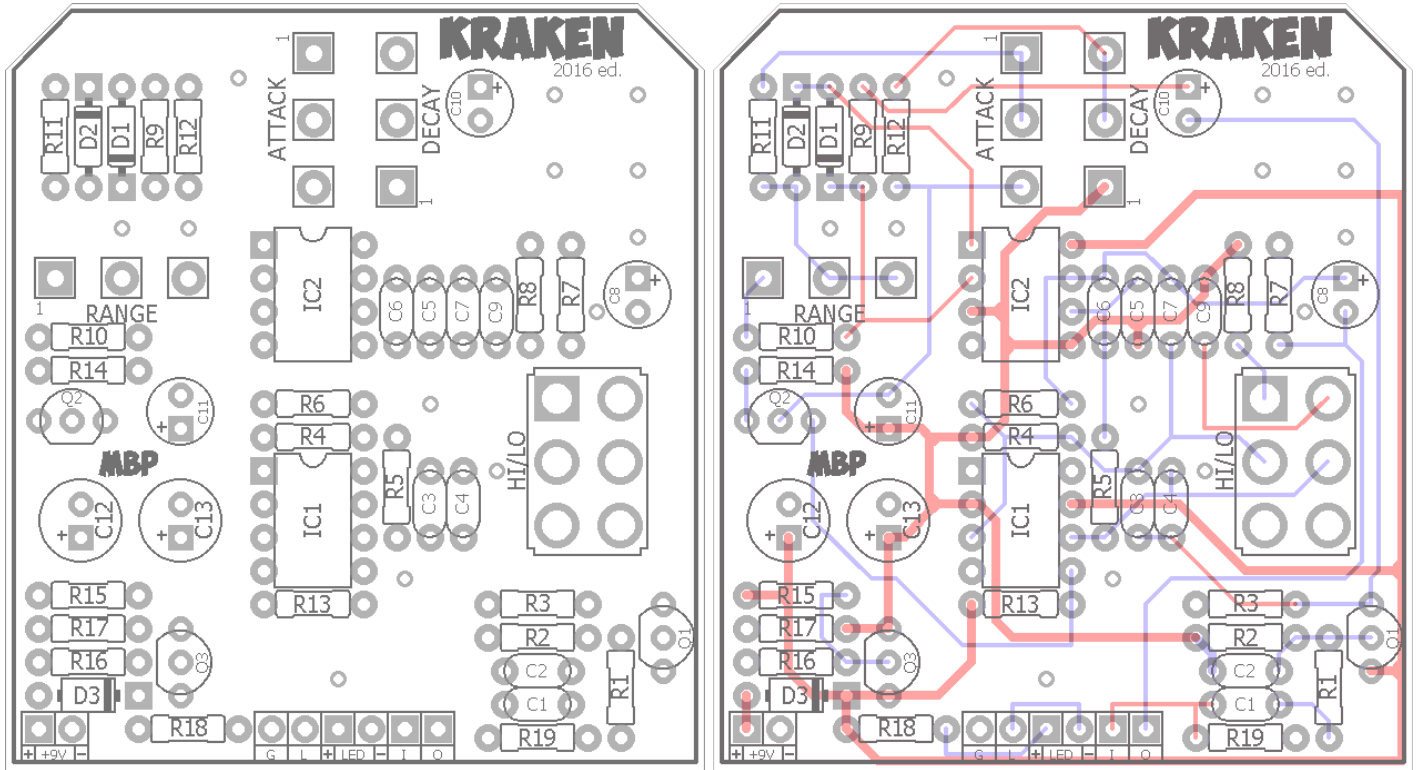


# KRAKEN

FX TYPE: Envelope Filter  
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2.1" W x 2.3" H



**Terms of Use:** You are free to use purchased circuit boards for both DIY and small commercial operations. You may not offer these PCBs for resale or as part of a "kit" in a commercial fashion. Peer to peer re-sale is, of course, okay.

