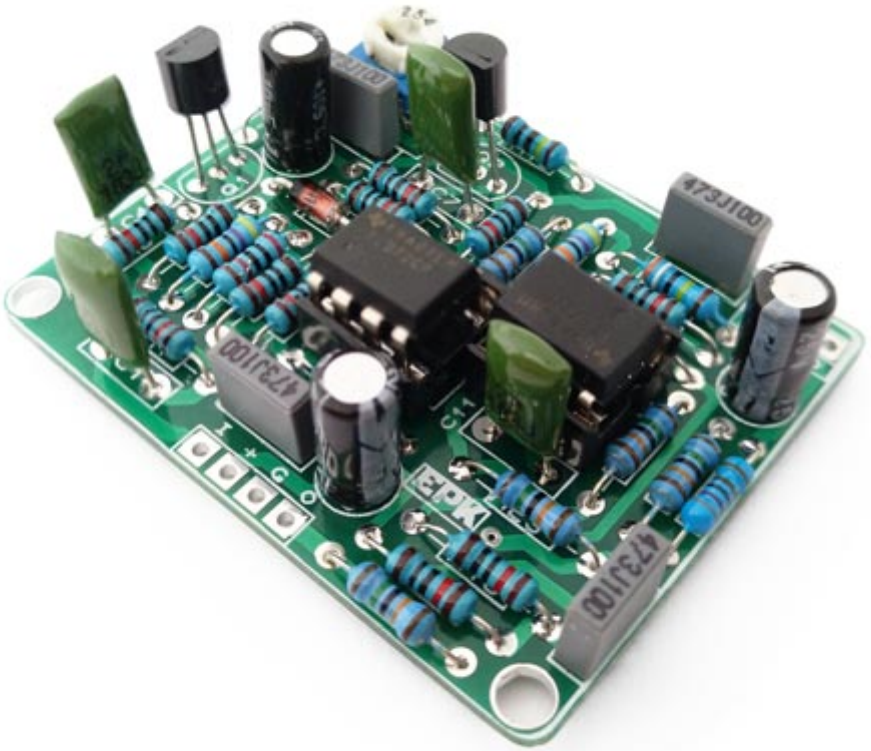
Phase 45 Kit
Building Manual



Effect Pedal Kits:
Phase 45

The **Phase 45** kit lets you build the **2-stage version of the Phase 90**, and is great to get a warm phase shifter sound. While its big brother has a deeper sweep, the Phase 45 more **subtle and organic tone** works wonders for creating a light psychedelic atmosphere. The softer phase shifter tone produced by the Phase 45 kit comes from the fact that it only has **one phase notch** instead of two, interfering less with the original signal. Be aware: this is not an “in your face” kind of phaser!

The original circuit has been updated to be **True Bypass**, avoiding any tone loss when disengaged. Like the Phase 90, the Phase 45 kit has one control potentiometer.

BOM (1/2)

Resistors (25)			
13	R1, R3, R5, R6, R7, R8, R9, R11, R12, R14, R15, R16, R17	10k	
3	R2, R10, R13	470k	
1	R4	20k	
5	R18, R21, R23, R24, R25	150k	
1	R19	1M	
1	R20	3.9M	
1	R22	7.5k	

