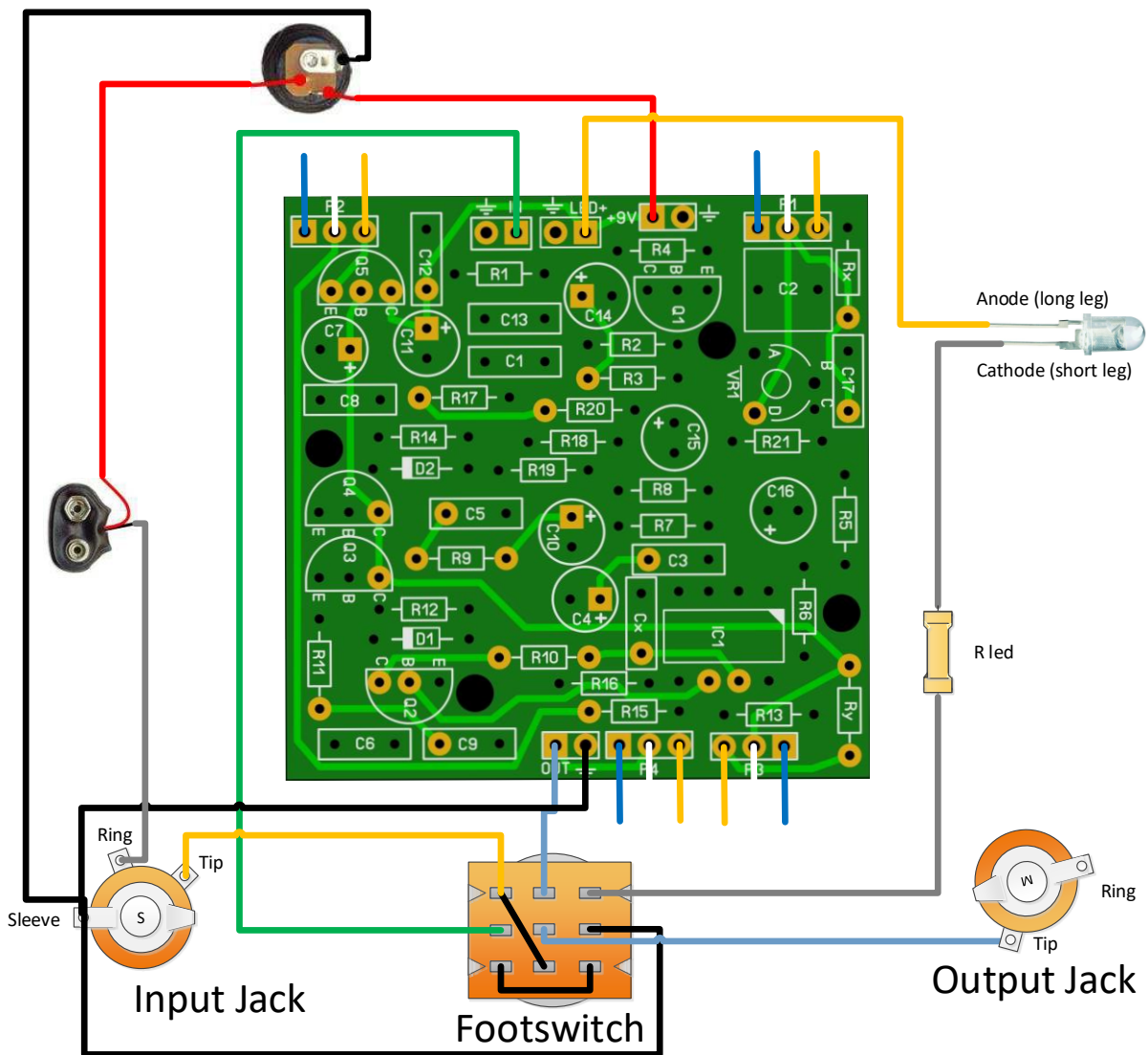
Besides the components mentioned in the table on the first page, you will need:

- **2 input jacks**. 2 mono jacks if you are not going to use a battery but only the 9V adapter. 1 mono (for output) and 1 stereo jack (for input) if you will be using both a 9V battery and the 9V adapter.
- **3PDT footswitch** (9 pins). I also carry an easy off board circuit for true bypass.
- **2,1mm DC jack** (isolated).
- **9v battery clip** (optional).
- **LED**
- **22 gage stranded hook-up wire**.
- **Hammond 1590B** case (or similar) in your favorite color. A 1590BB will give you more room to experiment with.

Modifications

- The original does not use a 2k trim pot **VR1**. If you do not want to use the bias trim pot then you can solder a 1k resistor holes marked with A and B, and also use a 1k between C and D.
- You can use different transistors. For example, MP5A18 for **Q1&Q2**, 2N3904 for **Q3** and **Q4**. 2N5089 for **Q5**. You can also use 2N5088 or similar (matched) for **Q1-Q5**.
- It is reported that tantalum capacitors give a better sound than electrolytic capacitors.
- **P4** might work more intuitive using a A50k (logarithmic)

Off board wiring



Blue = pin 1
 White = pin 2
 Yellow = pin 3

Notice that in the “off” position the effect input is connected to ground to prevent possible oscillation.

The LED requires a resistor (R led in the diagram) depending on the type of LED you are using. An ultra-bright red or blue LED requires a 3k3 resistor, Green requires 680R. If you want to be more exact then go here: <http://www.muzique.com/schem/led.htm>

Troubleshooting

All PCB's have been e-tested 100% in the factory, so there should not be a connection problem on the PCB itself.

The board is not working (at all), what now?

- Check if your 9V is plugged in correctly (and/or soldered correctly on the board).
- Check that you oriented the capacitors, IC's ,transistors and diodes the right way. MKT capacitors and resistors do not need to be oriented.
- Check if you used the correct values of the components. For resistors you can look here: <http://www.diyaudioandvideo.com/Electronics/Color/>
- Double and triple check your soldering! A lose or cold solder can be really bad for your board.
- Replace the IC's and transistors, one might be defective. Before doing that first unplug the 9V and wait 5 seconds.
- Check that you have good/high grade components. A lot of Chinese sourced parts are fakes (especially high end opamps, vintage diodes and transistors) so be careful that you source your parts from reliable suppliers.

Schematic