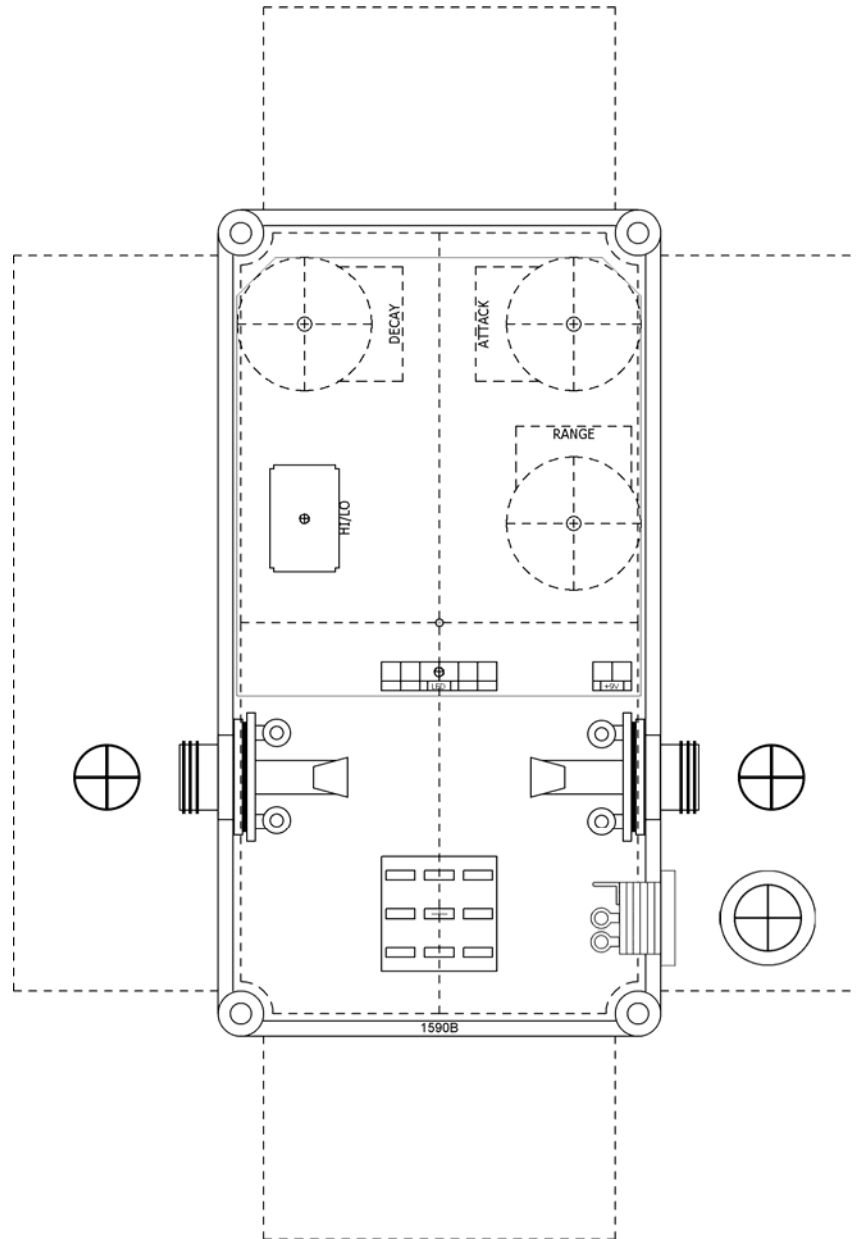
B.O.M.					
Resistors		Caps		Diodes	
R1	100k	C1	100n	D1	1n914
R2	100k	C2	100pF	D2	1n914
R3	10k	C3	47n	D3	1N5817
R4	330R	C4	33n	Transistors	
R5	47k	C5	2n2	Q1	2N5089
R6	6k8	C6	1n8	Q2	2N5087
R7	22k	C7	2n2	Q3	2N5089
R8	330R	C8	10uF	IC	
R9	15k	C9	68n	IC1	CA3080
R10	22k	C10	4u7	IC2	LM1458
R11	220R	C11	4u7	Switch	
R12	10k	C12	100uF	HI/LO	On/On
R13	1M	C13	100uF	Pots	
R14	4k7			ATTACK	2kB
R15	22k			DECAY	100kB
R16	33k			RANGE	1MB
R17	100k				
R18	4k7				
R19	1M				

