



Night Drive *(version 1.1)*

Based on the Lovepedal Eternity™

A 'bufferless Tubescreamer™' the Night Drive is a very modifiable op amp based overdrive. In its standard setup (see bill of materials below) it produces smooth high gain overdriven output. By socketing a few components and experimenting you can customize this effect to your liking (see mod ideas below)!

1590a

The board spacing will fit a 1590a enclosure. You can mount 9mm pots directly to the board.

Bill of Materials

Resistors		Capacitors	
R1	390 Ohm	C1	47uf
R2	10k	C2	47uf
R3	10k	C3	56nf (563)
R4	1 Meg	C4	220nf (224)
R5	1 Meg	C5	150nf (154)
R6	1k	C6	150nf (154)
R7	10k	C7	22uf
R8	1k		
R9	470 ohm	Potentiometer	
R10	1k	Volume	100k Log
		Tone	5k Linear
		Drive	500k Linear
IC			
IC1	JRC4558		
Diode			
D1	1n4001		
D2-D4	1n914 / 1n4148		

Modification Ideas

Diodes

More distortion

There are 3 diodes that come with the Night Drive PCB. D3 and D4 are connected together in series and D2 is by itself. You can increase the amount of clipping in the feedback loop by replacing D2 with 2 diodes soldered together in series.

Less Fizz

Add a 47pf capacitor in parallel with D2 to filter out some of the top end of your amplified signal. Increasing the value of this capacitor will make for a darker sounding overdrive. Try 100pf and 150pf for a darker overdrive.

Broken Radio

Replace D2 with a 220nf capacitor. Use any 2 diodes for D3 and D4. This will create an unstable crunchy sounding overdrive almost boarding on a fuzz-drive hybrid.

Squeezed

Replace D3 and D4 with red diffused LED's. Use a 1n4148 for D2.

Compress

Replace all diodes with 1n34a or any germanium diode with an approx 0.3v forward voltage drop to clip your signal harder (with less overall volume output from the effect).

Gain Potentiometer

Replace the original 100k potentiometer with a 500k potentiometer for more gain.

Input Capacitor

Increase the input capacitor size to allow more bass from your guitar signal into the signal. Small increments are recommended.

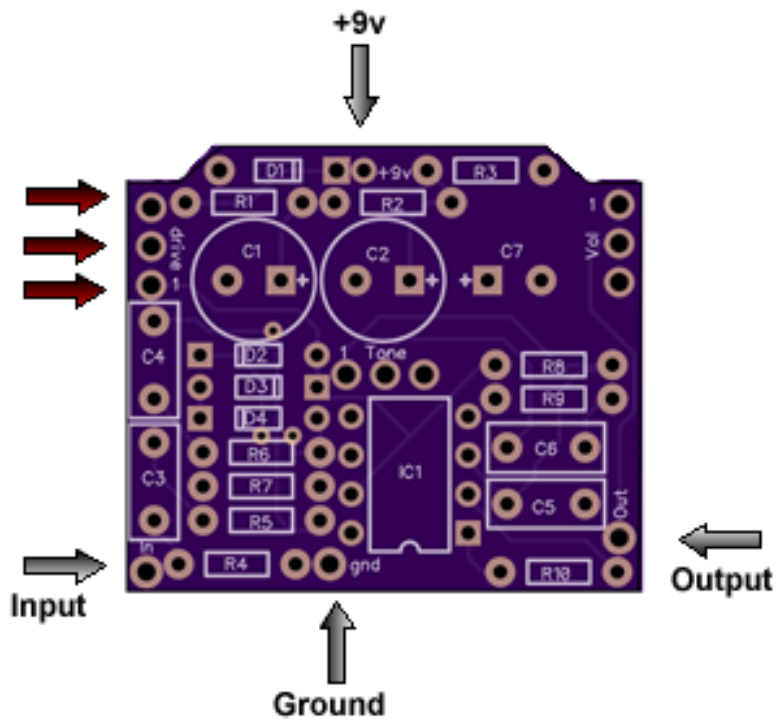
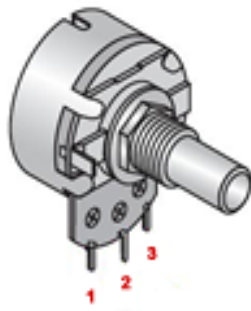
2nd stage filter capacitor

Experiment with decreasing the value of C5 to send more treble into the 2nd section of the opamp. Decreasing this capacitor too far will create a fizzy sounding effect. Small increments are recommended.

