

RANGEMASTER



FX Type: BOOST

PCB artwork ©2011 madbeanpedals
Release date: 06.01.11

The **Rangemaster** is a classic treble booster that has a long history in the world of guitar effects. Its unique character is that it boosts high frequency content to make notes on the guitar sing when playing lead. This type of effect is most suited for tube based amps and is not recommended for solid state devices. This version also allows you to use an additional switch and cap to make into a mid-range or full boost.

Controls

BOOST: This control provides over 20dB of gain as it is turned up. (metal film resistors are recommended)

T/M: The Treble/Mids switch allows you to switch between treble boost and a more full range boost (depending on what value you select for **C2**).

Build Notes

This is a positive ground effect! It is necessary to use either battery, a power supply with isolated 9v supplies like the Voodoo Pedal Power or a voltage converter like the Road Rage to power the effect. Current draw is very low without an LED, so a battery will last a very long time.

The stock input cap is 5n. These are pretty hard to come by in the States. You can sub either a 4n7 or 5n6 in its place. If your DMM has a capacitance measure feature, you could pick up a few 5n6 and try to find one that measures closer to 5n.

C2 can be placed in parallel with **C1** via the **T/M** switch. The value you choose for **C2** has a direct effect on what range of frequencies the boost is applied to. The larger the value the more range available. Note that too high of a value may cause some flabbiness in the bottom end of the guitar, so 10n to 22n is suggested.

All of the caps have extra pads so that you can use either axial or radial type capacitors. The lead spacing for the radial pads is 5mm for film, and 2.5mm for electrolytic. For axial film, the spacing is about 18mm. For axial electrolytic it is 20mm.

You may also use a short-pin PCB mounted pot for this build: <http://www.smallbearelec.com/Detail.bok?no=692>

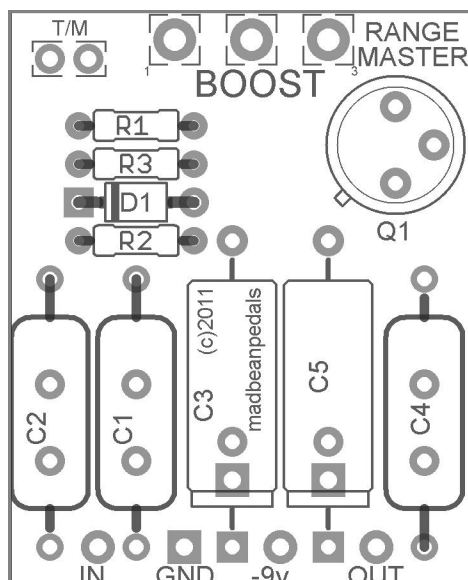
You can find a number of suitable transistors for the Rangemaster at www.smallbearelec.com

For more info on the history and inner workings of the Rangemaster, have a look at R.G. Keen's article:

