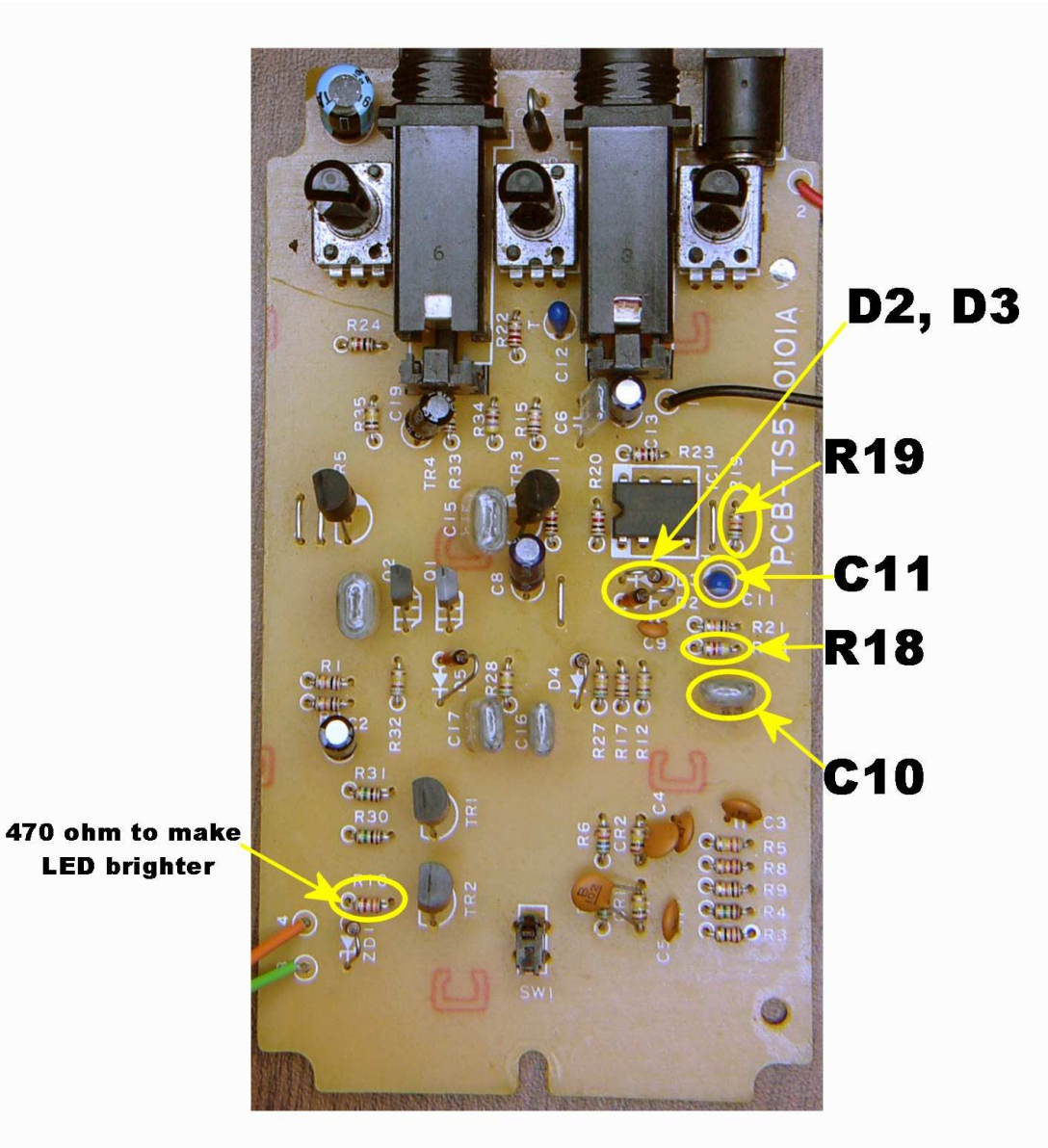
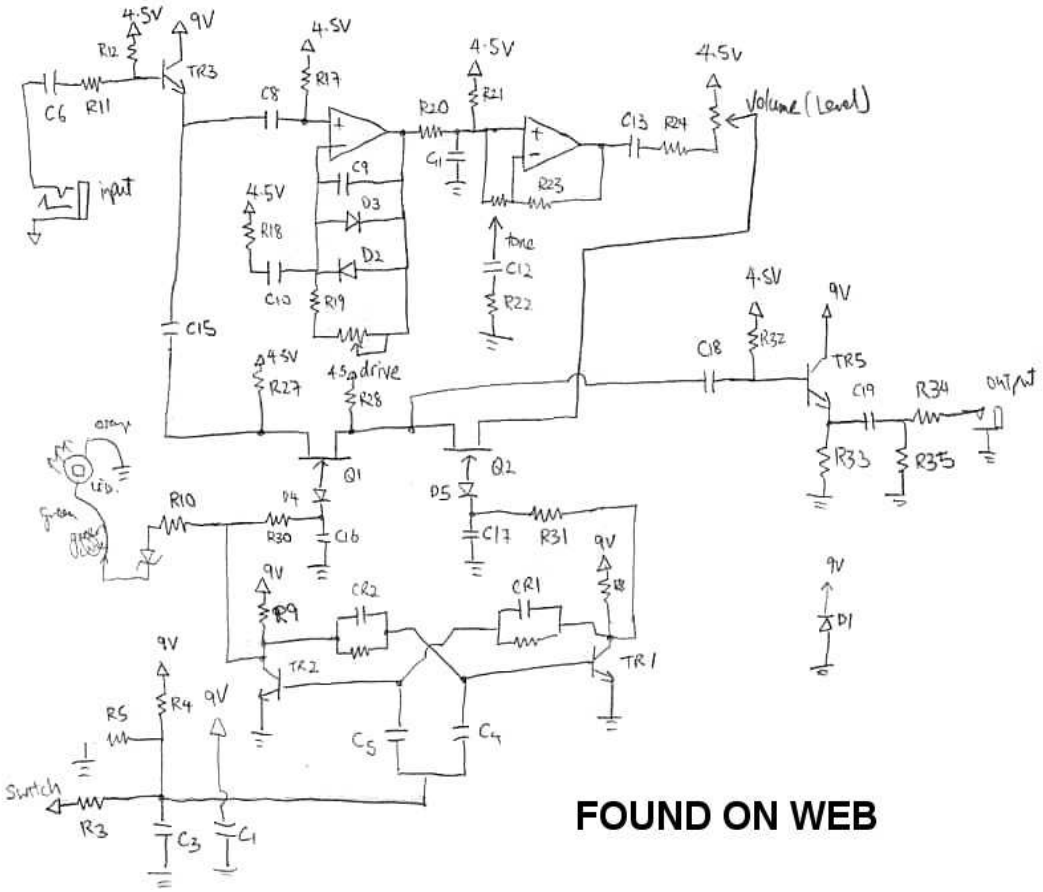

D2, D3
R19
C11
R18
C10
470 ohm to make
LED brighter


4.5V
9V
R12
TR3
C6
R11
input
C8
R17
C9
D3
D2
R18
C10
R19
C15
4.5V
R27
4.5V drive
R28
Q1
Q2
R10
D4
R30
C16
D5
C17
R31
9V
CR2
CR1
TR2
TR1
C5
C4
R5
R4
Switch
R3
C3
C1
4.5V
R20
R21
C11
R23
C13
R24
Volume (Level)
tone
C12
R22
4.5V
9V
C18
R32
TR5
C19
R34
OUTPUT
R33
R35
9V
D1

FOUND ON WEB

Ibanez TS-9 TubeScreamer

Circuit Explanation
The signal enters and passes through C1, R1, while going past R2, which helps bias Q1, a transistor buffer. After going through the buffer, the it passes through C2 and into the clipping stage. R4 is biasing the opamp. The signal enters into pin 3.

The signal is boosted through pins 1 and 2 and is controlled by the value the gain pot plus the resistance of R6, in conjunction with R5 and C4. With that said, this means that R6 controls the amount of gain with the gain pot at its minimum. C3 shaves a little bit of highs and keeps the opamp stable.