Replace the Op-amp

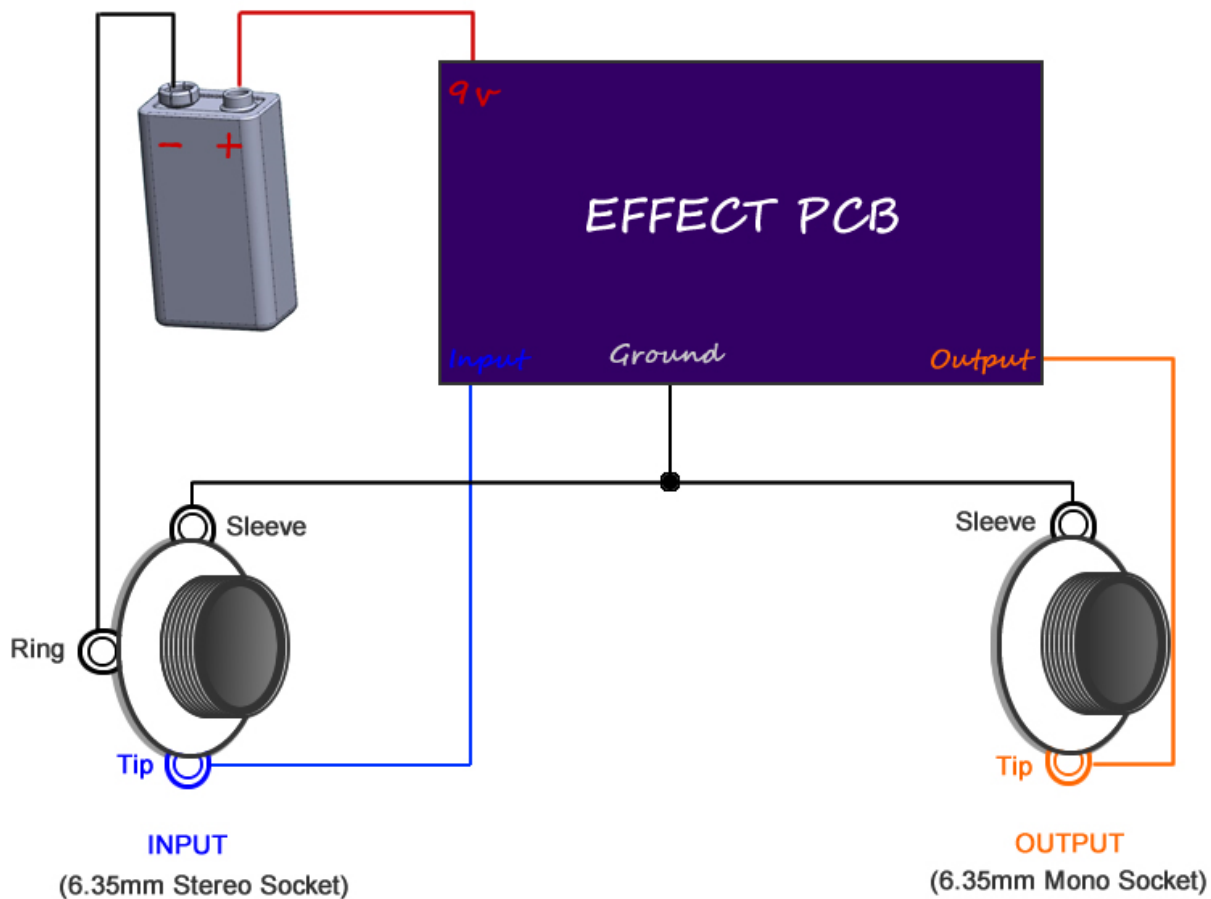
This circuit responds well to op-amp changes. Any dual op-amp with the same pinout as the JRC4558 should work however here are a few suggestions: LF353, NE5532, OPA2604, LM833, TL072, RC4558. LM1458N is my pick of the litter.

Note the numbers on the PCB (1,2,3) should be matched to the numbers on the pot. 9mm Pots with mounting lugs can be soldered directly to the PCB



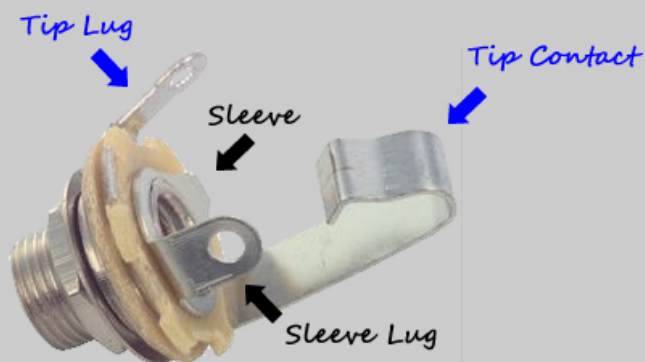
Testing Your Effect

Using aligator clips or soldering directly, wire your effect as in the following...



Input and Output Sockets

Pay close attention to the lugs of your sockets. Look at them side on so that you can distinguish the sockets individual layers. For instance the tip lug is connected to tip contact. The stereo jack looks the same as the socket below except it has an extra lug and contact for "Ring".



Boxing up your effect

Watch my offboard wiring tutorial for information on wiring this effect up inside an enclosure (with LED, stompswitch, etc)

http://www.youtube.com/watch?v=z6fpwU8RY_0