Crossbow Device

Based on:
Earthquaker Devices Arrow

Amount of parts:
Low, total 14 components

Enclosure type:
125b

Effect type:
Preamp Booster

Technology:
NPN Silicon Transistor

Get your board at:
Crossbow Device

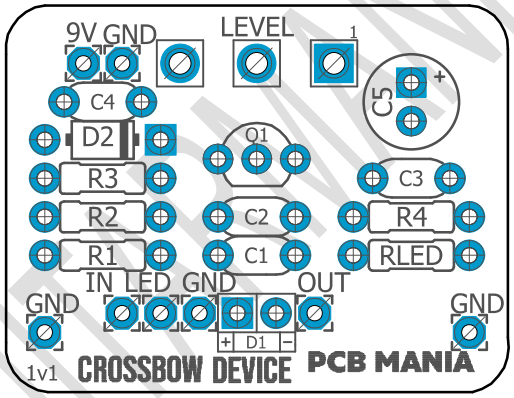
Build difficult:
Easy

Power consumption:
9V

Get your kit at:
Das Musikding (Europe)

Project overview:

Through a simple single knob, this board inspired by the EarthQuaker Devices Arrows V2 improves definition and boosts your waves down into the rest of your chain. The signal will go through like an arrow to its target!



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Introduction

This board acts like a crossbow by shooting your signal, adding extra gains to all your dirt pedals, as well as throwing light on the pickup doors. It's perfect for clean boosting an amp, driving it over the edge, or pushing dirt boxes into sonic rapture. Remove that excessive dirt from the bass of heavy rubber pedals, transform the unnecessary light into enormous gains, and make your waves pop with energy and style.

The Crossbow Device is easy-to-build, and the interface is even simpler; one control that will boost or decrease your signal.

Important: The Crossbow Device version 1.0 has an error in the notch between R13 and C12. As soon as we discovered this mistake, we removed it from circulation. If you have acquired this version, check the Building Notes below to address this issue with an easy fix. The subsequent versions have already been fixed.

Controls

Potentiometer

- Level

Bill of materials

Resistors	
Part	**Value**
R1	1M
R2	10M
R3	1K3
R4	100K
RLED	4K7

Capacitors	
Part	**Value**
C1	100p
C2	4n7
C3	10n
C4	100n

Electrolytics Capacitors	
Part	**Value**
C5	100u

Potentiometers	
Part	**Value**
LEVEL	B10K

Transistors	
Part	**Value**
Q1	2N5089

Diodes	
Part	**Value**
D1	3mm Red LED
D2	1N5817

Shopping list

Resistors		
Qty	**Value**	**Parts**
1	100K	R4
1	10M	R2
1	1K3	R3
1	1M	R1
1	4K7	RLED

