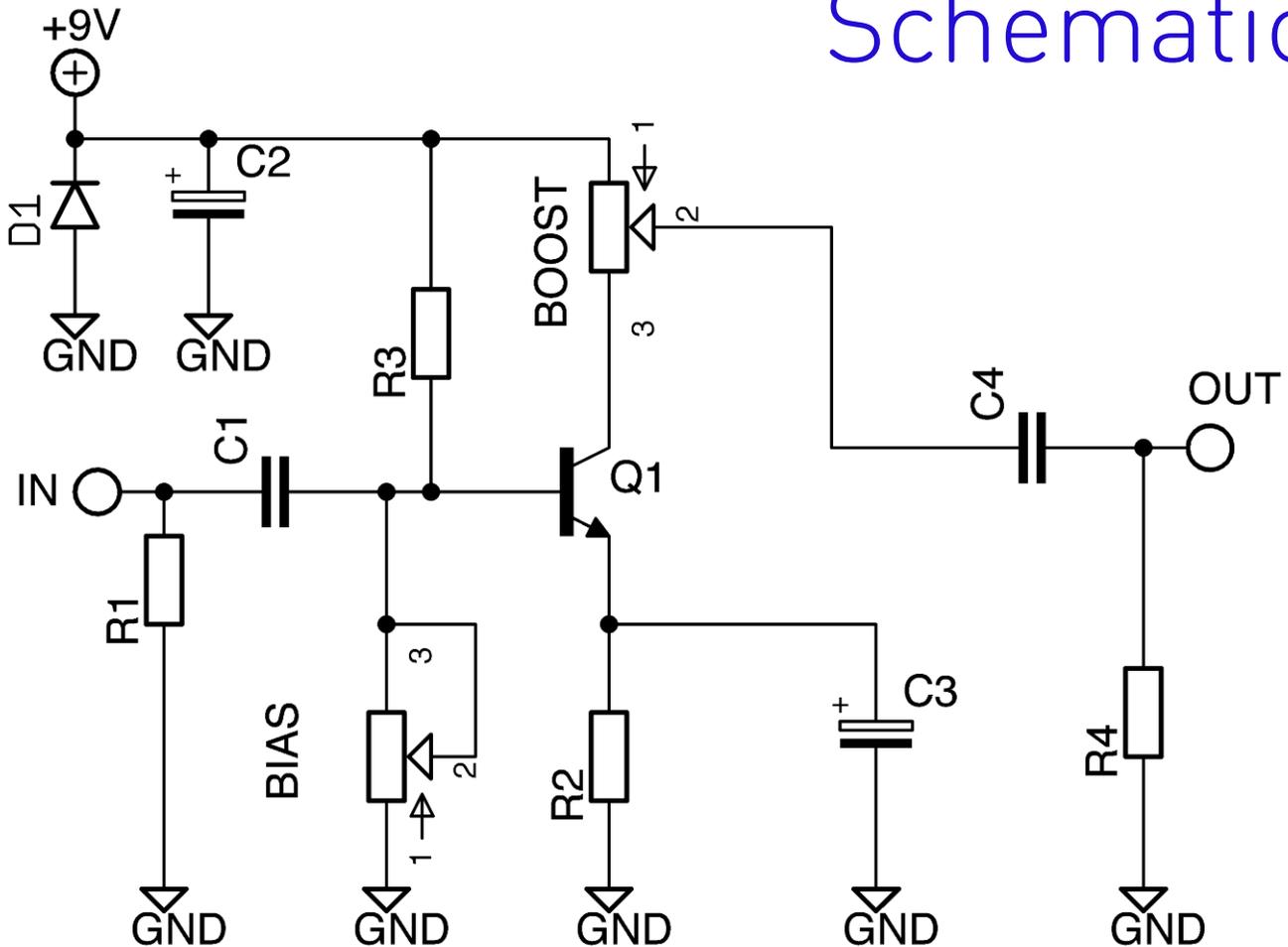


# Range Master

Dallas Rangemaster  
Germanium Treble Boost



# Schematic



## BOM

R1	1M
R2	3K9
R3	470K
R4	1M
BIAS	100K preset
C1	4n7
C2	47u
C3	47u
C4	10n
Q1	So Many Options!!!
BOOST	10KA
D1	1N4001

R1 and R4 are optional pulldown resistors, D1 is power supply polarity protection. All three are optional.