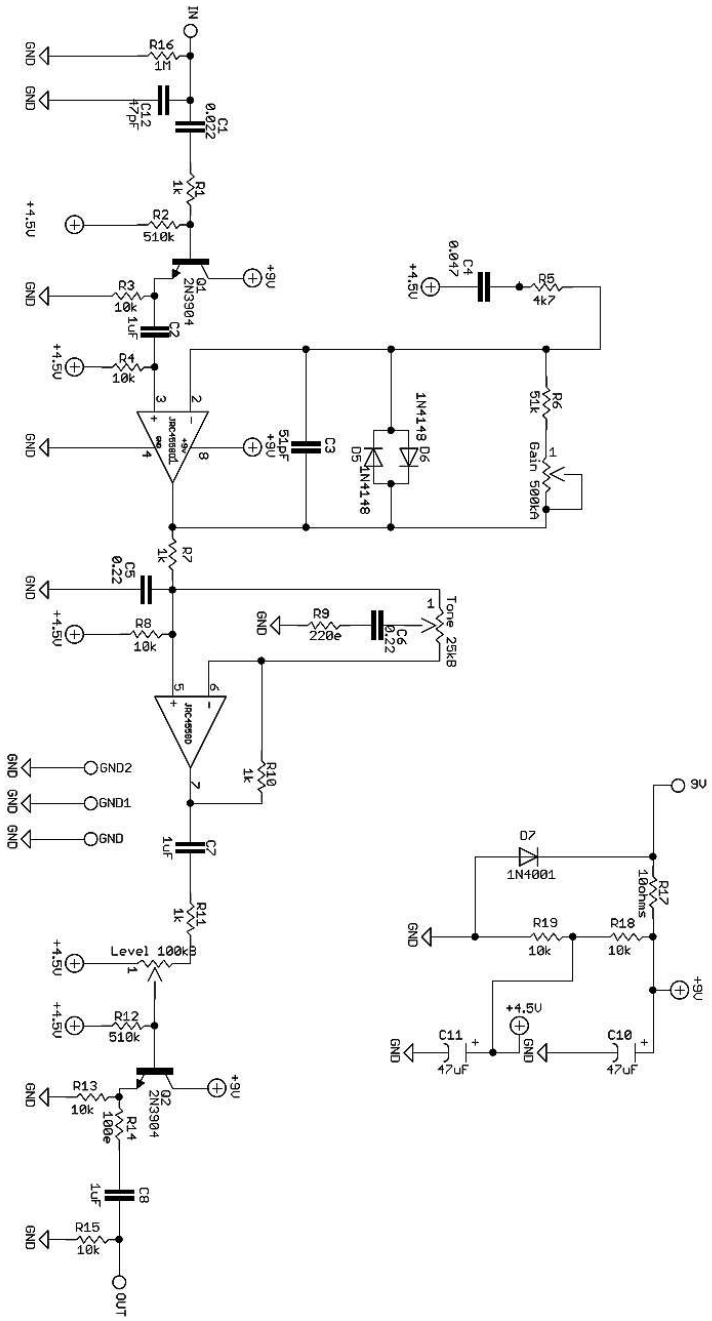
Since C4 and R5 set what frequencies we are boosting and clipping, changing these values will change that frequency as well as alter the gain a bit. If you go to http://www.indyguitarist.com/filter.htm you can input the values of C4 and R5 (resistance and capacitance) and figure out what frequencies you want to clip. As you'll see, adding resistance adds a bit of bass but also makes the gain a bit less.

The combinations of diodes D5 and D6 allow for symmetrical 'soft' clipping.

After leaving this first gain stage, the signal goes through R7 and passes C5. This combination (R7 and C5) form a 'low pass filter' which shaves off highs. R8 helps to bias the next stage which is the tone control.

The signal enters into pin 5. R10 provides enough of a gain boost (or signal boost) to make the tone control an 'active' tone control, meaning it not only cuts highs, it boosts them as well without losing volume or signal. This is an interesting tone control, however – as the tone pot is turned down, it shaves off more highs since it is tied back into the signal after R7. When turned up, it boosts highs since it has a capacitor and resistor (C6 and R9) going to ground, whichs once again controls gain and the frequencies being boosted.

The signal leaves and passes through C7 and R11 before going into the volume control. The signal leaves the volume control through lug 2 and goes into the last stage, an output buffer, which is setup just like Q1. The signal leaves this output buffer and goes through R14, C8, and passes R15 and then goes to the output.


IN
R16
1M
C12
47pF
C1
0.022
R4
1k
R2
510k
+4.5V
GND
Q1
2N3904
+9V
R3
10k
C2
1uF
R1
10k
C4
0.047
R5
4k7
R6
51k
Gain 500kA
1N4148
D5
D6
C3
51pF
R7
1k
C5
0.22
R8
10k
R9
220e
C6
0.22
Tone 25kB
R10
1k
GND2
GND1
C7
1uF
R11
1k
Level 100kB
R12
510k
Q2
2N3904
R13
10k
R14
100e
C8
1uF
R15
10k
OUT
9V
D7
1N4001
R17
100ohms
R19
10k
R18
10k
C11
47uF
C10
47uF

BSM (Brent Mason) MOD

A	1K RESISTOR	
B	.22UF x 2 in parallel CAP	
C	10K RES	
D	1N4001	
E	1n4001 + 1n4001 SERIES	
F (2 OF THEM)	1 UF FILM CAPS	
G	.15 uf or .047 + .1 uf in parallel (results in the same thing)	

Ibanez TS-9 316 MOD

Location	Mod value
A	1K RESISTOR
B	.22UF
C	10K RESISTOR
D	LED
E	LED + 4148 in SERIES
F (2 OF THEM)	1 UF FILM CAPS