http://www.geofex.com/Article_Folders/Rangemaster/atboost.pdf

LAYOUT DIAGRAM

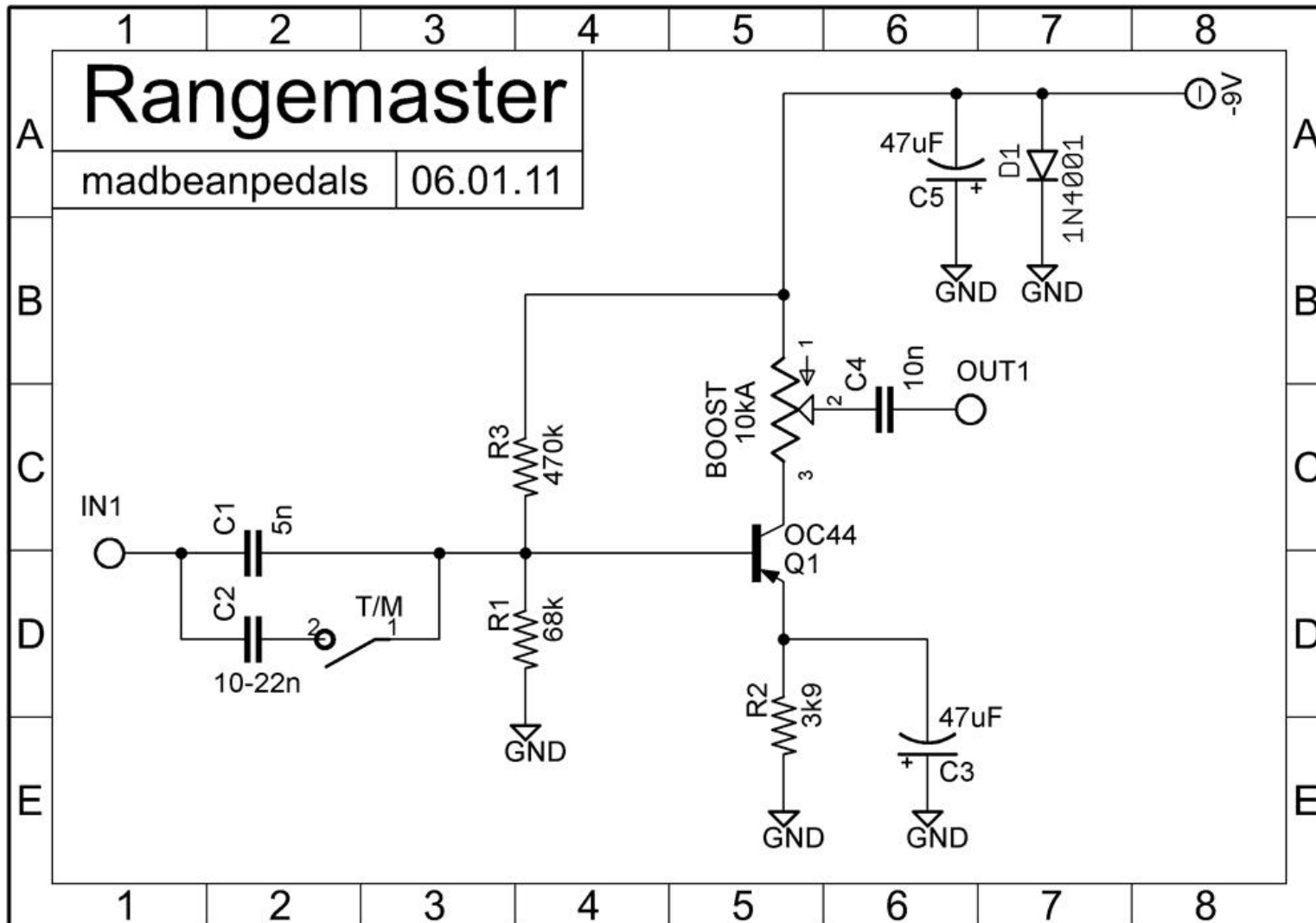
1.2" W x 1.5" H



This PCB will fit in a 1590B

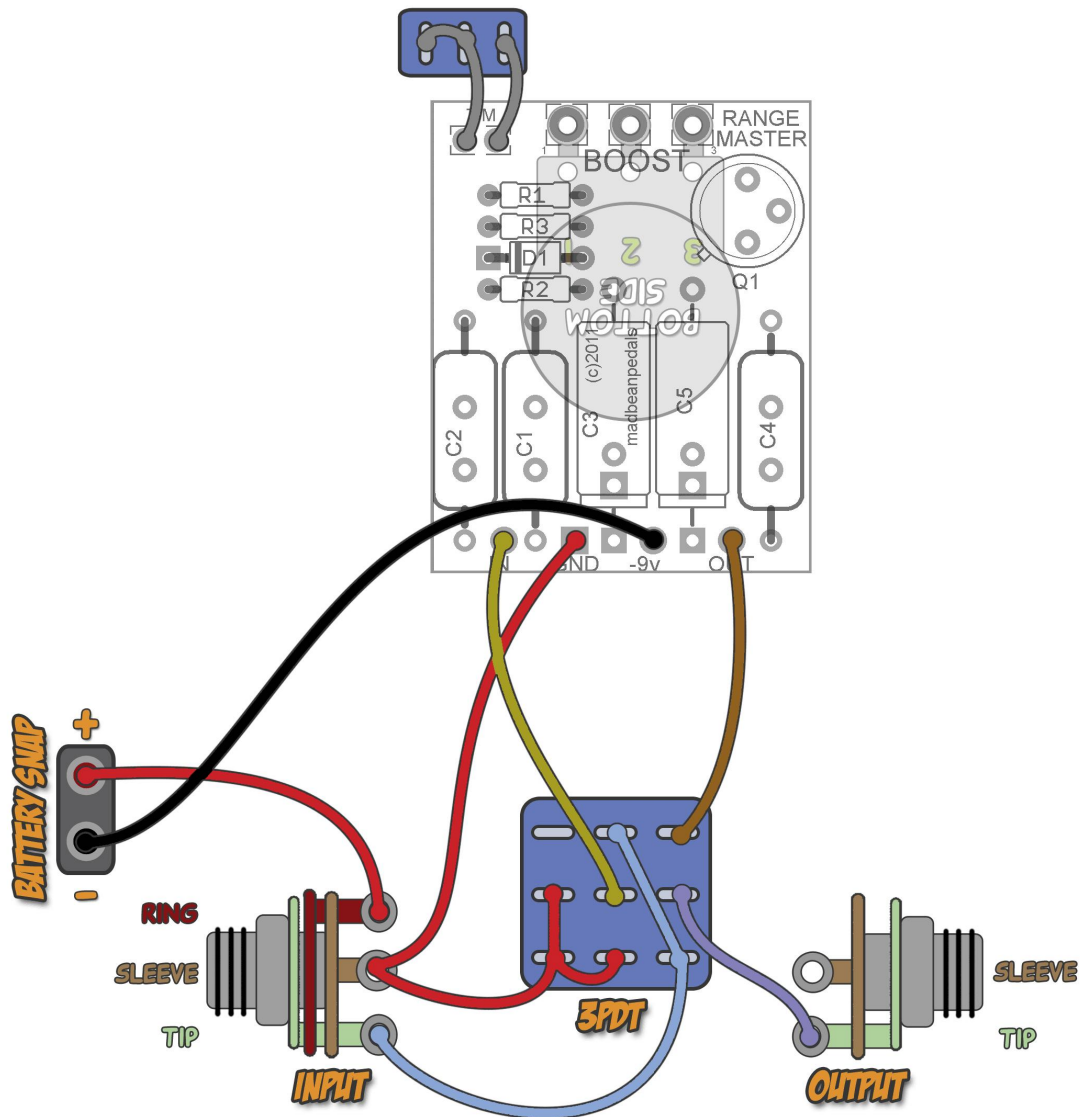
BILL OF MATERIALS

Resistors	
R1	68k
R2	3k9
R3	470k
R4	10k
Caps	
C1	5n
C2	10-22n
C3	47uF
C4	10n
C5	47uF
Diodes	
D1	1N4001
Transistors	
Q1	OC44
Switch	