Schematic above is for NPN / negative ground version, based on the Range Blaster modifications at Fuzz Central.

The original used PNP / positive ground supply.

To convert for PNP, simply reverse the orientation of D1, C2, C3, and hook up the power in reverse as shown on the PNP wiring page further on.

Original used OC44 transistor, but good luck! There are lots of germaniums suitable for this circuit, and all will give their own unique character. Dig around and find your ideal sound.

The power and signal pads on the PCB conform to the FuzzDog Direct Connection format, so can be paired with the appropriate daughterboard for quick and easy offboard wiring.

Be very careful when soldering the diode and transistor. They're very sensitive to heat. You should use some kind of heat sink (crocodile clip or reverse action tweezers) on each leg as you solder them. Keep exposure to heat to a minimum (under 2 seconds).

The striped leg (cathode) of the diode goes into the square pad.

The long leg (anode) of the electrolytic capacitors go into the square pads.

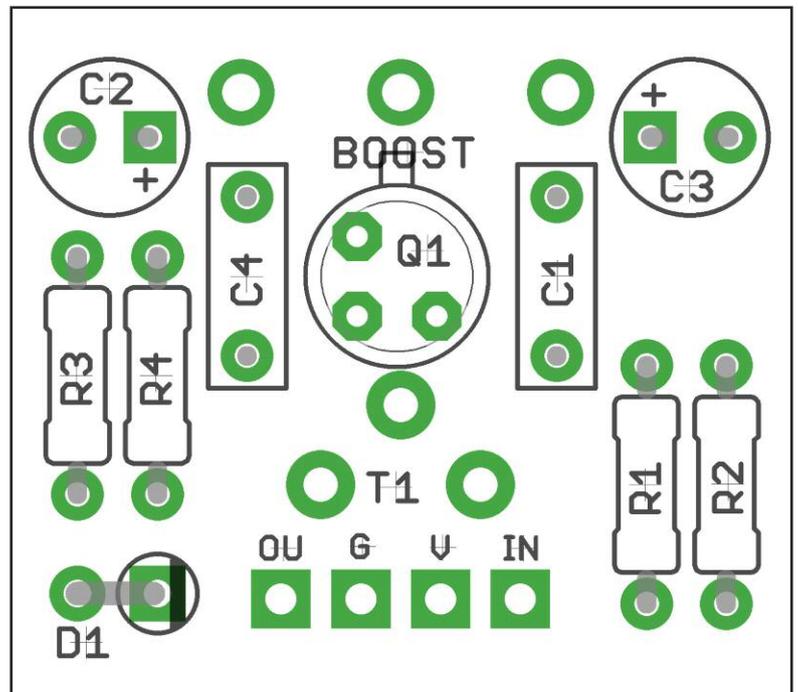
Snap the small metal tag off the pot so it can be mounted flush in the box.

Pot mounts on the back side of the board. The trimmer (T1) should normally go on the back side. If you have a particularly big transistor you may want to mount that on the back. In that case its fine to put the trimmer on the same side as the other components.

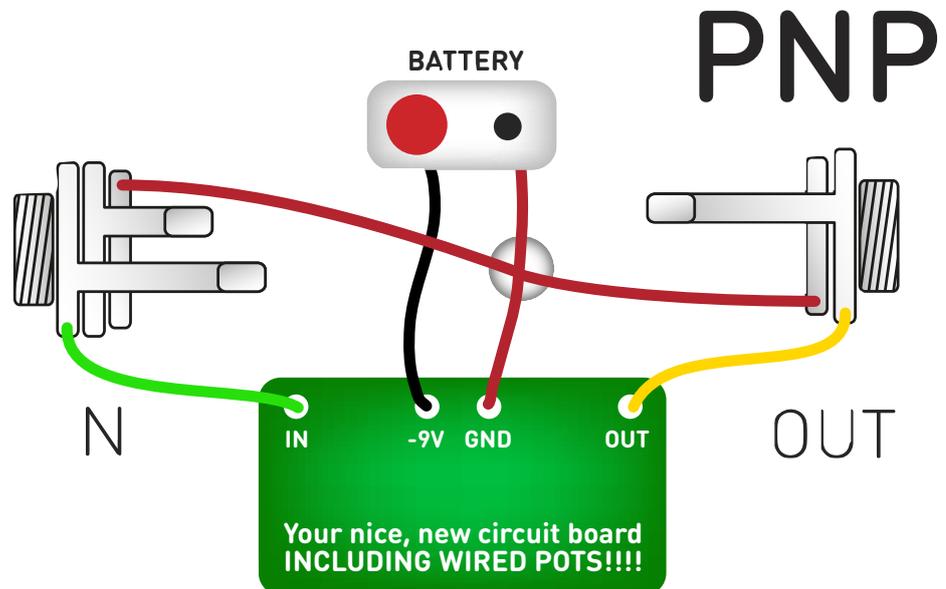
As stated on page 2, the board is designed for NPN (negative ground) builds.