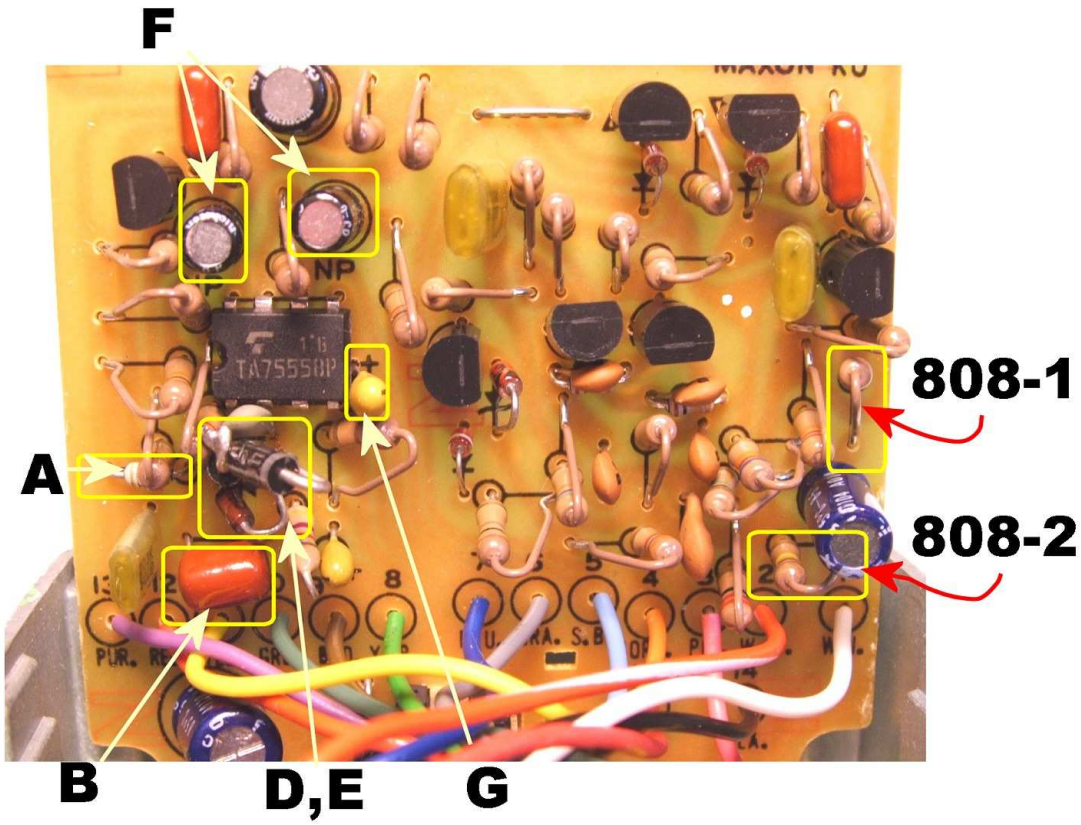
Ibanez TS-9 standard Mod

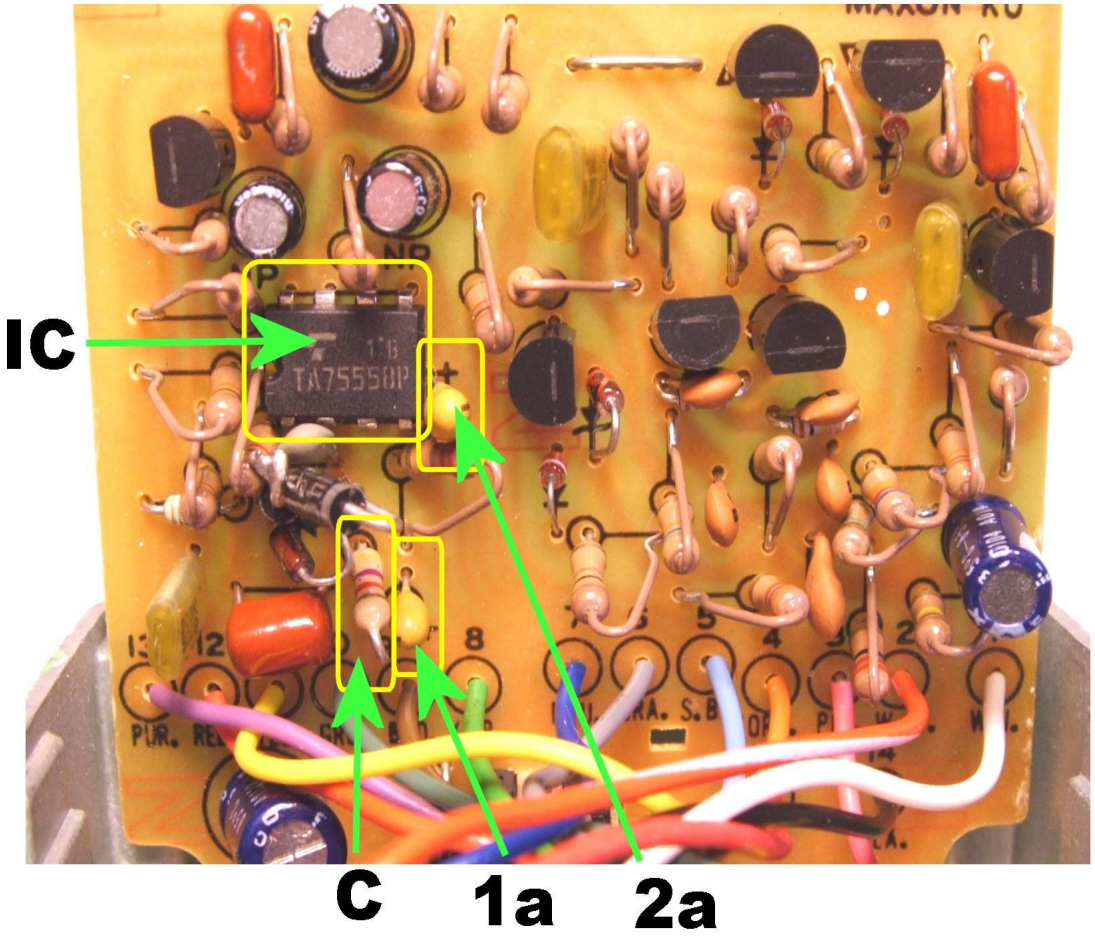
Location	Stock value	Mod value	What it affects
B	.047 uf	.1 uf	Adds bottom end. For more, go .22 uf
D		LED & germanium 1n34a in series	Adds fullness, depth, and dynamics
E		1N4001	
A	4.7k	3.3k	The lower the value, the more distortion available.
E		Jrc4558d IC CHIP	Not always needed, will not make a big difference…but there is a lot of hype around this change!
F	1uf elec	1uf film caps	Helps low end to not distort

Ibanez TS-9 Extra's

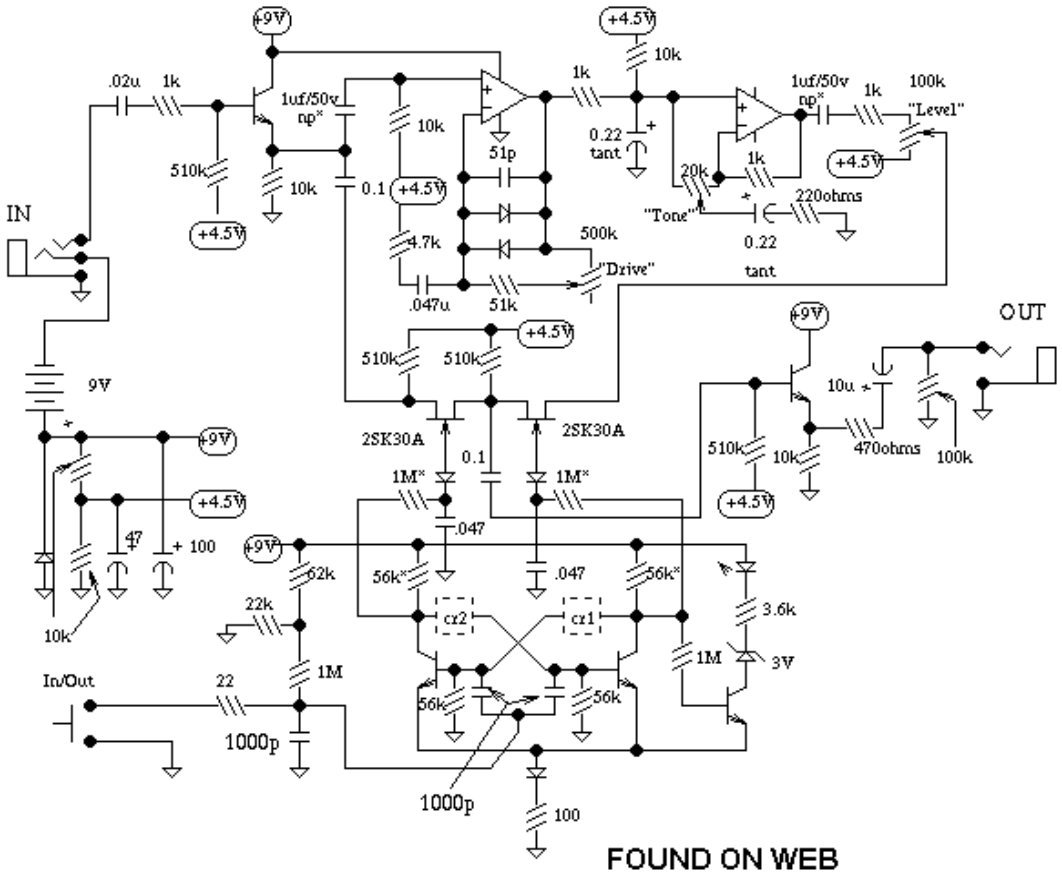
Location	Mod Value	What it affects
1A	.047uf/.1uf/ .15uf/.47uf/ 1uf	Experiment with value. It will change the frequencies that the tone knob affects.

C	10k	Will allow pedal to clean up when gain knob is turned down
2A	Raise value - . 44uf, .1 uf	Raising value will decrease the highs. Alternatively, lessen the value to bring more highs in (.15uf, .1 uf)
B	Raise value for more bass	.1, .22, .44, .1 uf – works in conjunction with # 6 resistor
D,E	Clipping diodes	Experiment—it will shape the tone and overdrive considerably!
A	Gain resistor	Lower value for more gain, and clarity. 2.2k, 1k, works in conjuction with #4.
808-1	100 ohm	These two changes alone is the legendary "ts-808" mod.
808-2	10k ohm	




IC
TA75550P
C
1a
2a

TS-9 Tube Screamer



Opamps are in a dual 8 pin dip, 4558. All transistors 2SC1815. All diodes silicon signal diodes, 1n914 or similar. np* = nonpolorized resistors denoted by * marked as 1M on original might be 22k and those marked as 56K might be 10k. crf1 and cr2 are a special cap and resistor in parallel, the cap is 51p the resistor is 56k.

Schematic with switching circuit

TS-9DX Turbo Tubescreamer

BSM (Brent Mason) MOD

A	1K RESISTOR	
B	.47uf or .22uf + .22uf in parallel (results in the same thing)CAP	
D	1N4001	
E	1n4001 + 1n4001 SERIES	
F (2 OF THEM)	1 UF FILM CAPS	
G	.15 uf or .047 + .1 uf in parallel (results in the same thing)	

Ibanez TS-9 316 MOD

Location	Mod value
A	1K RESISTOR
B	.22UF
D	LED
E	LED + 4148 in SERIES
F (2 OF THEM)	1 UF FILM CAPS