Capacitors		
Qty	**Value**	**Parts**
1	100n	C4
1	100p	C1
1	10n	C3
1	4n7	C2

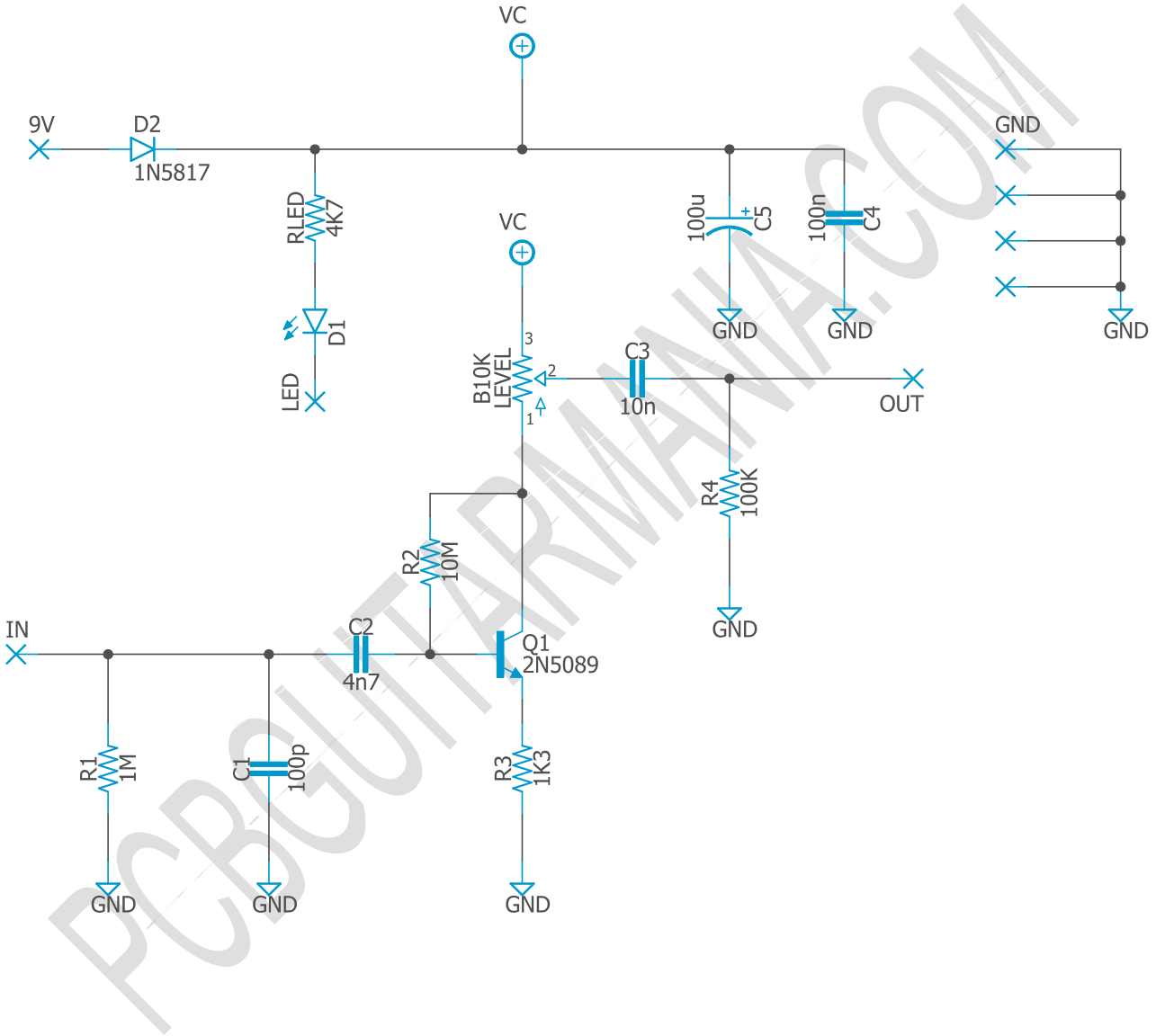
Electrolytics Capacitors		
Qty	**Value**	**Parts**
1	100u	C5

Potentiometers		
Qty	**Value**	**Parts**
1	B10K	LEVEL

Transistors		
Qty	**Value**	**Parts**
1	2N5089	Q1

Diodes		
Qty	**Value**	**Parts**
1	1N5817	D2
1	3mm Red LED	D1

Schematic



Components Recommendations

As many people like to experiment with some pedals with higher voltage, always ensure your **electrolytic capacitors'** max tolerance is over 25v.

This board has been tested using Film box capacitors for most of the values over 1nf and ceramics discs for those under 1nf. However, high-quality components such as Wima's Capacitors and Panasonic's electrolytics can deliver a better performance.

All the resistors used for testing this project are 1/4W Metal Film.

The BOM and Shopping list are exclusive regarding this project. It doesn't include all the hardware like the 3PDT bypass switch, audio/dc jacks, enclosure, etc.

Build Notes

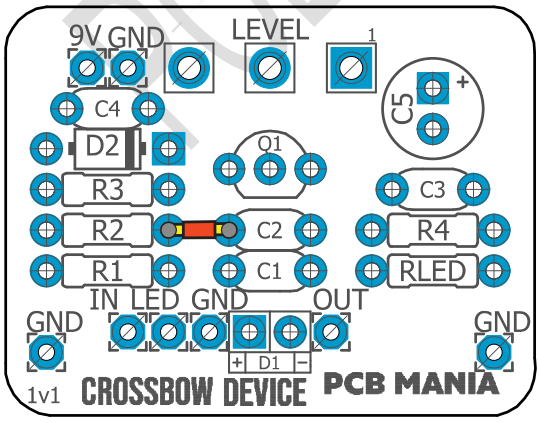
If this is one of your first projects, I recommend you to take a look at our Pedal Building Guide.

