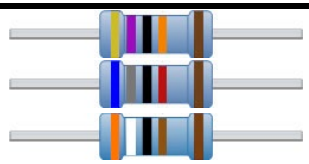
Rangemaster Treble Booster Kit Building Manual

Effect Pedal Kits: Rangemaster Treble Booster

The Dallas Rangemaster is the most famous treble booster effect pedal, and it was the first pedal of its kind. This effect pedal was responsible from some of the most famous ’70 rock tones: Eric Clapton in Cream, Jimmy Page in Led Zeppelin or Brian May in Queen. Unlike other treble boosters, the Rangemaster has a really sweet sound thanks to its germanium transistor. To avoid any polarity issue with your other pedals, in this circuit we’ve used a negative ground. That means that you’ll get the same tone from your Rangemaster Treble Booster and power it from a standard negative power supply, instead of having to use an isolated positive power supply!

The Rangemaster Treble Booster only has one knob, but it’s more than enough to create a wide tone palette. As the pedal is touch-responsive, you can get a whole new tone simply by rolling back your guitar’s volume knob! While it had its origin on the need for boosting the high frequencies in the typical dark British amp sounds, now the Rangemaster Treble Booster is really useful to get a brighter tone and avoid any highs loss present in long wires.

BOM (1/2)

Resistors (3)				Capacitors (4)		
1	R1	470k		1	C1	4.7n
1	R2	68k		2	C2, C3	47u (electrolytic)
1	R3	3.9k		1	C4	10n

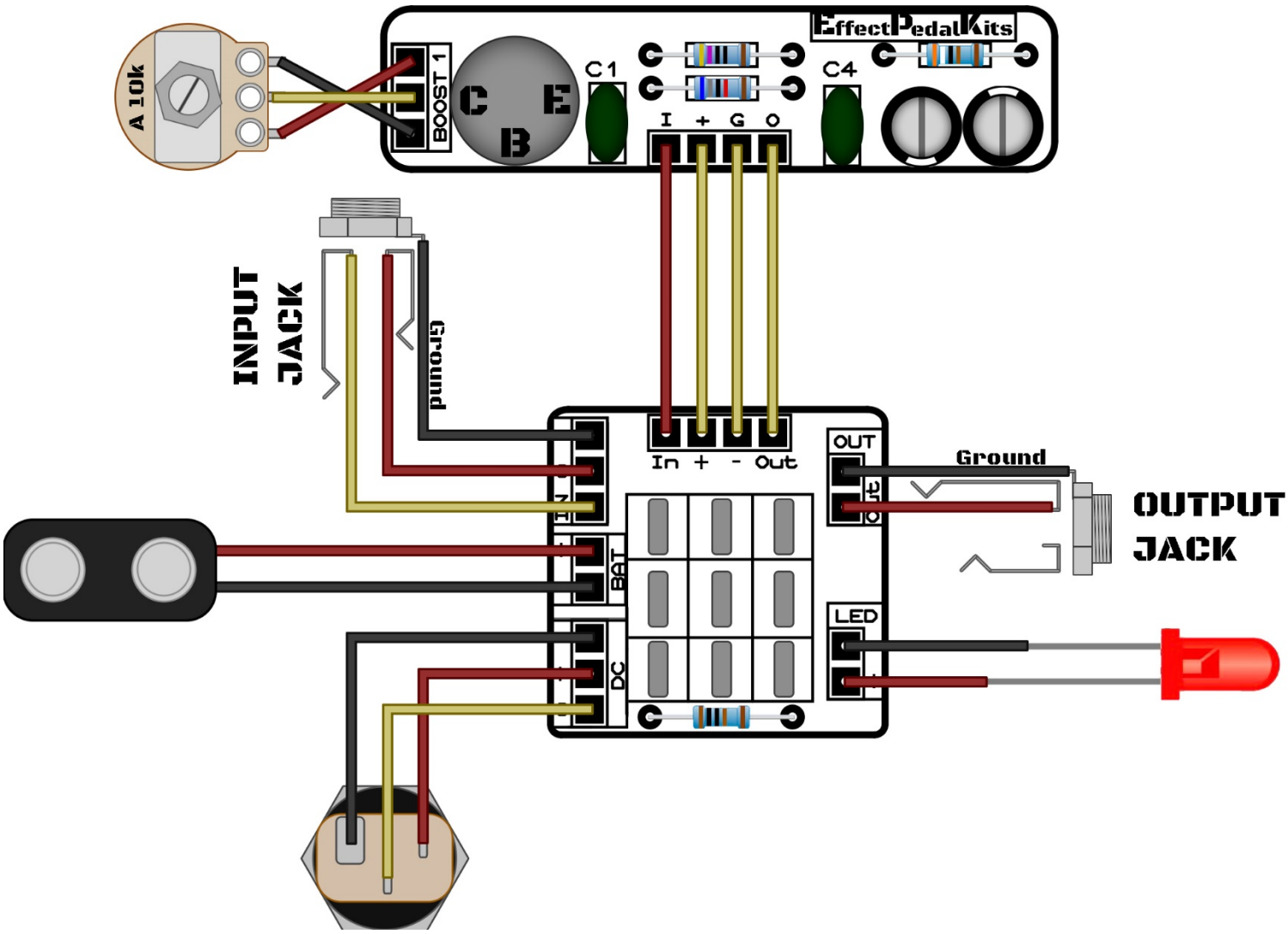
BOM (2/2)