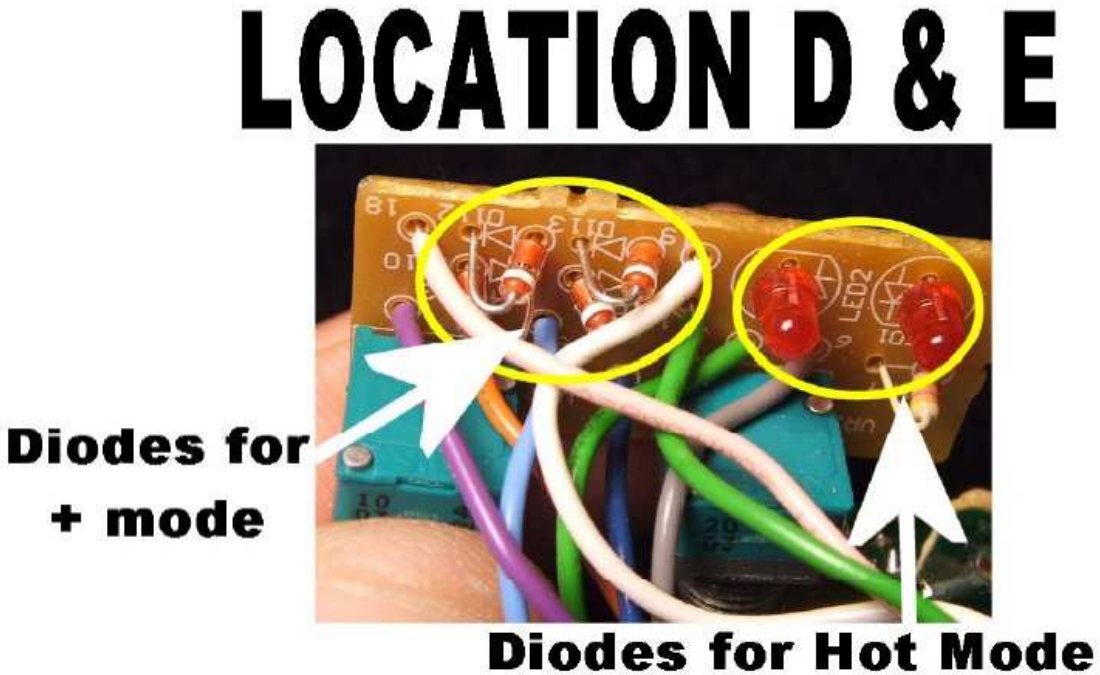
Ibanez TS-9 standard Mod

Location	Stock value	Mod value	What it affects
B	.047 uf	.1 uf	Adds bottom end. For more, go .22 uf
D		LED & germanium 1n34a in series	Adds fullness, depth, and dynamics
E		1N4001	
A	4.7k	3.3k	The lower the value, the more distortion available, as well as the pedal becomes a hair brighter.
E		Burr Brown OPA2604 IC CHIP, rc4558 ic chips, jrc4558 chips	Not always needed, will not make a big difference...but there is a lot of hype around this change!
F	1uf elec	1uf film caps	Helps low end to not distort

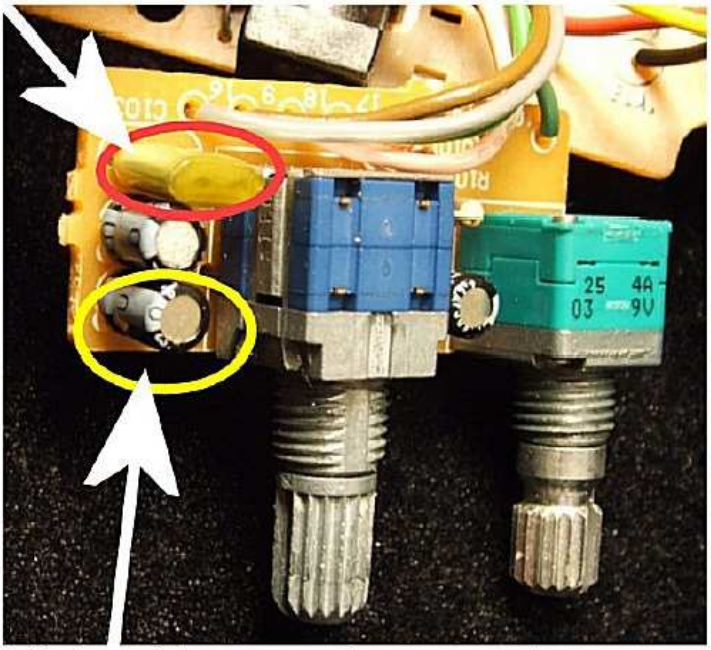
Ibanez TS-9 Extra's

Location	Mod Value	What it affects
2A	Raise value - .44uf, .1 uf	Raising value will decrease the highs. Alternatively, lessen the value to bring more highs in (.15uf, .1 uf)
B	Raise value for more bass	.1, .22, .44, .1 uf – works in conjunction with # 6 resistor
D,E	Clipping diodes	Experiment—it will shape the tone and overdrive considerably!
A	Gain resistor	Lower value for more gain, and clarity. 2.2k, 1k, works in conjuction with #4.
808-1	100 ohm	These two changes alone is the legendary "ts-808" mod.
808-2	10k ohm	

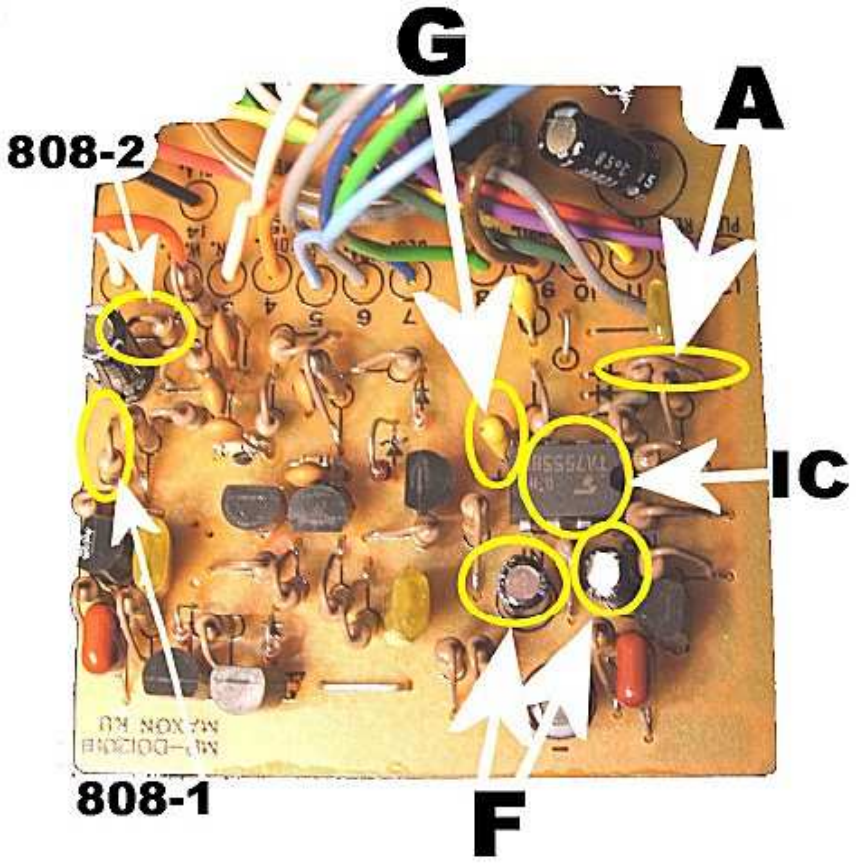
*NOTE: The TS9DX has 4 separate modes, so it is possible to make multiple modifications simply by paying close attention to which part shown is affecting which



"B" for standard mode



"B" for Hot and + mode


G
A
808-2
IC
808-1
F

Ibanez SM-9 Mod

Location	Stock value	Mod value
D1		Led + 1n4148
D2		Led
D5		led
C1	.047	.1 uf
C12	.001 uf	Remove, don't jumper