T/M	SPST
Pots	
BOOST	10kA
RANGE MASTER	10kA

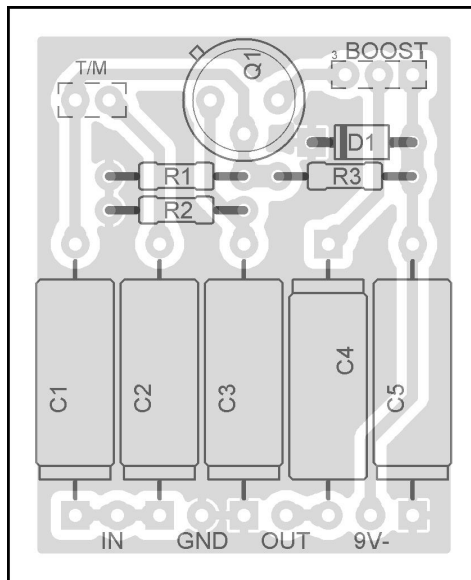


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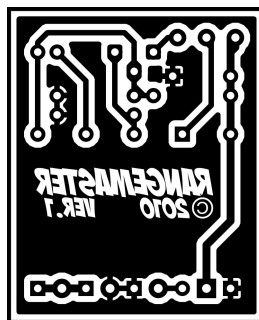
WIRING DIAGRAM

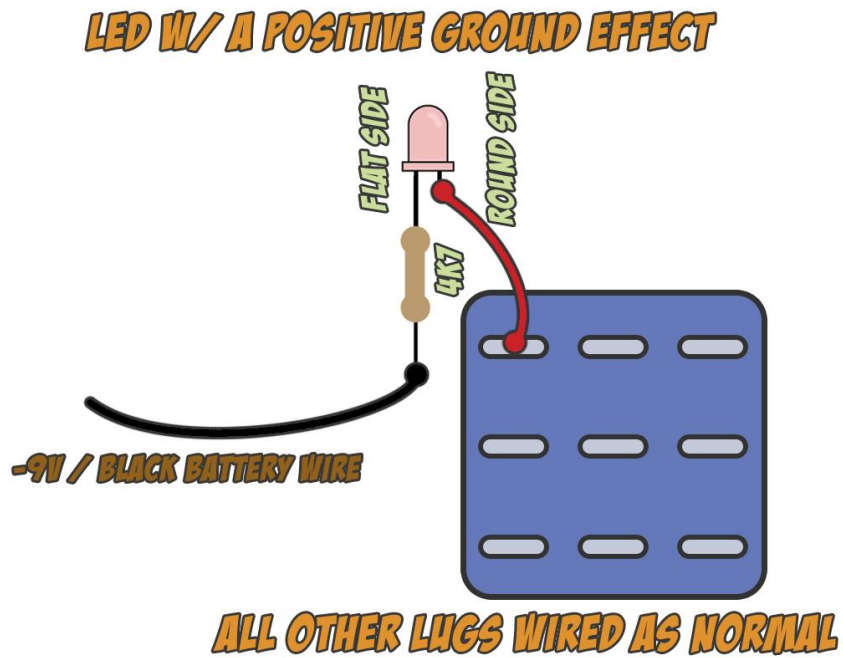


SINGLE-SIDED VERSION



1.34"W x 1.64" H (including borders)





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