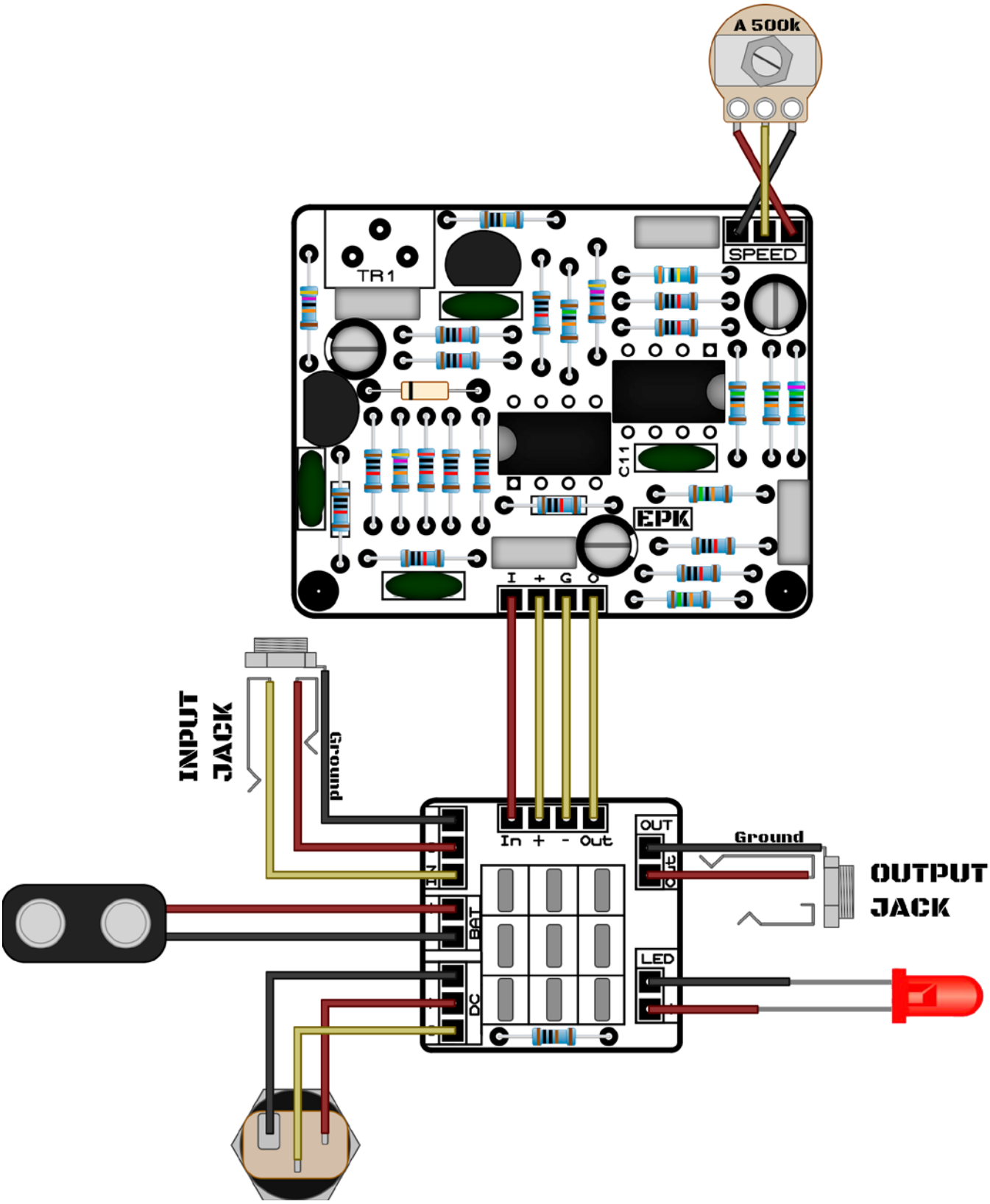
Capacitors (11)		
4	C1, C4, C7, C11	10n
3	C2, C9, C10	10u (electrolytic)
4	C3, C5, C6, C8	47n

BOM (2/2)

Diodes, Transistors and ICs		
2	U1, U2	TL072
2	Q1, Q2	J113
1	TR1	250k Trimmer
1	Z1	4.7V Zener diode

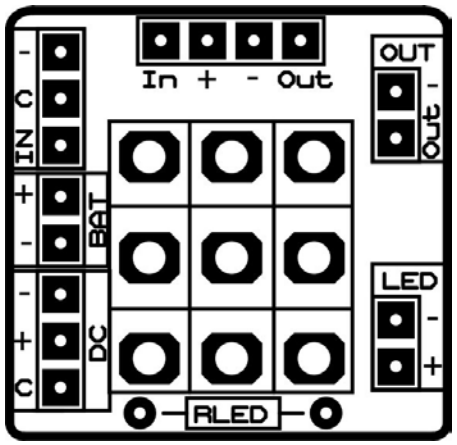
Generic Parts and Potentiometers		
1	Battery clip	
1	DC Jack	
1	RLED	1k LED resistor
1	LED Bezel	
1	3PDT	
2	IN, OUT	6.35mm Jacks
1	500k Logarithmic (A) Potentiometer	Speed