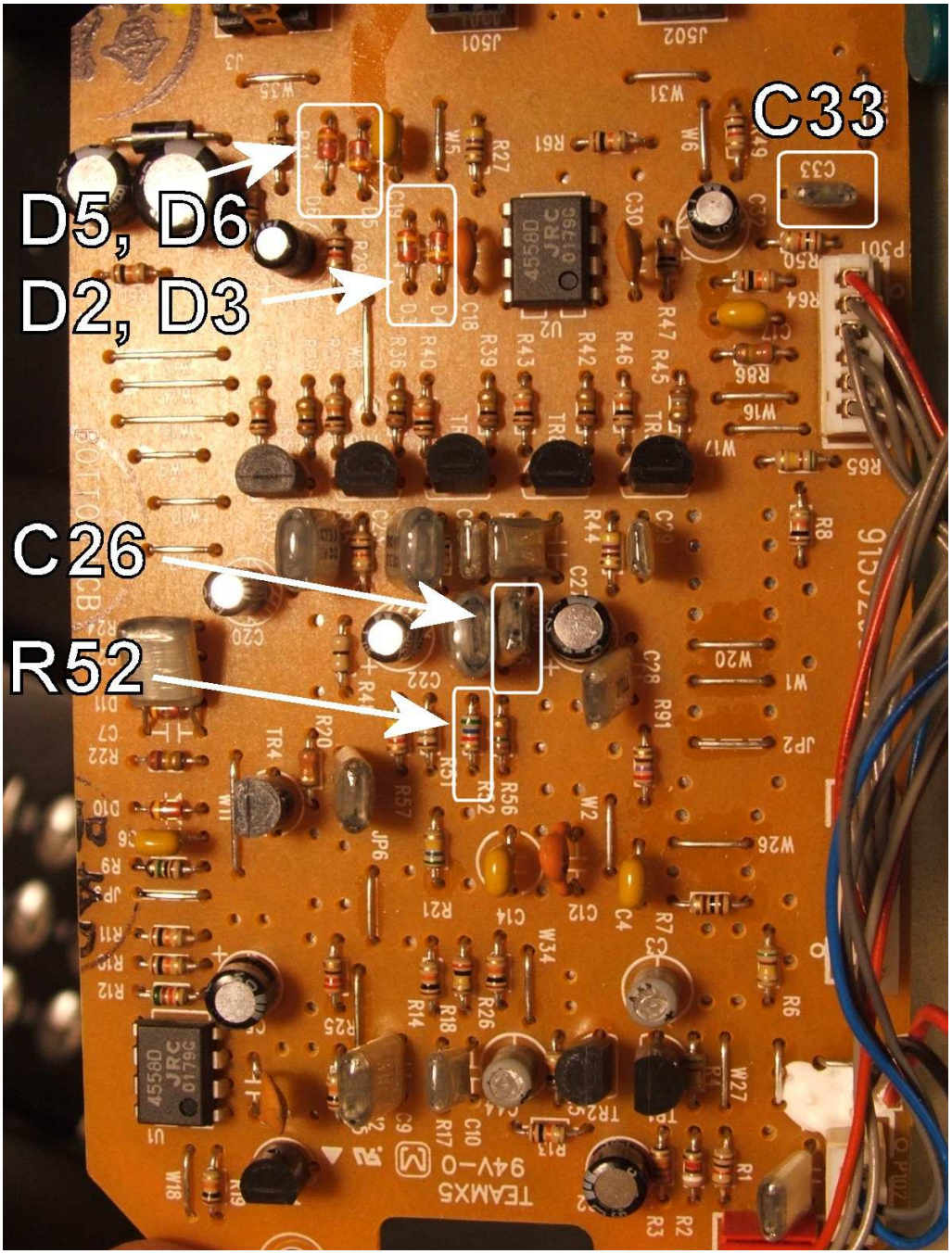
*no pictures available for this one.

Ibanez Smashbox SM-7 Distortion

Location	Mod value	part
D3	1n4001	
D6	1n4001	
D4,	1n4001 x 2 in series	
D5	1n4001 x 2 in series	
C33	.01 uf	Adds distortion
C26	Remove (no jumper)	Adds body to eq
R52	Remove (no jumper)	Adds body to eq

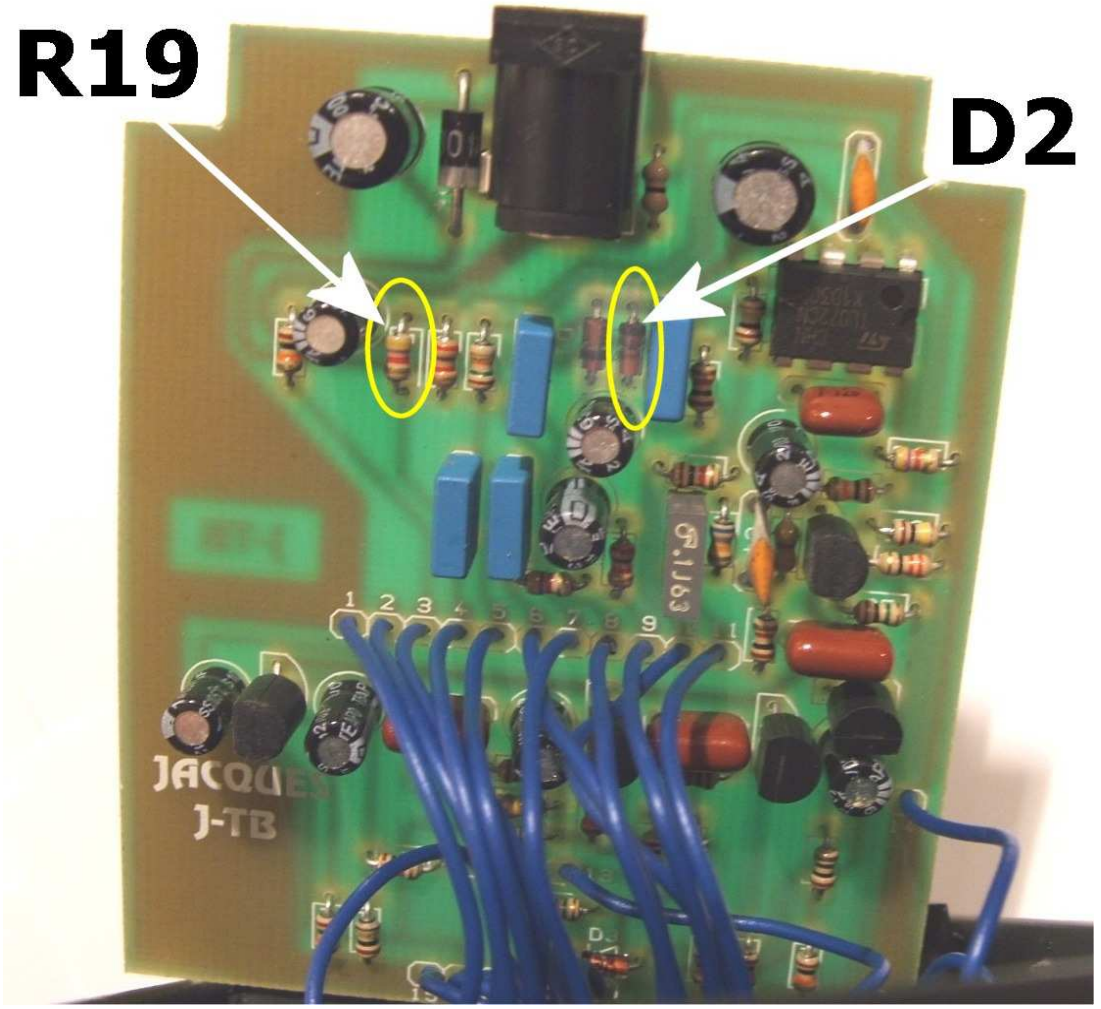
See pic next page

See Schematic at http://www.indyguitarist.com/schematics


C33
D5, D6
D2, D3
C26
R52

Jacques Tube Blower

Location	Stock value	Mod value	What it effects
R19	4.7k	47k	Richer, smoother mids, better bass response (not muddy bass)
D2	1n914	1n4148 + 1n4148 in series	Thicker clipping, better dynamics and response