Shopping List			
Value	QTY	Type	Rating
220R	1	Metal / Carbon Film	1/4W
330R	2	Metal / Carbon Film	1/4W
4k7	2	Metal / Carbon Film	1/4W
6k8	1	Metal / Carbon Film	1/4W
10k	2	Metal / Carbon Film	1/4W
15k	1	Metal / Carbon Film	1/4W
22k	3	Metal / Carbon Film	1/4W
33k	1	Metal / Carbon Film	1/4W
47k	1	Metal / Carbon Film	1/4W
100k	3	Metal / Carbon Film	1/4W
1M	2	Metal / Carbon Film	1/4W
100pF	1	Ceramic / MLCC	16v min.
1n8	1	Film	16v min.
2n2	2	Film	16v min.
33n	1	Film	16v min.
47n	1	Film	16v min.
68n	1	Film	16v min.
100n	1	Film	16v min.
4u7	2	Electrolytic	16v min.
10uF	1	Electrolytic	16v min.
100uF	2	Electrolytic	16v min.
1n914	2		
1N5817	1		
2N5089	2		
2N5087	1		
CA3080	1		
LM1458	1		
DPDT	1	On/On, Solder Lug	
2kB	1	PCB Right Angle	16mm
100kB	1	PCB Right Angle	16mm
1MB	1	PCB Right Angle	16mm

3080: <http://smallbear-electronics.mybigcommerce.com/ic-ca3080ae/>  
 DPDT On/On: <http://smallbear-electronics.mybigcommerce.com/dpdt-on-on-solder-term/>  
 or, <http://smallbear-electronics.mybigcommerce.com/dpdt-on-on-pc-mount/>

# 1590B Drill Guide

4.44"W x 6.43"H



Hi position is switch UP. Lo is DOWN.

## Overview

The **Kraken** is a modified Mutron Micro V™ envelope filter. The Mutron Micro V™ is the “little brother” of the more fully featured Mutron III™ having only a Range pot and a Hi/Low switch for the filtering. The Kraken expands the controls to include Attack and Decay for the envelope response. This is the only alteration to this classic and great sounding envelope!

**2016 ed.** – No circuit changes, only layout (PCB mounted switch, better I/O positioning).

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## Controls

**Range:** This controls the intensity of the envelope dynamics generated by your pick attack. Higher settings yield greater sensitivity, which in turn drives the intensity of the swept filter.

**Attack:** This control lets you dial in finer adjustments to the attack of the envelope. It is interactive with the Range pot.

**Decay:** This control determines how long it takes for the envelope to sweep the filter. Higher settings yield longer decay times.

**Hi/Lo:** This switch controls the range of the filter that is swept. Hi is thin and resonant. Lo is full and dark.

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## Mods

Try a pair of diodes with lower forward voltage for D1 and D2. This may improve sensitivity to picking dynamics. You can use 1n34a, BAT41 or BAT46.

Try a higher value pot for the Decay control for even longer decay times. Suggestions are 250kΩ or 500kΩ.

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## Notes

You can use 16mm short pin PCB mounted pots for the Attack, Range and Decay controls.

