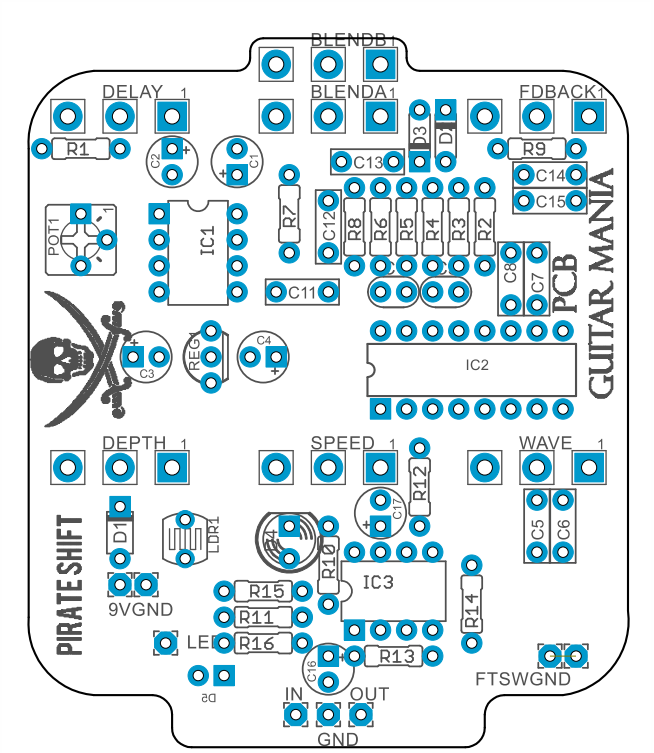
Pirate Shift

Based on Deluxe Pirate Pitch by Mid-Fi Electronics.

Chorus/Vibrato

By PCB Guitar Mania

Project link



The Pirate Shift is a Chorus/Vibrato merged with a PT2399 based delay. It also has the ability to modulate over an octave as well as control the waveform of the modulator, giving you a huge range of tonal options. It works from a standard chorus to a crazy modulation device.

- Ready to be wired as True Bypass.
- Tight design to fit in a 125B Enclosure.
- Internal trimpot to regulate the Input.

BOM

C1	47UF	**R1**	1k
C2	47UF	**R2**	22k
C3	47uf	**R3**	10k
C4	47uf	**R4**	22k
C5	100nf	**R5**	22k
C6	100nf	**R6**	10k
C7	100nf	**R7**	100k
C8	100nf	**R8**	100k
C9	1nf	**R9**	15k
C10	1nf	**R10**	10k
C11	10nf	**R11**	10k
C12	100nf	**R12**	1k
C13	100nf	**R13**	47k
C14	100nf	**R14**	100k
C15	100nf	**R15**	10k
C16	1uf	**R16**	10k
C17	47uf		
		SPEED	B1m
D1	1N4001	**WAVE**	B1k
D2	1n4148	**DELAY**	B100k
D3	1n4148	**DEPTH**	B100k
D4	**LED5MM***	**FDBACK**	B50k
D5	LED3MM	**BLEND**	B50k Dual gang (stereo)
		Trimmer	100K
IC1	LM386		
IC2	Pt-2399	**REG1**	**Lm78L05****
IC3	JRC 4558	**LDR1**	**Photo resistor***

Photo resistor/ Photo coupler *

The project features two different alternatives here, the stock version using a **VTL5C2** photo coupler, or to build your own with a 5mm led facing a photo resistor like the **KE-10720** inside a piece of heat-shrink tube. The home-made alternative brings you the oportunitiy to customize much more the LFO of the effect just by changing the led color, brightness or even the distance in between the led and the photo resistor.

Lm78L05**

It's recommended, in order keep the project tidy, to get this part on a To-92 package (the one that looks like a standard transistor). The TO-220 will work great also, but some people might find it to big.