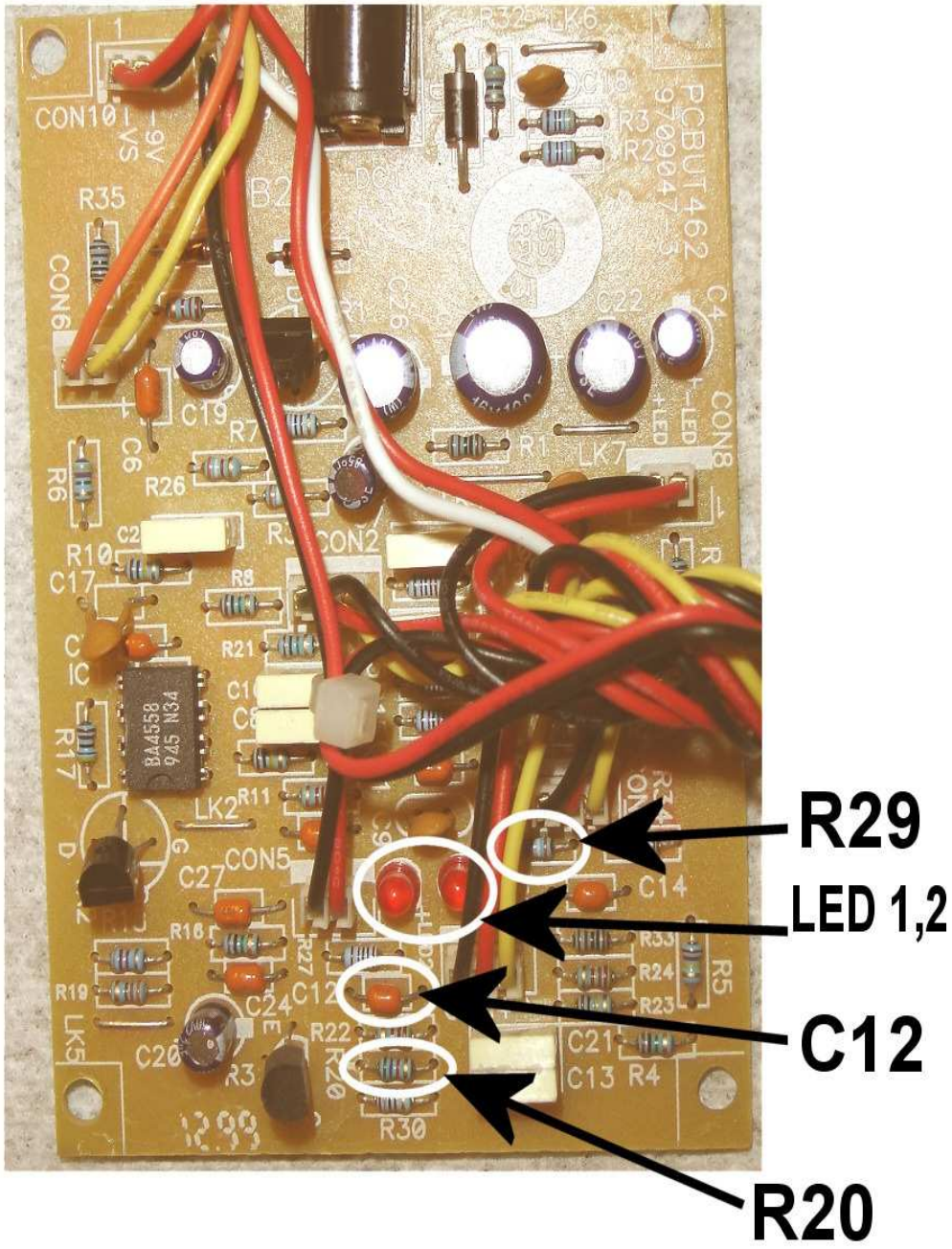


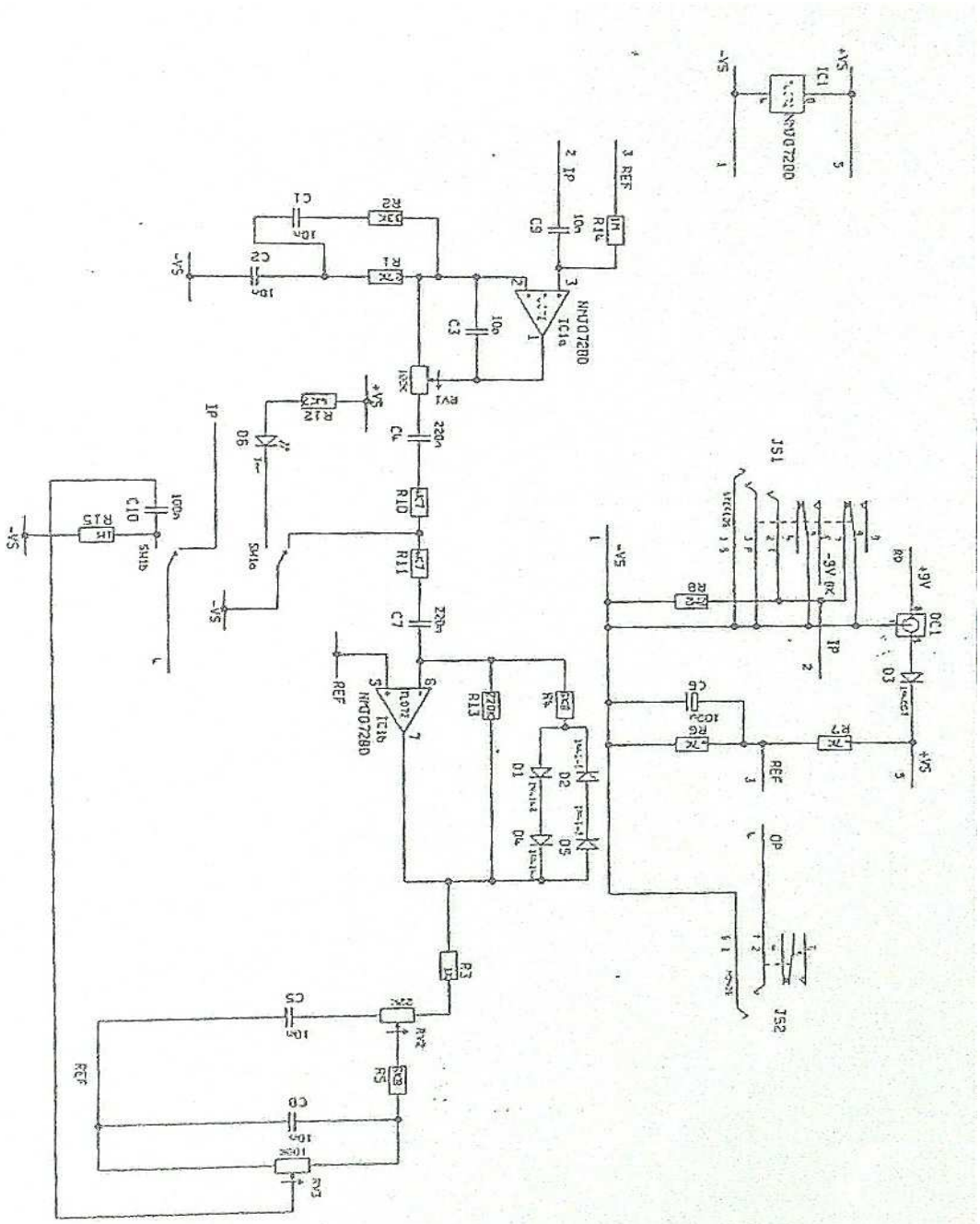
Johnson “Distortion plus EQ”

This pedal is an exact clone of the Boss MT-2 Metalzone, the circuitboards are even the exact same. For this reason, the same mods apply to it...see Boss MT-2 Metalzone mods.

Marshall bb-2 bluesbreaker mod

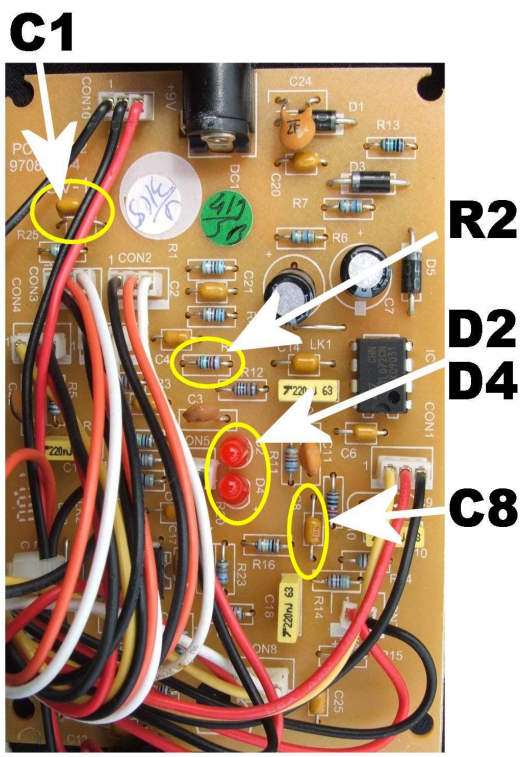
Location	Stock value	Mod value	What it effects
C12	.0047	.1uf or larger.	Bottom end, adds fullness, the larger the cap, the more lows are produced.
R20	29k	100 ohm	Adds volume, fullness
Led1		1n4001	Makes clipping fuller, thicker, more responsive
Led2		1n4001 + led connected in parallel	Makes clipping fuller, thicker, more responsive
For more bottom end:			
R29	5.6k	100 ohm	Adds more bottom end if you desire
Led1	led	1n4148	