<http://www.smallbearelec.com/servlet/Detail?no=692>

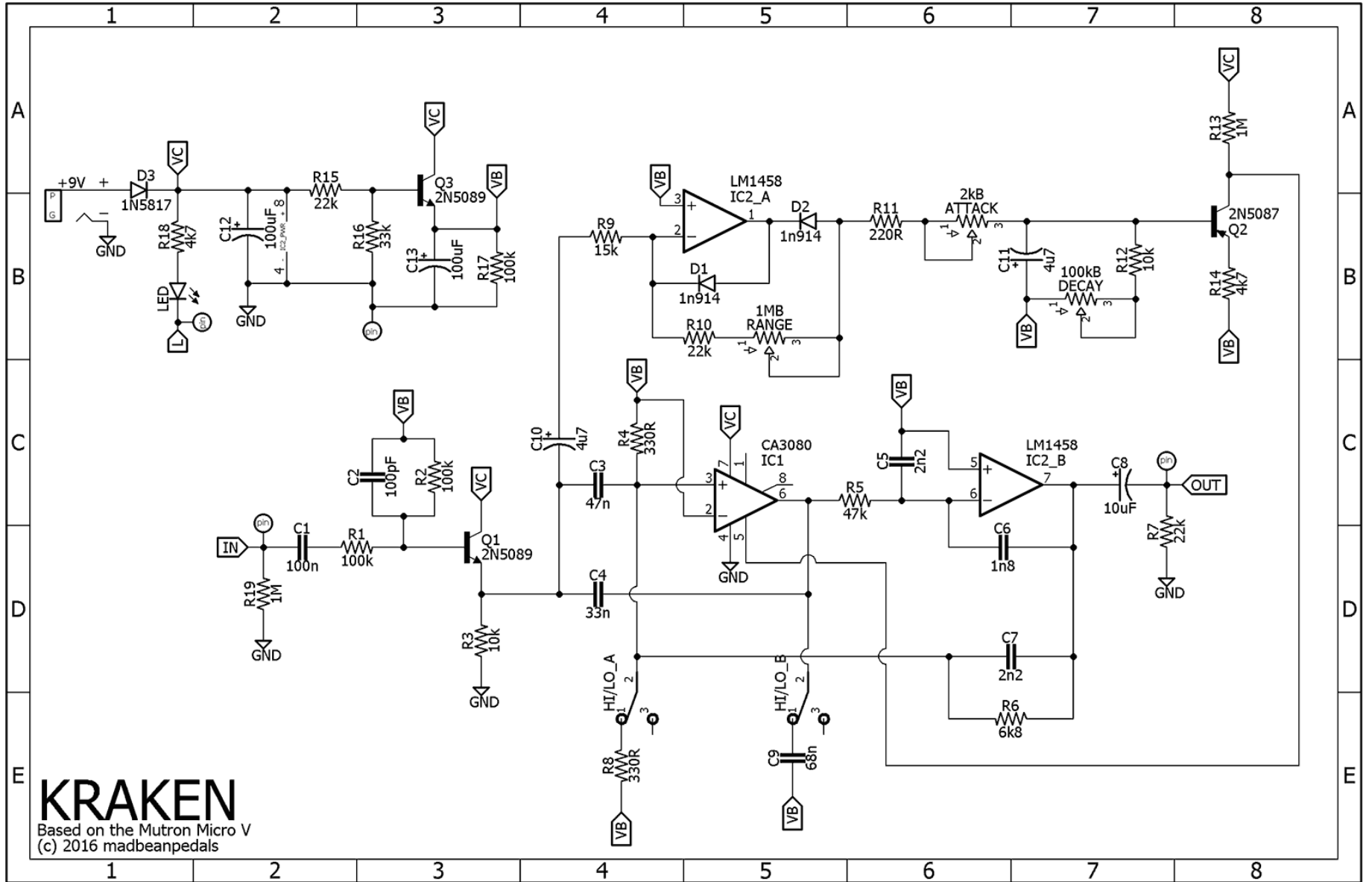
While other ICs may work for IC2, I strongly suggest sticking with the LM1458. It seems to handle envelope controls pretty well. You can probably use a 4558 in a pinch. I would avoid the TL072 and similar JFET based op-amps.

Try a higher value pot for the Decay control for even longer decay times. Suggestions are 250kΩ or 500kΩ.

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## Voltages

IC1	CA3080	IC1	LM1458	Q1	2N5089	Q2	2N5087	Q3	2N5089
1	4.7	1	~	C	9.14	C	0.598	C	9.14
2	4.9	2	4.9	B	4.78	B	4.82	B	5.45
3	4.9	3	4.9	E	4.26	E	4.93	E	4.93
4	0	4	0						
5	4.9	5	0.598						
6	4.9	6	4.9						
7	4.9	7	9.14						
8	9.14	8	~						



**KRACKEN**  
 Based on the Mutron Micro V  
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