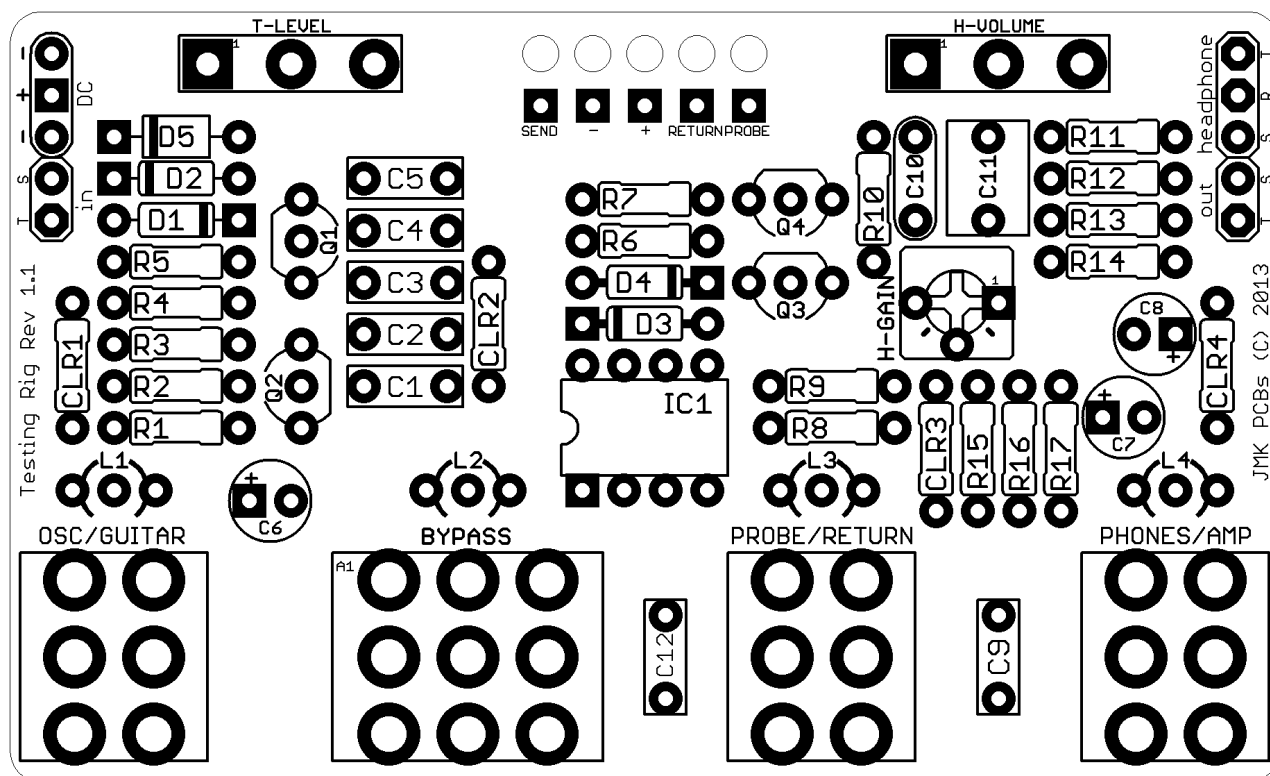


JMK PCBs PRESENTS...