R29
LED 1,2
C12
R20

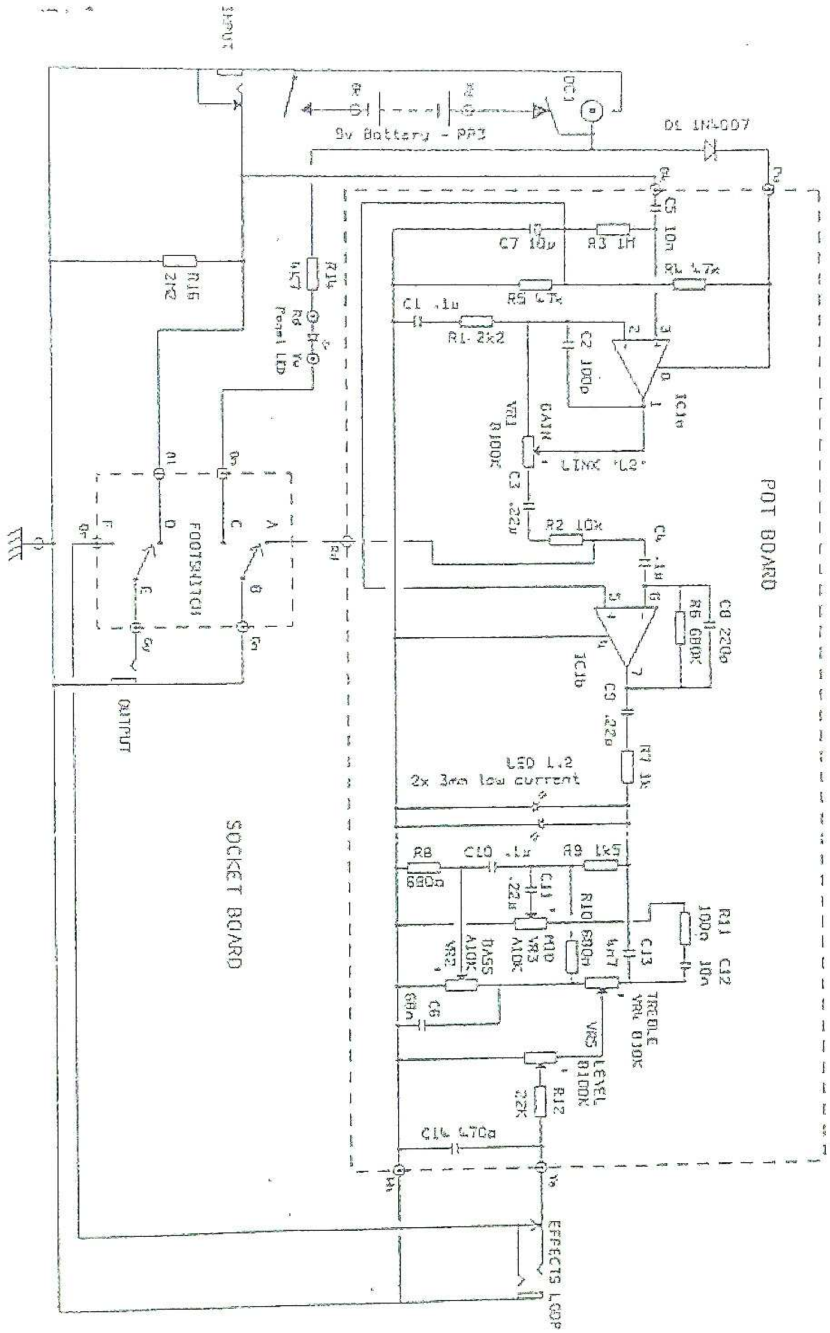


Marshall Guv'nor Plus GV-2

Location	Stock value	Mod value	What it effects
D2	LED	1n4001	Makes clipping more dynamic and responsive, much more pick sensitive.
D4	LED	1n4001 + 1n4001 in series	
C1	.0068uF	.0047uF or . 01uF	Change value in small increments, small increments changes mid "q", larger incremental changes change bass
R2	15k	Optional (10k, 6.8k, 4.7k, 2.2k, 1k)	Lower value to add high mids, will change the eq range of the pedal
C8	.1uF	optional	Add value gives more bass. 1uf will make a great bass Overdrive, .068uf will make the pedal a bit cleaner.



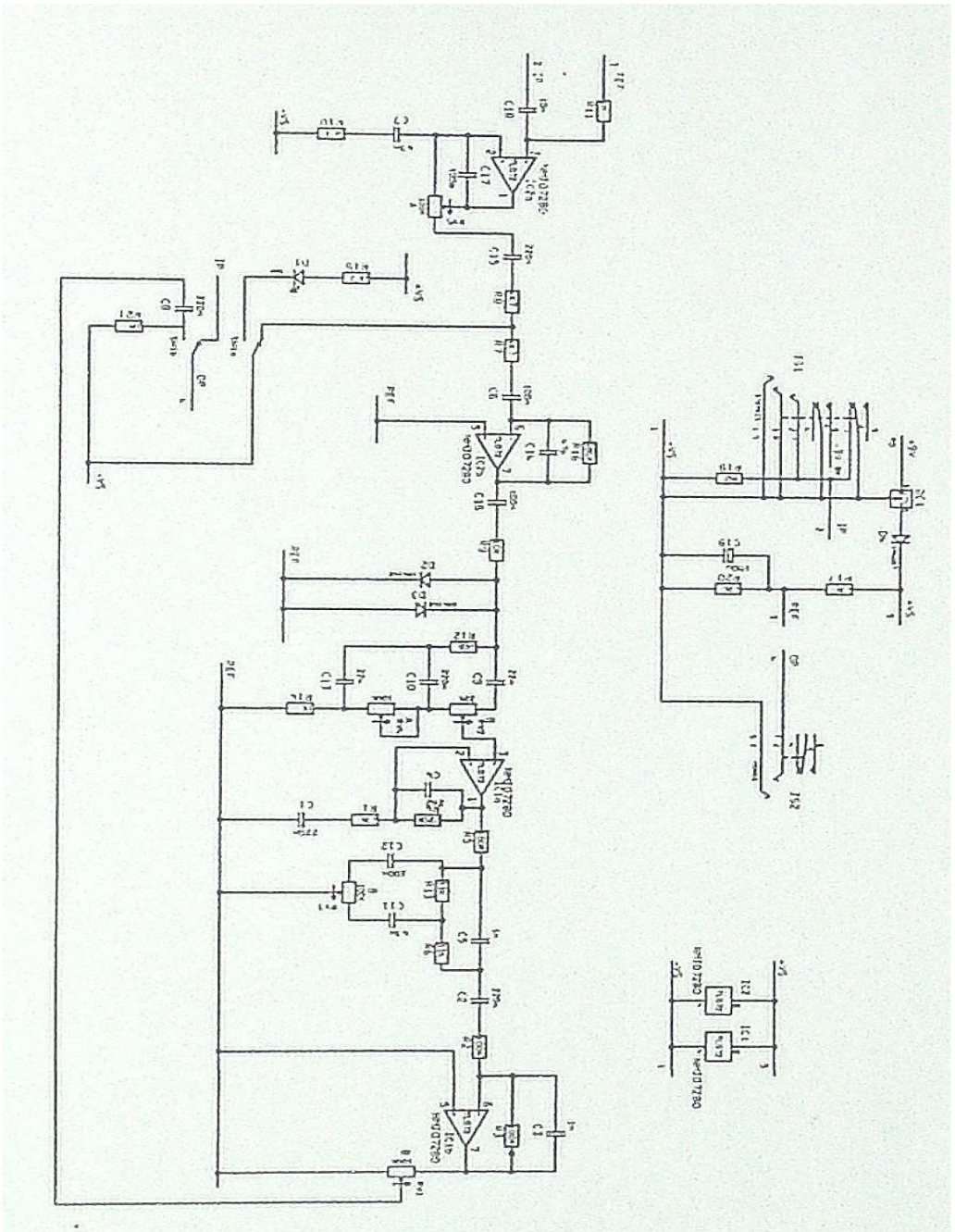
Special Thanks to Johan for the Marshall Schematics


INPUT
9v Battery - PP3
D1 1N4007
POT BOARD
SOCKET BOARD
FOOTSWITCH
OUTPUT
EFFECTS LOOP
LED 1,2
2x 3mm low current
GAIN
BASS
MID
TREBLE
LEVEL

Marshall Shredmaster

(original blackbox version)

Location	Stock value	Mod value	What it effects
R9	10k	1k	Increases distortion/treble if desireable
D2	4148	Germanium->1n4001 (in series)	Makes distortion much fuller.
D3	4148	1n4001->4148->1n4001 (in series)	
C5	.001UF	500-800 PF, OR FOR MORE MIDS TRY .0047UF	



Maxon OD808 TubeScreamer

BSM (Brent Mason) MOD

Location	Mod value
R4	1K RESISTOR
C3	.22UF x 2 in parallel (or .47uf) CAP
D1	1N4001
D2	1n4001 + 1n4001 SERIES
C5	.15 uf or .047 + .1 uf in parallel (results in the same thing)