Diodes, Transistors and ICs		
1	Q1	Germanium Transistor

Generic Parts and Potentiometers		
1	Battery clip	
1	DC Jack	
1	RLED	1k LED resistor
1	LED Bezel	
1	3PDT	
2	IN, OUT	6.35mm Jacks
1	10k Logarithmic (A) Potentiometer	Boost

Component Placement

Check the next page to find instructions regarding the Ge transistor placement!

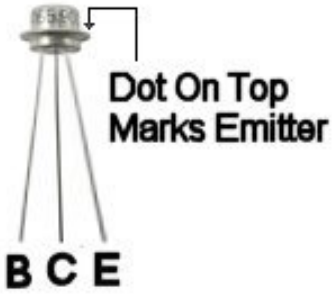


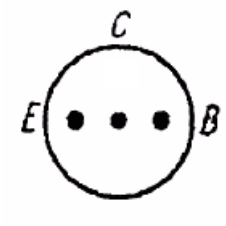
Ge Transistor Placement

The Germanium transistor pins (emitter, collector and base) are marked in the PCB, and you can also find them in the previous page picture.

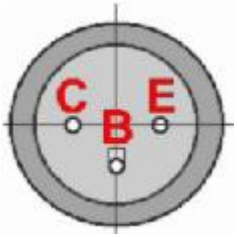
As germanium transistors are not manufactured in a standard way anymore and we look for high quality parts, the part number of the transistor in the kit may differ. Each transistor has a different pinout arrangement, so make sure to check which one comes with your kit!

Р416 / П416Б



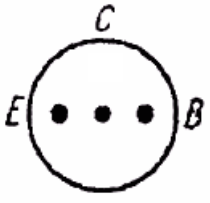


МР16В / МП16Б



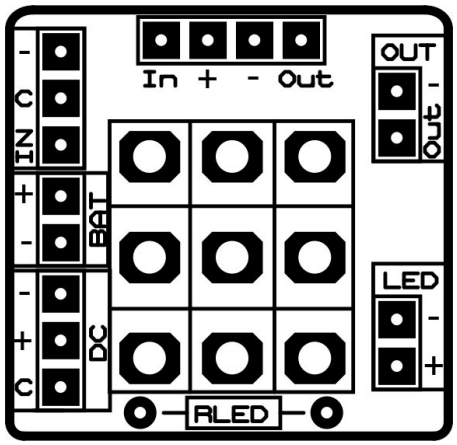
(top view)

ІТ308Б

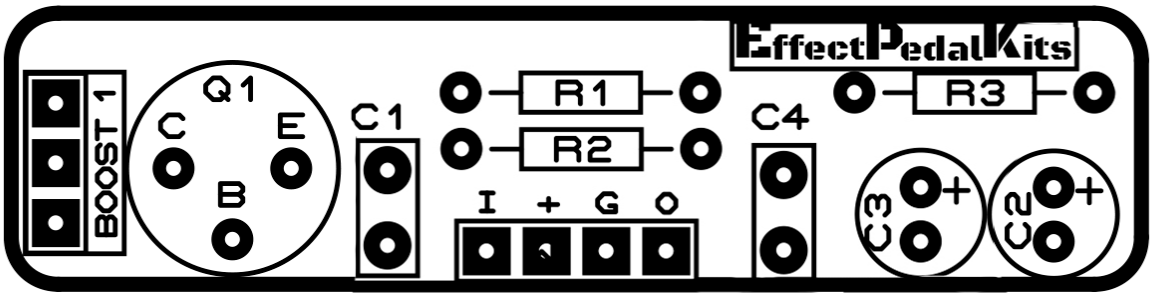


Board Layouts

3PDT PCB

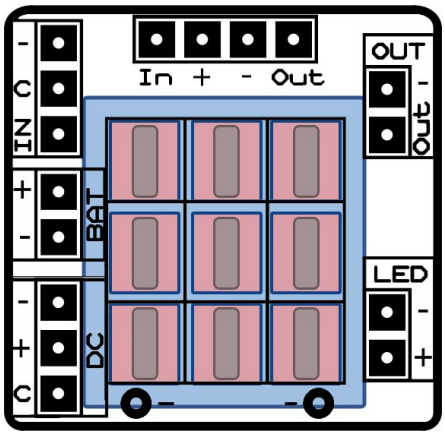


Effect PCB



Building Tips

1- Pay attention to the **orientation of the 3PDT**! In the following picture you can see how the 3PDT pins should be positioned (inserting the pins in the holes can be a bit tight to avoid movement while soldering):



