JMK PCBS PRESENTS...

# The Super Phaser

PCB and Schematic Artwork (C) 2014 JMK Pedals

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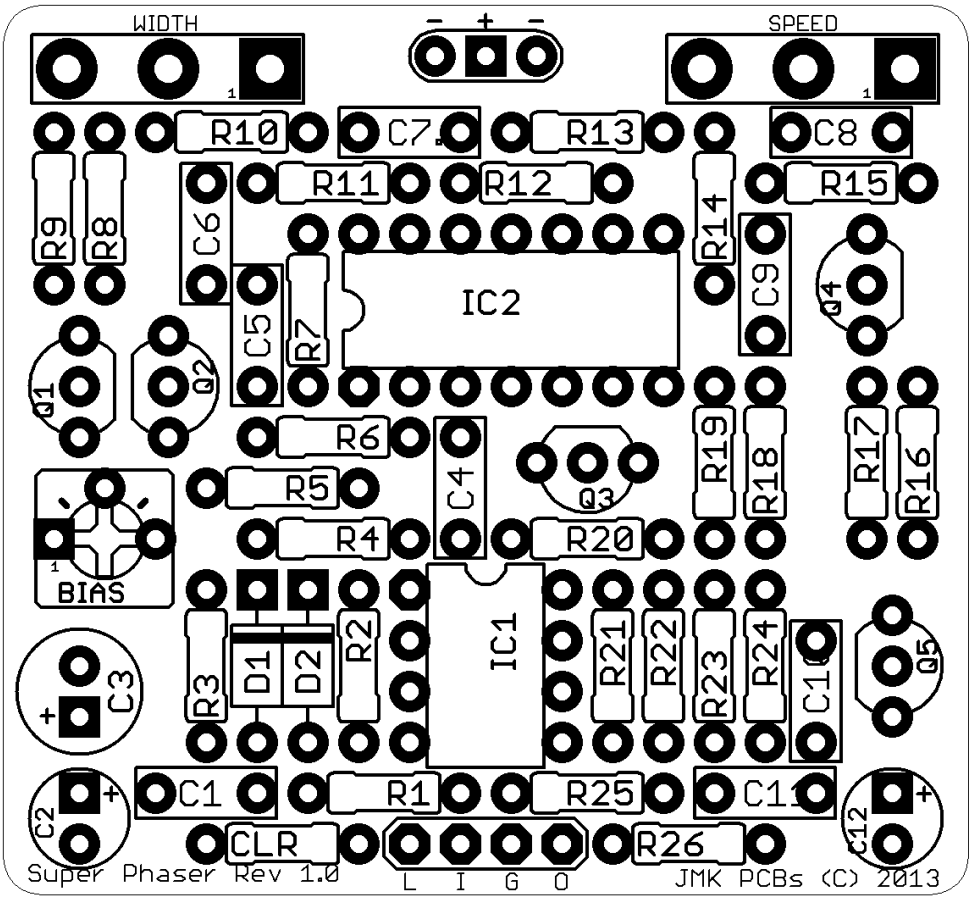
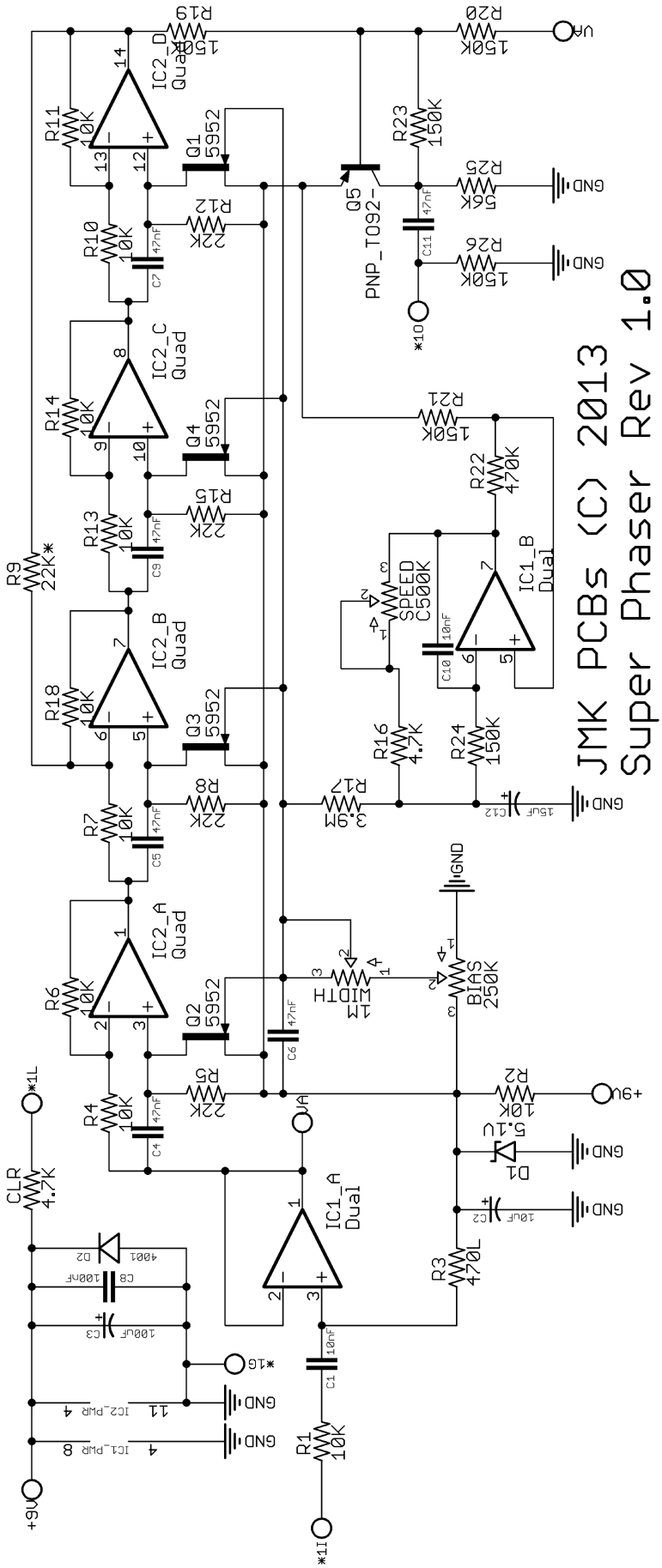