To build a PNP (positive ground) version, simply reverse the polarised parts (D1, C2, C3), i.e. for the caps the striped leg now goes into the round pad. Then follow the PNP test wiring and switch wiring diagrams. If using a daughterboard check the doc for details of what to do.

See next page for the all-important biasing.



# Test the board!



Once you've finished the circuit it makes sense to test it before starting on the switch and LED wiring. It'll cut down troubleshooting time in the long run. If the circuit works at this stage, but it doesn't once you wire up the switch - guess what? You've probably made a mistake with the switch.

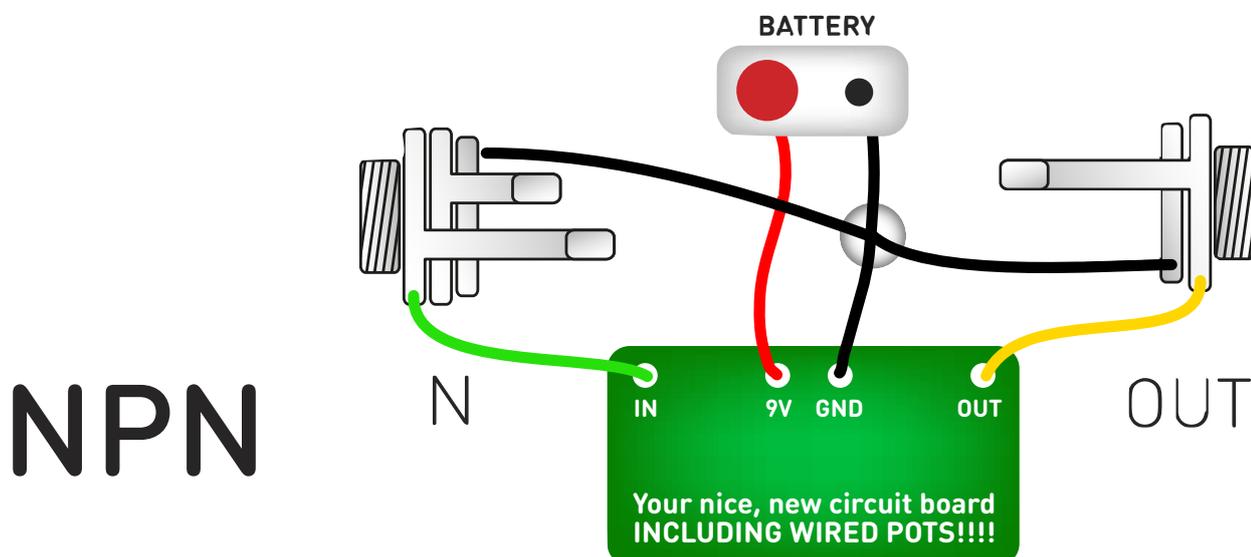
Before you start, take a small screwdriver and position the biasing preset in the middle of its turn. You'll adjust this shortly.

Refer to the appropriate diagram depending on the polarity of your build. Solder some nice, long lengths of wire to the board connections for 9V, GND, IN and OUT. Connect IN and OUT to the jacks as shown. Connect all the GNDs together (twist them up and add a small amount of solder to tack it). Connect the battery + lead to the 9V wire, same method. Plug in. Go!

It may sound cack, as you haven't set the biasing of the transistors yet. For this you'll need either a digital multimeter (ideal) or your ears (hey, its your pedal and you know what sounds good).