2- For a proper soldering you just have to apply the **right amount of solder wire**. A right solder joint should have a concave shape around the joint and look like this:

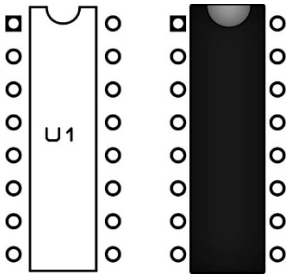
3- Don't apply too much heat! When soldering, the time you hold the solder iron against the joint should be **as short as posible** to avoid damaging any part (a few seconds should be enough). If you can't get a solder joint right, **let it cool** a bit before trying again.

4- If having troubles with the building, checking the schematic in the last page will help you find **where the audio signal stops**. When you find the spot, check out that **everything around that joint is ok** (components placed at their right place, solder joints…).

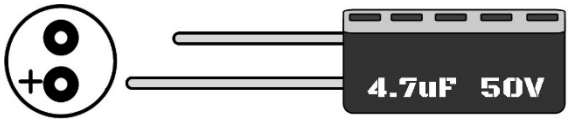
Building Tips

5- Pay attention to the **parts that have a polarity** and make sure they are connected as in the component placement picture:

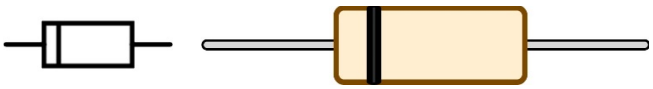
- **ICs** (they have a small dot or indication that must fit the indication in the board



- **Electrolytic capacitors** (longer pin is connected to the "+" hole):

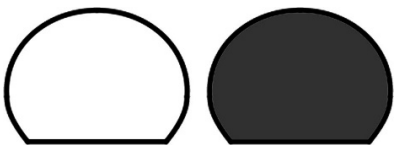


- **Diodes** (check for the mark and make it fit with the one in the PCB):



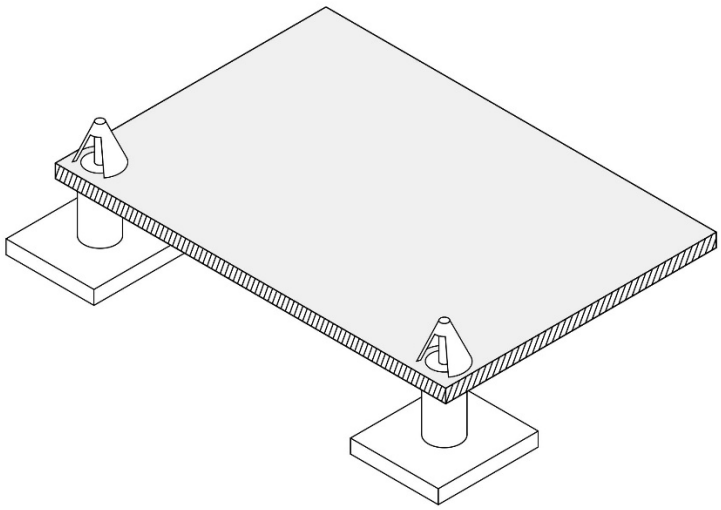
- **Leds** (longer pin is connected to the "+" hole)

- **Transistors** (inserted to fit the drawing in the PCB)



Building Tips

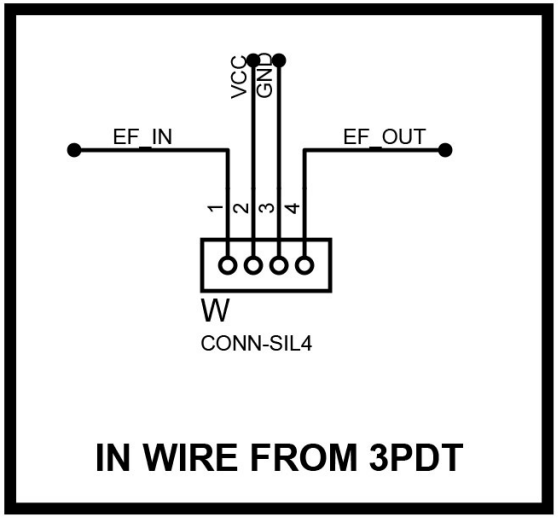
6- With the kit we include plastic PCB supports with an adhesive bottom. You can use them to anchor the PCB to your enclosure for a better stability. Just insert the PCB support tip into the 3.5mm holes and remove the adhesive protective film.