# THE TESTING RIG

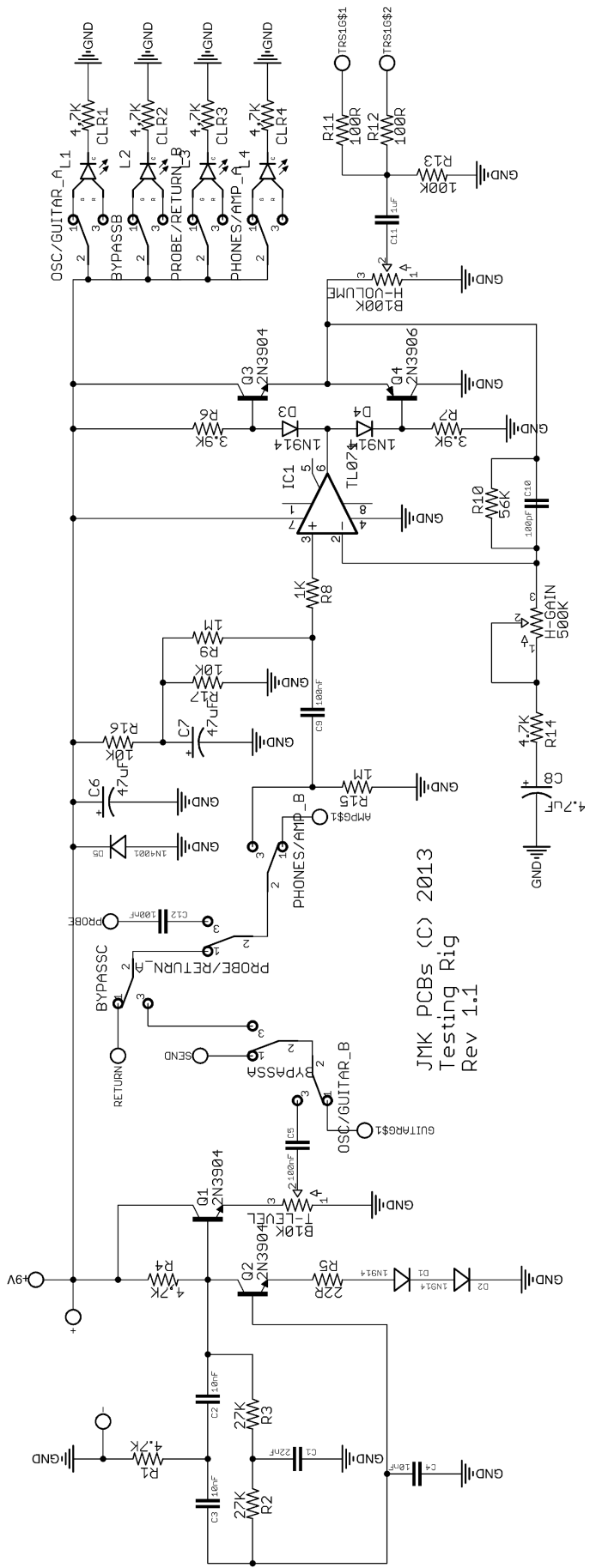
PCB AND SCHEMATIC ARTWORK (C) 2014 JMK PEDALS  
VERSION 1.1.2: 10/1/2014



Resistors				Capacitors				Semiconductors			
R1	4.7K	R8	1K	R15	1M	C1	22nF	C7	47uF*	IC1	TL071
R2	27K	R9	1M	R16	10K	C2	10nF	C8	4.7uF*	Q1-Q3	2N3904
R3	27K	R10	56K	R17	10K	C3	10nF	C9	100nF	Q4	2N3906
R4	4.7K	R11	100R	CLR1	4.7K	C4	10nF	C10	100pF	Potentiometer	
R5	22R	R12	100R	CLR2	4.7K	C5	100nF	C11	1uF	T-LEVEL	A10K
R6	3.9K	R13	100K	CLR3	4.7K	C6	47uF*	C12	100nF	H-VOLUME	C100K
R7	3.9K	R14	4.7K	CLR4	4.7K	Switches				Other	
Diodes				O/G	DPDT	P/R	DPDT	H-GAIN	500K Trim Pot		
D1-D4		1N914		BYPASS	3PDT	P/A	DPDT	L1-L4	Dual LED (see notes)		
D5		1N4001									