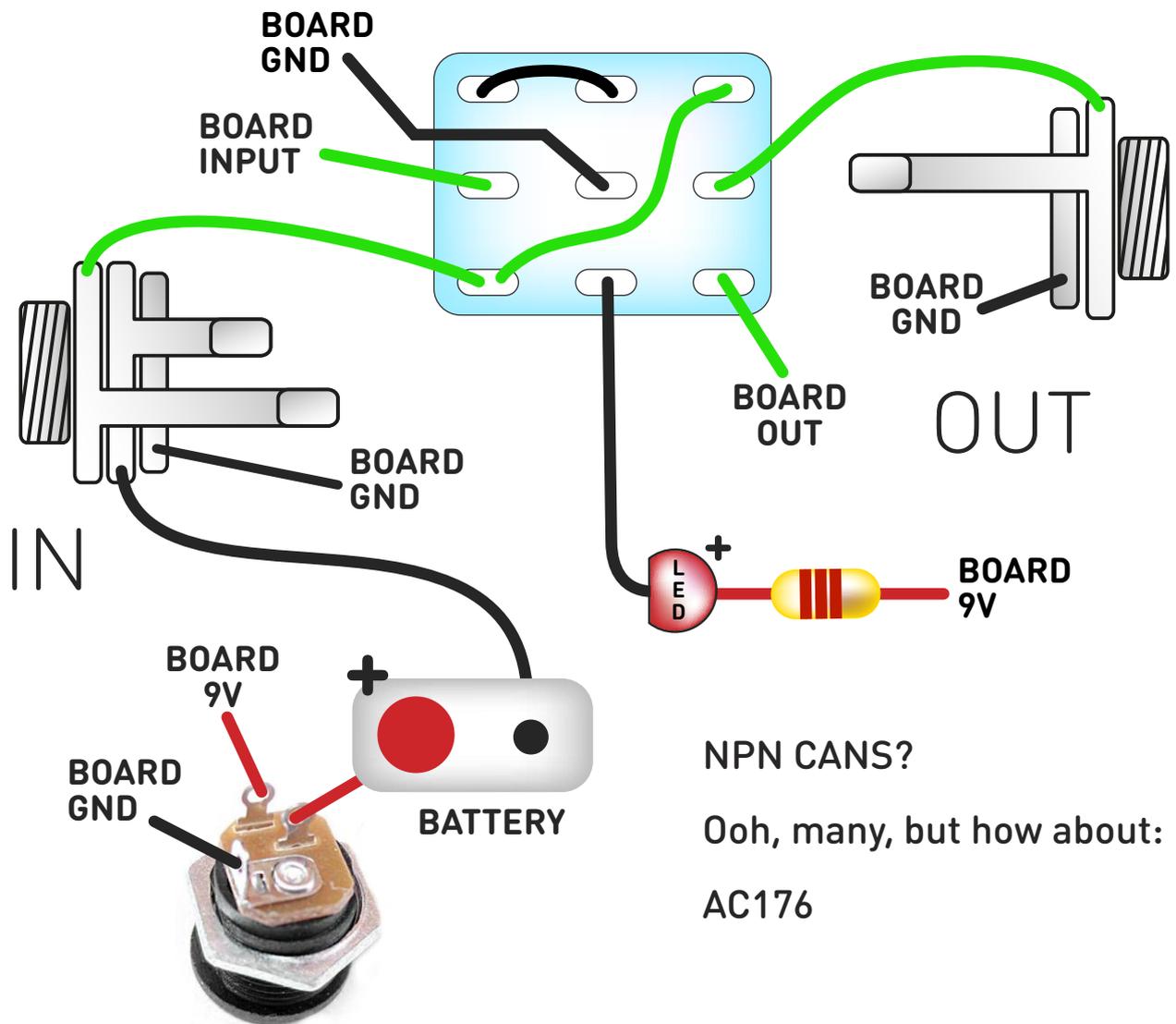
Place the Negative DMM test probe on any GND point, place the other probe on the collector of Q1. Adjust the bias preset until you get a reading of between 6.8 - 7.1v (or minus v if PNP). Sweet!

If it works, crack on and do your switch wiring. If not... aw man. At least you know the problem is with the circuit. Find out why, get it working, THEN worry about the switch etc.





# NPN cans? Follow this.



NPN CANS?

Ooh, many, but how about:  
AC176

The Board GND connections don't all have to directly attach to the board. You can run a couple of wires from the DC connector, one to the board, another to the IN jack, then daisy chain that over to the OUT jack.

It doesn't matter how they all connect, as long as they do.

This circuit is standard, Negative GND. Your power supply should be Tip Negative / Sleeve Positive. That's the same as your standard pedals (Boss etc), and you can safely daisy-chain your supply to this pedal. Now... GO BOOST THAT TREBLE!

[PedalParts.co.uk](http://PedalParts.co.uk)