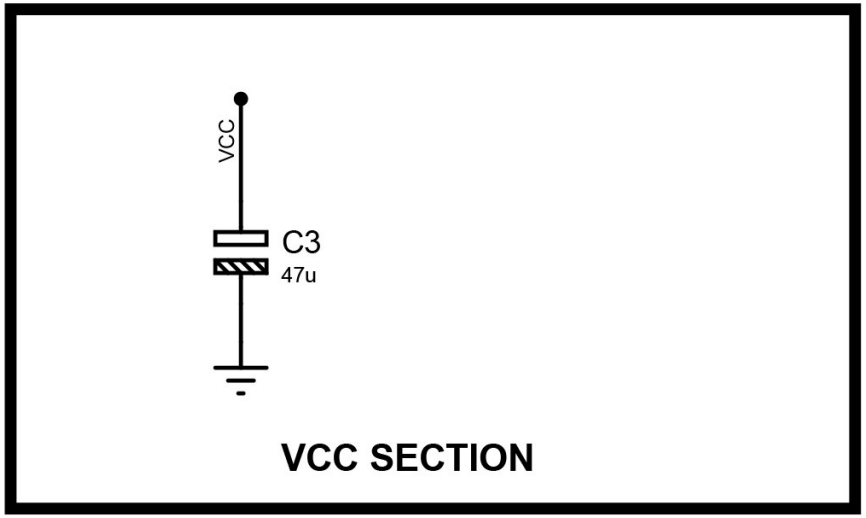


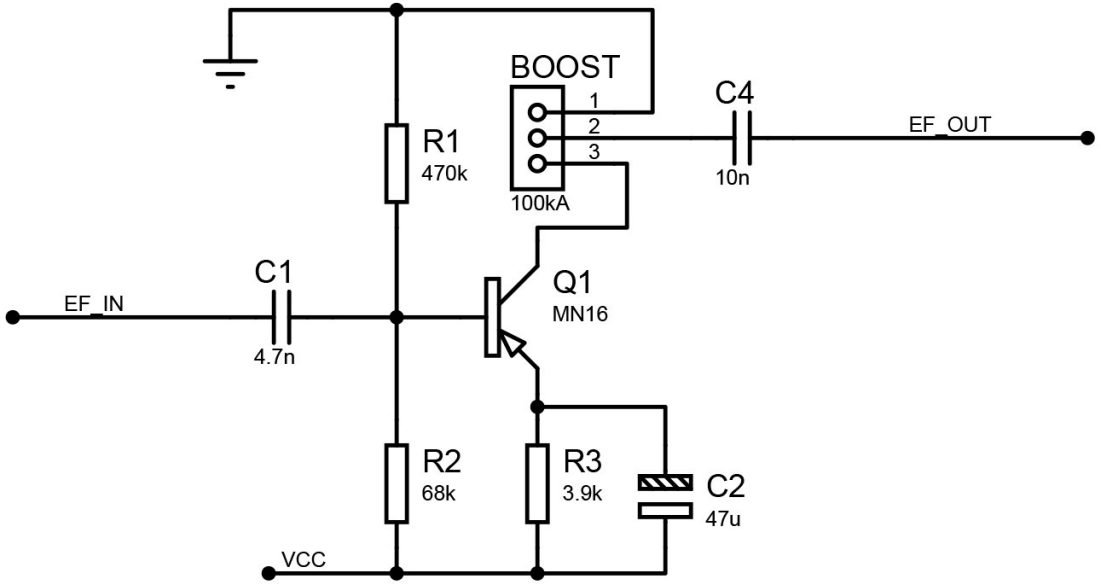
To avoid any issue always check the latest building manual. Use the pictures only as a reference! Colors/shapes of wires, PCB or parts can change slightly, this doesn't affect their functionality in any way.

Always double check part polarity, resistor and capacitor values, potentiometer placement, IC orientation… before soldering.

Schematic


VCC
GND
EF_IN
EF_OUT
1
2
3
4
W
CONN-SIL4
IN WIRE FROM 3PDT


VCC
C3
47u
VCC SECTION


BOOST
1
2
3
100kA
C4
10n
EF_OUT
R1
470k
C1
4.7n
EF_IN
Q1
MN16
R2
68k
R3
3.9k
C2
47u
VCC