For a successful and tidy build, it's recommended the following order:

1. Resistors & diodes
2. Capacitors, starting with the smaller ones and the ceramic ones.
3. Electrolytic capacitors (always check the polarity)
4. Transistors
5. Wires
6. Potentiometers and switches
7. Off-board wiring

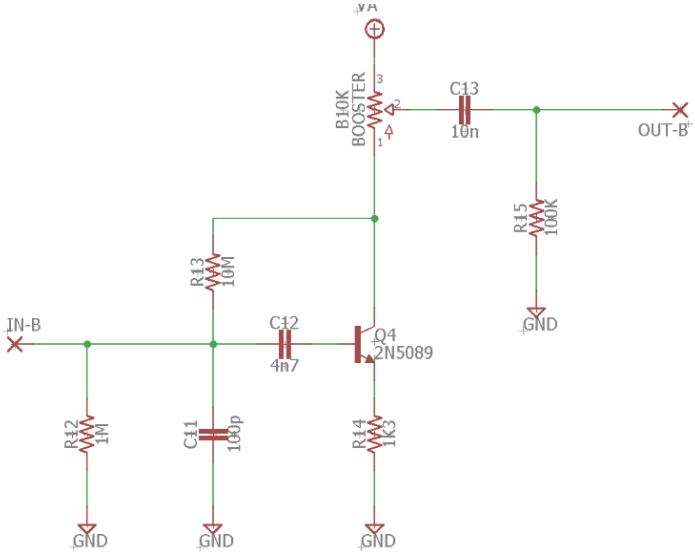
How to fix the 1.0v board:

The Crossbow Device version 1.0 has an error in the notch between R2 and C2. Remove R2 and place it the following way.

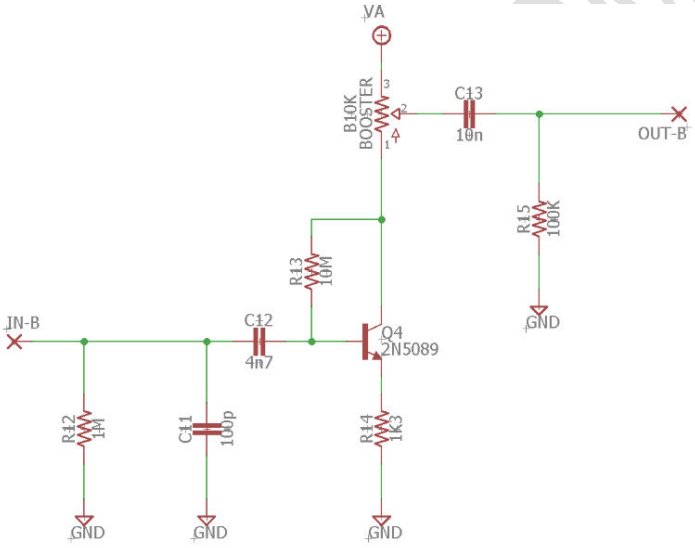


To keep it tidier, we recommend placing this resistor on the solder side and connecting it with c12 under the board.

Original version:



Corrected 1.1 version:



Wiring Diagram

All our projects include a free 3PDT Board to make the wiring easier and tidier. Also, all of our PCBs feature the status LED on board.

The pad named “Ctrl” or “LED” is the one that controls the status of the led; wire it to the “LED” pad on the 3PDT board or in the control slug of your 3PDT.

This board has been designed to match our EZ 3PDT PCB; check it here to access our Pedal Wiring Guide.

Drill Template

This Project has been planned to fit into a 125b enclosure type.

Check the Attached “Drilling templates” to drill the box properly. The files are on Scale 1:1, ready to print on an A4 page.

Licensing and Usage

We really appreciate your trust and support in buying this PCB, as well as your will to dive into the DIY electronics world. For us, that's why you can make this project work properly and enjoy not only the building process but also experiment and play with it on your rig.

We try to reply to every question we receive on our email or our social media. Still, we try to encourage all our customers to join our PCB Guitar Mania – Builders Group on Facebook to post all your doubts, issues, suggestions, or requests, share your builds, and have some feedback from other fellow builders and us!

We tested all our projects following this same guide on their standard configurations. Although, not all of the variations and mods have necessarily been checked. These are suggestions based on the schematic analysis and the experiences and opinions of others. Feel free to share with us your views and recommendations regarding the mods your personal experimentation.

These boards may be used for commercial endeavors in any quantity unless expressly noted. No attribution is necessary, though accreditation or a link back is always much appreciated.

If you are a builder planning to make your own run of pedals, we also offer the service of custom-made boards with your brand and logo, design according to your specifications.

The only usage restrictions are that, first, you cannot resell the PCB as part of a kit without prior arrangement with us, and second, you cannot scratch off the silkscreen or other way of trying to hide our logos and the source of the PCBs. Like it's written above, if you want to have your designs with your brand and logo, we could undoubtedly reach an agreement.

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