\* indicates Aluminum Electrolytic Capacitor

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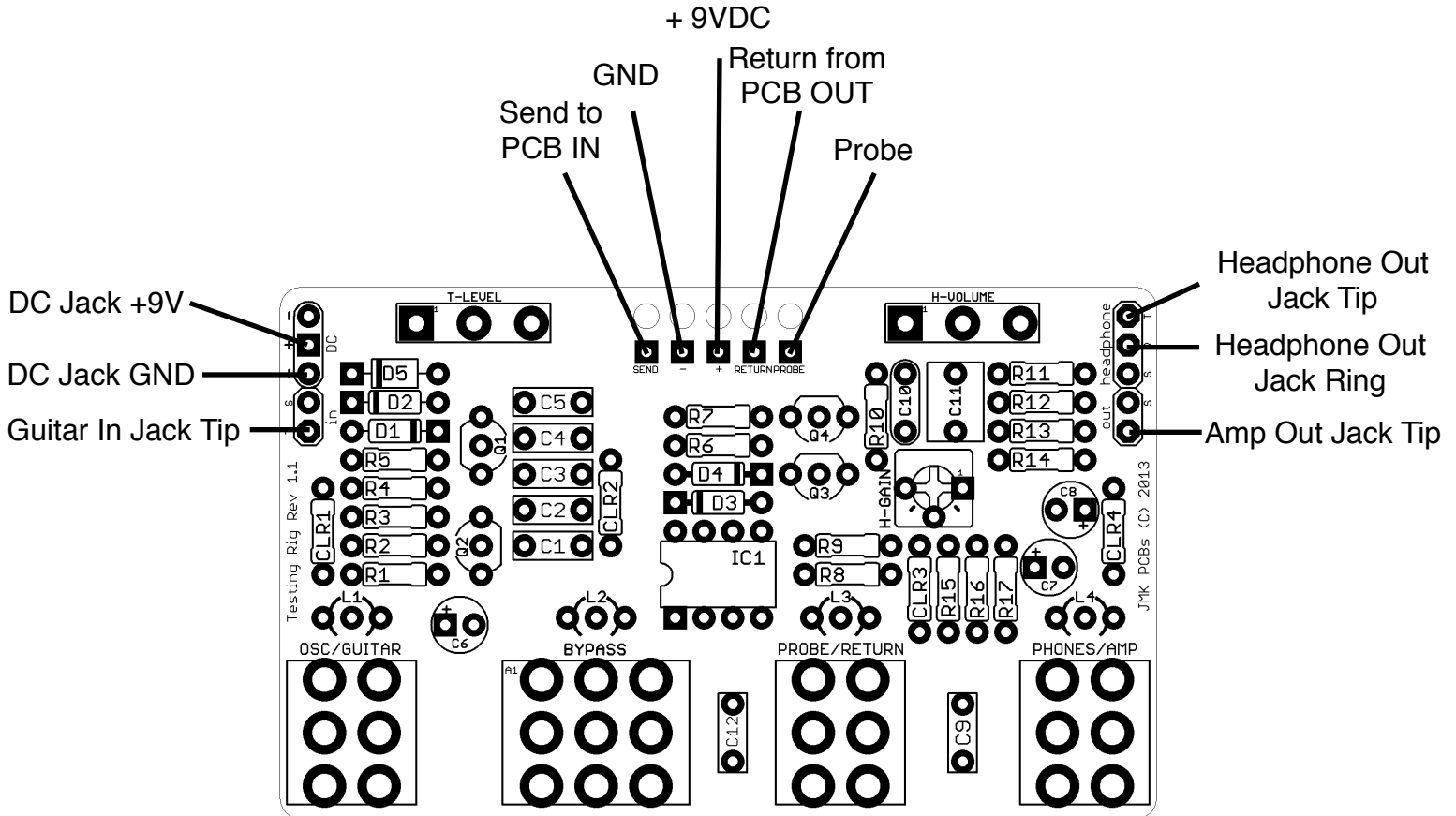
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# BUILD NOTES

- The Testing Rig is a project for everyone who loves DIY effect building! It's purpose and design is to be a flexible testing station for verifying the operation of DIY PCBs, and for finding the errors in DIY effect builds.
- The PCB provides connections which enables the user to put an effect PCB in a send/return loop with connections for power and ground. In essence, this allows a user to 'test' a PCB before using it and to experiment and debug PCB. The user can place a non-working PCB in said loop, take voltage readings, and use a probe to test specific locations on the PCB to listen to where you input signal might go missing. Both are essential elements to the process of debugging.
- There are a pair of circuits that are included on the PCB, both of which are available from JMK PCBs as individual projects. The first is the Tiny Tester, which is a simple oscillator that creates a steady tone. The second is a headphone amplifier, which enables one to use this device independent of an amplifier (handy for use while traveling or for late night build sessions when others are sleeping).
- There are 4 PCB mounted LEDs for this PCB. We have indicated that you can use a Dual/Bi-Colour LED, but these LEDs must be **common cathode** or common negative LEDs. It doesn't matter if you do or don't want to use one, that's up to you. A more common LED can be used instead, and all you need to do is connect the negative lead to the centre pad of the Bi-Colour LED location, and choose which side you want the positive lead to connect to.
- In conjunction with the Oscillator and Amplifier, this PCB also includes a flexible setup which allows the user to switch in an out four different elements.
  - The first switch chooses between a guitar input and the oscillator's output. The oscillation frequency is tuneable - multiply the values of C1, C2, and C3, and see the Tiny Tester documentation for more details.
  - The second switch is a bypass switch, allowing you to bypass the PCB that's being tested. This is handy to be able to see if the effect in the loop is at unity volume or above/below unity volume.
  - The third switch chooses between the return lead for the circuit being tested and a probe that allows the user to test specific points on that PCB. A probe is an essential debugging tool and allows the user to test a PCB while using the oscillator, so there's no need to play a guitar and probe a circuit simultaneously.
  - The fourth switch chooses between an amplifier output and the headphone amplifier's output. As well as an output volume pot, there is also a gain trimmer onboard the Testing Rig PCB. This trimmer controls gain in the headphone amp, and should be turned down if there is any distortion in the headphone signal. Note that the headphone amp gives a split stereo output not a true stereo output. It gives identical signals in your left and right speaker using a TRS jack.
- **We highly recommend socketing your transistors and ICs!** Socketing allows you to switch your transistors easily if you have installed them backwards or if they fail.

# TESTING RIG WIRING DIAGRAM

## Testing Connections - connect to PCB



Unmarked connections (S or -) all connect to ground via Jack Sleeve connections