Shopping list

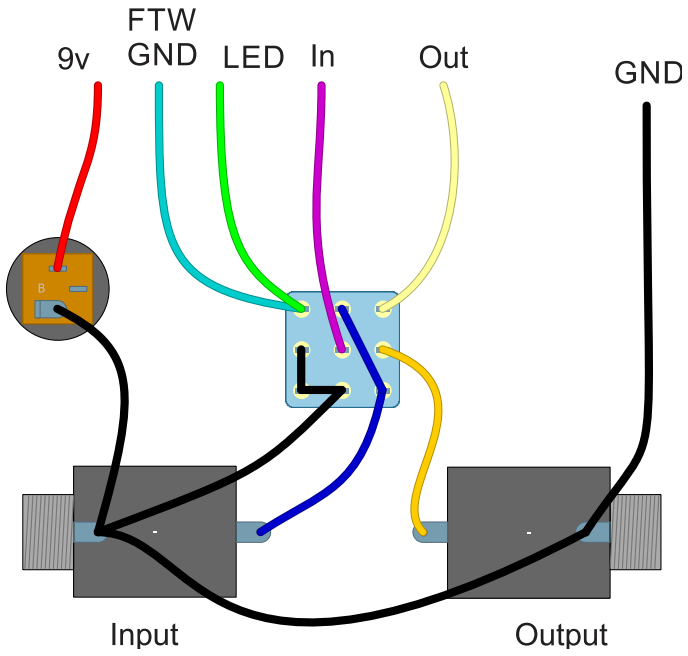
Resistors		
1	47k	R13
3	22k	R2, R4, R5
1	15k	R9
2	1k	R1, R12
6	10k	R3, R6, R10, R11, R15, R16
3	100k	R7, R8, R14
1	5mm Photo resistor	LDR1
Capacitors		
8	100nf	C5, C6, C7, C8, C12, C13, C14, C15
2	1nf	C9, C10
1	10nf	C11
Electrolytic		
1	1uf	C16
2	47UF	C1, C2
3	47uf	C3, C4, C17
Semiconductors		
1	LM386	IC1
1	JRC 4558D	IC3
1	Pt-2399	IC2
1	**LM78L05****	REG1
Pots		
1	100K	POT1
2	B100k	DELAY, DEPTH
1	B1k	WAVE
1	B1m	SPEED
1	B50k	FDBACK
1	B50k **Stereo**	BLENDA, BLENDB,
Diodes		
2	1n4148	D2, D3
1	1n4001	D1
1	Led 3mm	D5
1	**Led 5mm***	D4
Photocoupler		
1	**VTL5C2***	

General Building notes

To populate the PCB it's recommended to follow this order.

1. Resistors & diodes
2. IC Sockets (set up the proper IC at last)
3. Capacitors, starting with the smaller ones and the ceramic ones.
4. Electrolytic capacitors (always check the polarity)
5. Transistors
6. Wires
7. Potentiometers
8. Off board wiring