| Resistors | | | | | | Capactitors | | | | Semiconductors | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R1 | 10K | R10 | 10K | R19 | 150K | C1 | 10nF | C7 | 47nF | Q1-Q4 | 2N5952 |
| R2 | 10K | R11 | 10K | R20 | 150K | C2 | 10uF | C8 | 100nF | Q5 | 2N5087 |
| R3 | 470K | R12 | 22K | R21 | 150K | C3 | 100uF | C9 | 47nF | IC1 | Dual Op Amp |
| R4 | 10K | R13 | 10K | R22 | 470K | C4 | 47nF | C10 | 10nF | IC2 | Quad Op Amp |
| R5 | 22K | R14 | 10K | R23 | 150K | C5 | 47nF | C11 | 47nF | Potentiometer | |
| R6 | 10K | R15 | 22K | R24 | 150K | C6 | 47nF | C12 | 15uF | WIDTH | B1M |
| R7 | 10K | R16 | 4.6K | R25 | 56K | Diodes | | | | SPEED | C500K |
| R8 | 22K | R17 | 3.9M | R26 | 150K | D1 | 5.1V Zener | | | BIAS | 250K |
| R9 | 22K* | R18 | 10K | CLR | 4.7K | D2 | 1N4001 | | | | |



# Build Notes

• The Super Phaser is basically a simple 4 stage JFet phaser. These phasers have been very popular for a very long time, and with the addition of the mods we have included, it becomes slightly more 'tunable' for the average user.

• The Super Phaser's core is based around 4 JFet transistors. Please note that JFets are generally out of production now, and in particular, the 2N5952 type that are most common for this build are getting harder and harder to find. There are SMD types available out there if you want to go that route, however, you can still (as of the writing of this doc) reliably get JFet transistors from Smallbear Electronics in small amounts.

• The 4 JFet transistors in this build are integral to the quality of the phase sounds the user will get. In particular, the 4 transistors should be matched. This means that the negative vgs rating of each transistor is either identical or very close to each other. For more information on matching, you can certainly find lots of info by Googling the subject, or you can also take a look at this DIY project from JMK PCBs.

• The modification applied to this circuit is very simple: A width control. We call it a width control because it acts more like a width adjustment to the phase signal than a depth control. Essentially, it replaces a 1M resistor with a variable resistor via the potentiometer. In conjunction with the Speed pot, there is a lot more flexibility in the Phase sound available from this pedal.

• Hooking up the PCB is pretty simple, but to clarify: L = the connection for the + end of an LED (CLR is marked); I = PCB Input; G = Ground for the Switch; O = PCB Output; + = 9V input; - = Ground for DC Jack; - = Extra Ground for 1/4" Jack

• **We highly recommend socketing your transistors and ICs!** Socketing allows you to switch your semiconductors easily if you have installed them backwards, and also allows you to swap out and try other transistors to see which you like the best. Consider the parts you use carefully, and check pinouts for replacements against the datasheets for each of the parts we've recommended.

# True Bypass Wiring Diagram