Component Placement

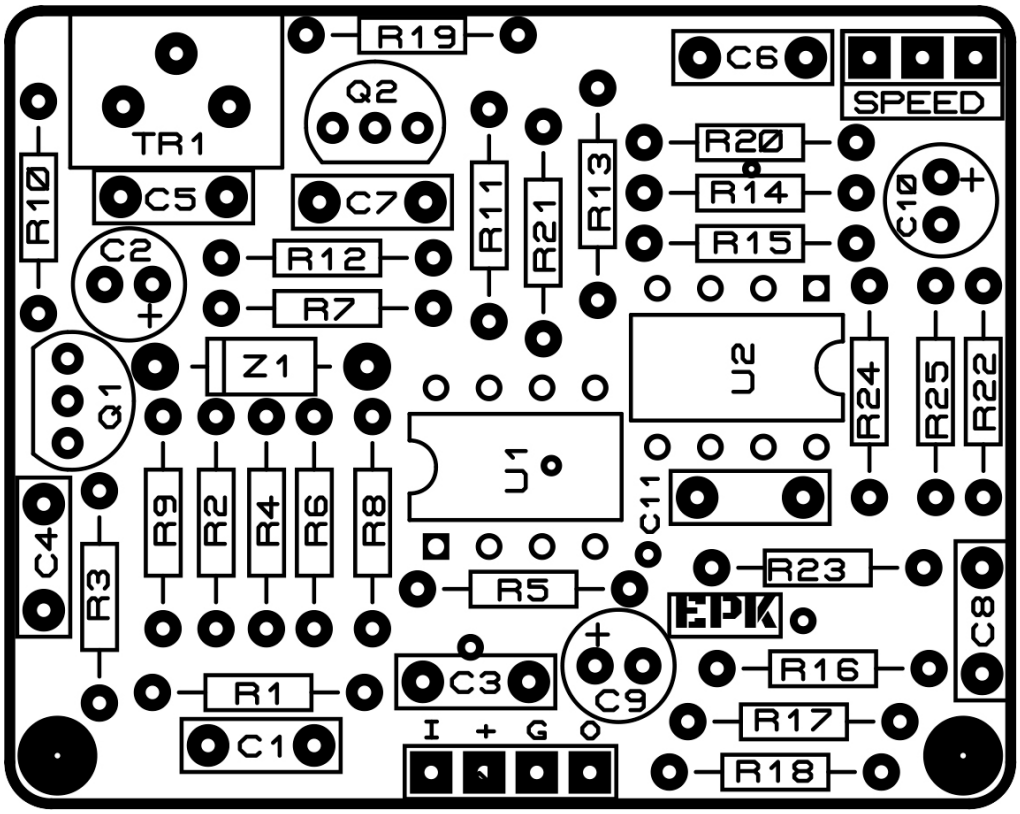


Board Layouts

3PDT PCB

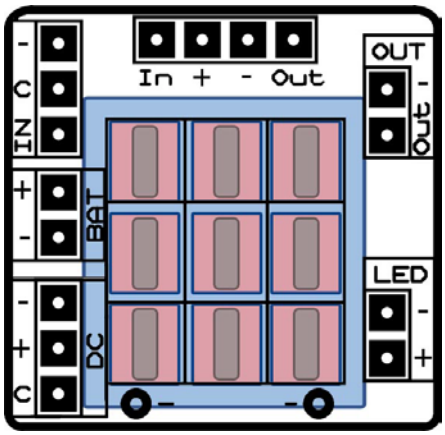


Effect PCB



Building Tips

1- Pay attention to the **orientation of the 3PDT**! In the following picture you can see how the 3PDT pins should be positioned (inserting the pins in the holes can be a bit tight to avoid movement while soldering):



2- For a proper soldering you just have to apply the **right amount of solder wire**. A right solder joint should have a concave shape around the joint and look like this:

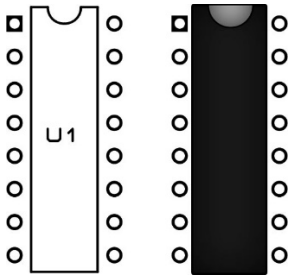
3- Don't apply too much heat! When soldering, the time you hold the solder iron against the joint should be **as short as posible** to avoid damaging any part (a few seconds should be enough). If you can't get a solder joint right, **let it cool** a bit before trying again.

4- If having troubles with the building, checking the schematic in the last page will help you find **where the audio signal stops**. When you find the spot, check out that **everything around that joint is ok** (components placed at their right place, solder joints…).

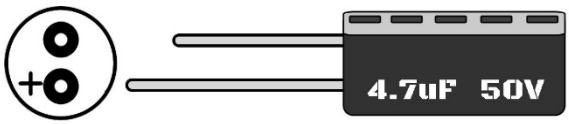
Building Tips

5- Pay attention to the **parts that have a polarity** and make sure they are connected as in the component placement picture:

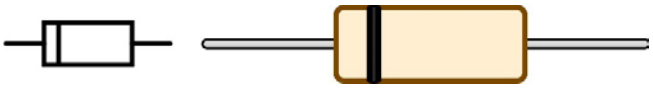
- **ICs** (they have a small dot or indication that must fit the indication in the board



- **Electrolytic capacitors** (longer pin is connected to the "+" hole):



- **Diodes** (check for the mark and make it fit with the one in the PCB):