Off Board Wiring



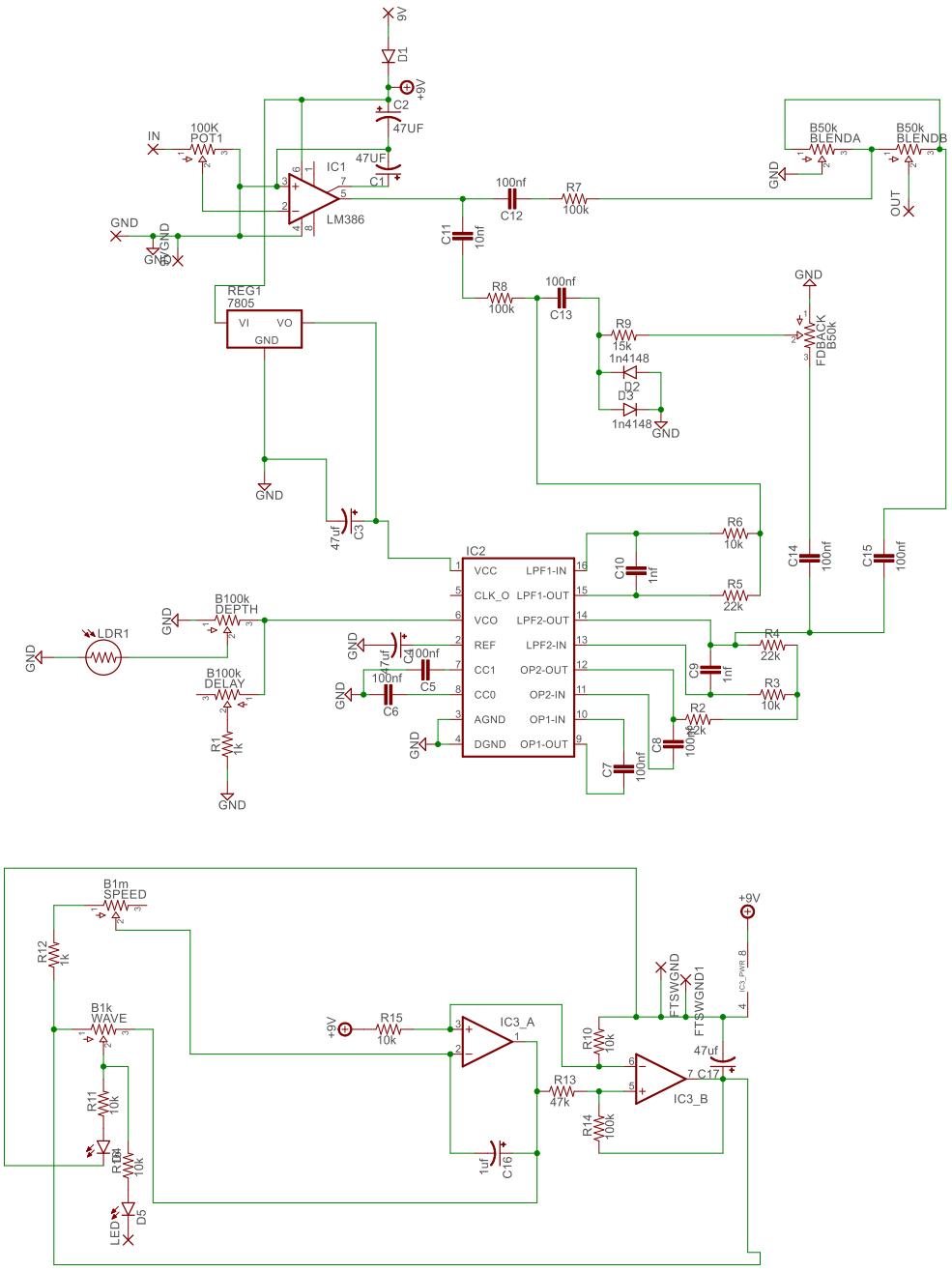
There are two wires going from the control pin of the 3pdt to the board. One is to control the status LED, and the other one is to control the internal LED, the one that controls de modulation and the photo resistor.

Drilling the enclosure

This Project has been planned to fit into a 125B enclosure type (122x67x35mm approx.)

Check the Attached "Drilling templates" to drill the box properly. The files are on Scale 1:1, ready to print in a A4 page.

Schematic


9V
D1
+9V
C2
47UF
IN
100K
POT1
IC1
47UF
C1
LM386
GND
100nf
R7
100k
C12
B50k
BLENDA
B50k
BLENDB
OUT
C11
10nf
R8
100k
100nf
C13
REG1
7805
VI
VO
GND
R9
15k
1n4148
D2
D3
1n4148
FDBACK
B50k
47uf
C3
IC2
VCC
CLK_O
VCO
REF
CC1
CC0
AGND
DGND
LPF1-IN
LPF1-OUT
LPF2-OUT
LPF2-IN
OP2-OUT
OP2-IN
OP1-IN
OP1-OUT
R6
10k
R5
22k
C10
1nf
C14
100nf
C15
100nf
R4
22k
R3
10k
R2
22k
C9
1nf
C8
100nf
C7
100nf
B100k
DEPTH
LDR1
B100k
DELAY
R1
1k
17nf
C4
100nf
C5
100nf
C6
B1m
SPEED
R12
1k
B1k
WAVE
R11
10k
R15
10k
IC3_A
R10
10k
FTSWGND
FTSWGND1
47uf
C17
IC3_B
R13
47k
R14
100k
1uf
C16
LED
D5