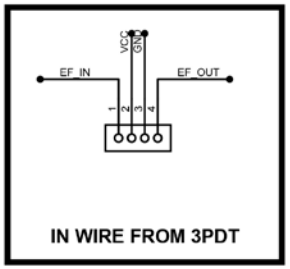


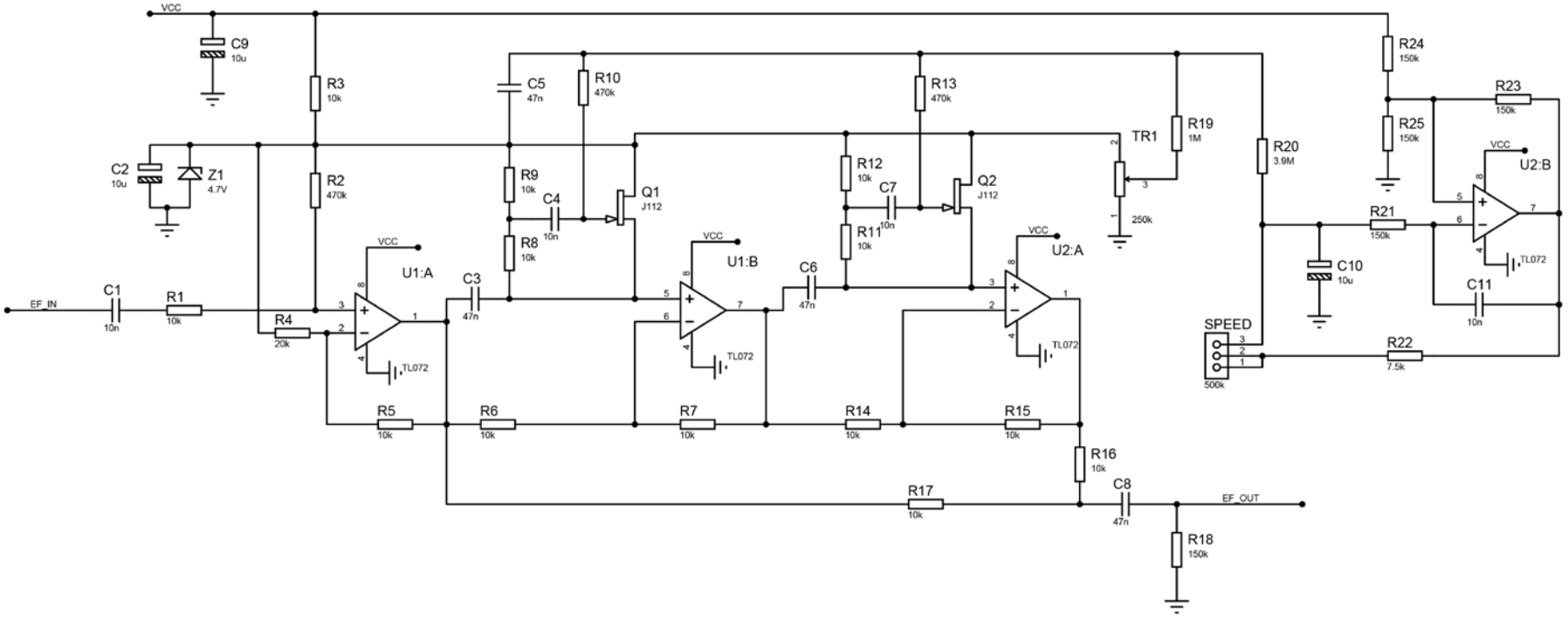
- **Leds** (longer pin is connected to the "+" hole)

- **Transistors** (inserted to fit the drawing in the PCB)

To avoid any issue, check the latest building manual. Use the pictures only as a reference! Colors/shapes can change slightly, always check the part polarity, resistor values, potentiometer placement… before soldering.

Schematic


EF_IN
VCC
GND
EF_OUT
1
2
3
4
IN WIRE FROM 3PDT


VCC
C9
10u
R3
10k
C5
47n
R10
470k
R13
470k
R24
150k
R23
150k
C2
10u
Z1
4.7V
R2
470k
R9
10k
C4
10n
Q1
J112
R12
10k
C7
10n
Q2
J112
TR1
250k
R19
1M
R20
3.9M
R25
150k
U2:B
R8
10k
R11
10k
R21
150k
C10
10u
C11
10n
EF_IN
C1
10n
R1
10k
R4
20k
U1:A
C3
47n
U1:B
C6
47n
U2:A
TL072
SPEED
500k
R22
7.5k
R5
10k
R6
10k
R7
10k
R14
10k
R15
10k
R16
10k
R17
10k
C8
47n
EF_OUT
R18
150k