Maxon OD808 316 MOD

Location	Mod value
R4	1K RESISTOR
C3	.22UF
D1	LED
D2	LED + 4148 in SERIES

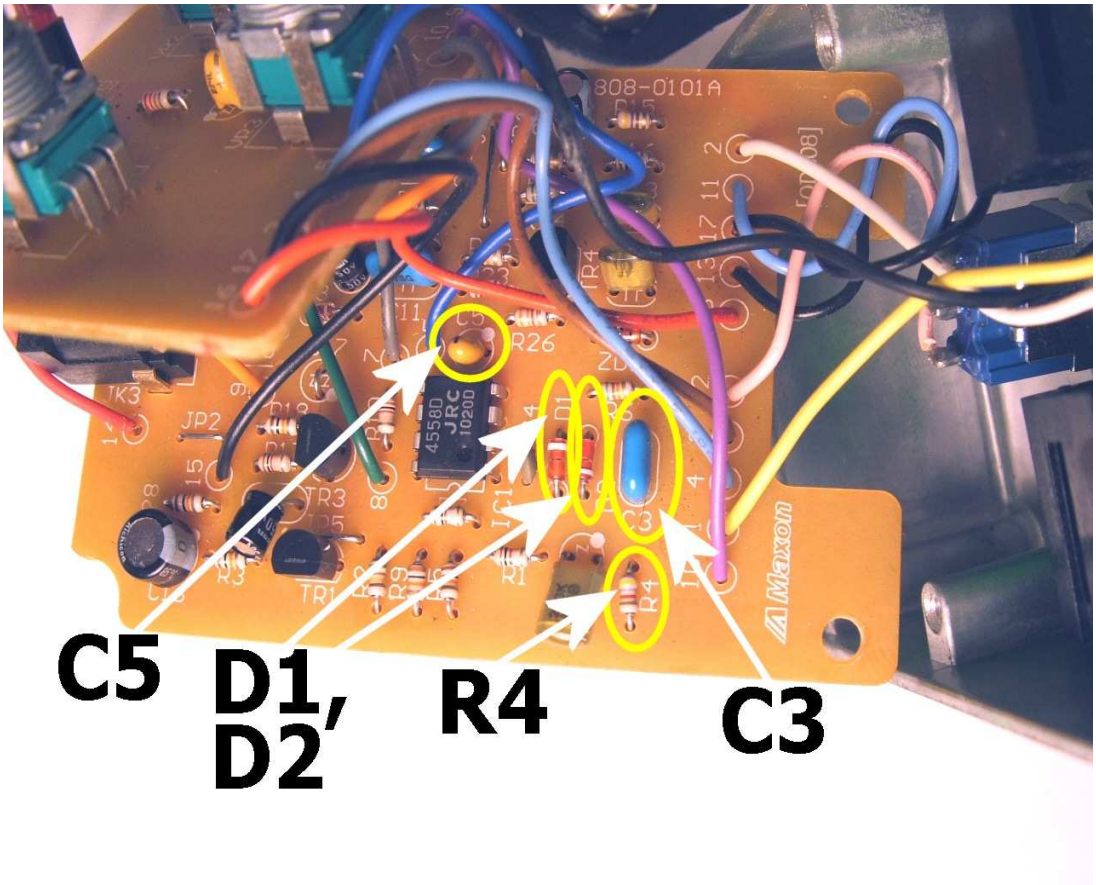
Maxon OD808 standard Mod

Location	Stock value	Mod value	What it affects
R4	4.7k	3.3k	The lower the value, the more distortion available.
C3	.047 uf	.1 uf	Adds bottom end. For more, go .22 uf
D1	1N914	LED & germanium 1n34a in series	Adds fullness, depth, and dynamics
D2	1N914	1N4001	
C5	.22uf tantalum	.22uf metal film	

Circuitwise, the od808 is almost an exact tubescreamer clone.

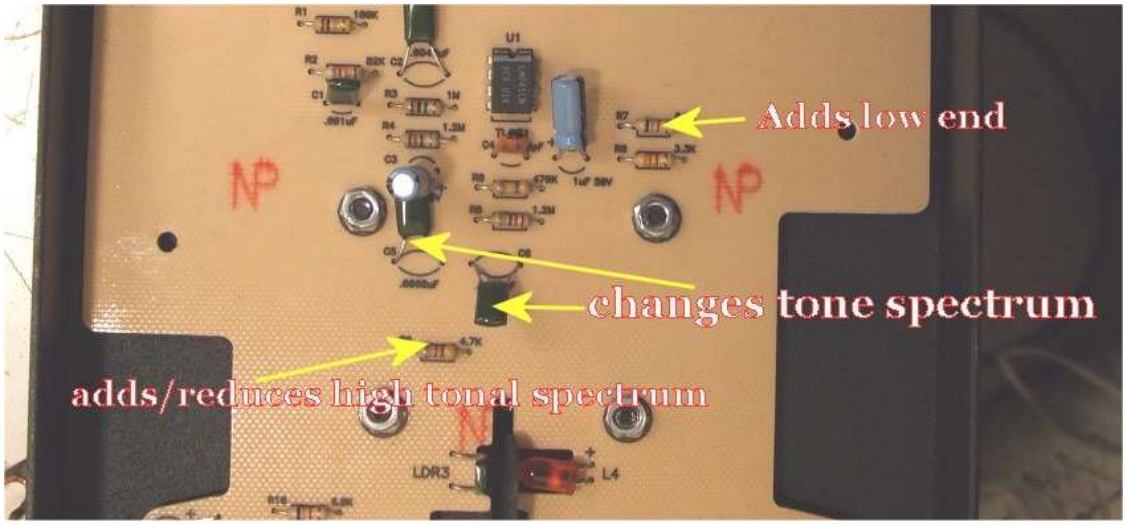
Maxon OD808 Extra's

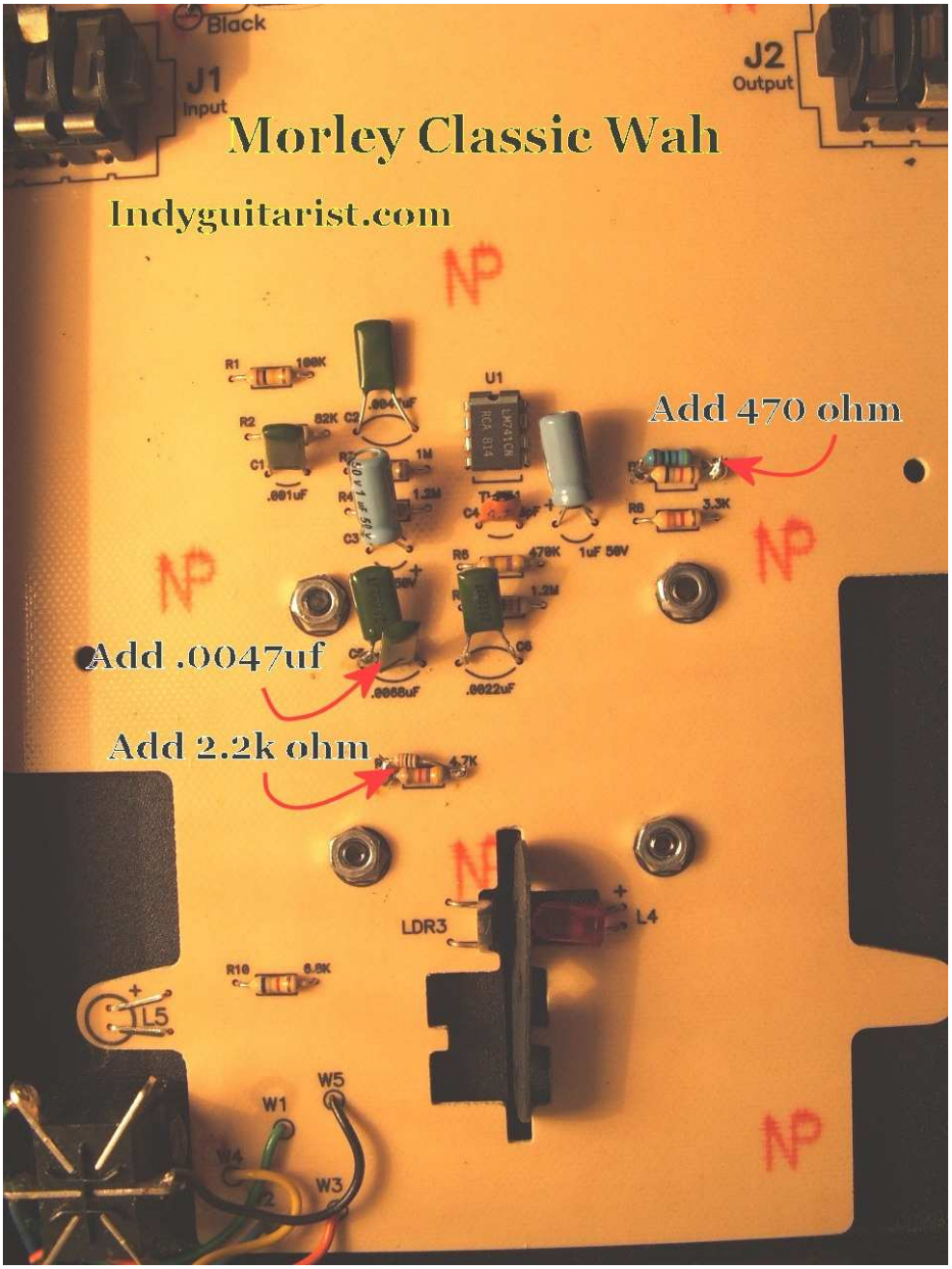
Location	Mod Value	What it affects
C5	Raise value - . 44uf, .1 uf	Raising value will decrease the highs. Alternatively, lessen the value to bring more highs in (.15uf, .1 uf)
C3	Raise value for more bass	.1, .22, .44, .1 uf – works in conjunction with # 6 resistor
D1, D2	Clipping diodes	Experiment—it will shape the tone and overdrive considerably!
R4	Gain resistor	Lower value for more gain, and clarity. 2.2k, 1k, works in conjuction with #4.



Morley Classic Wah

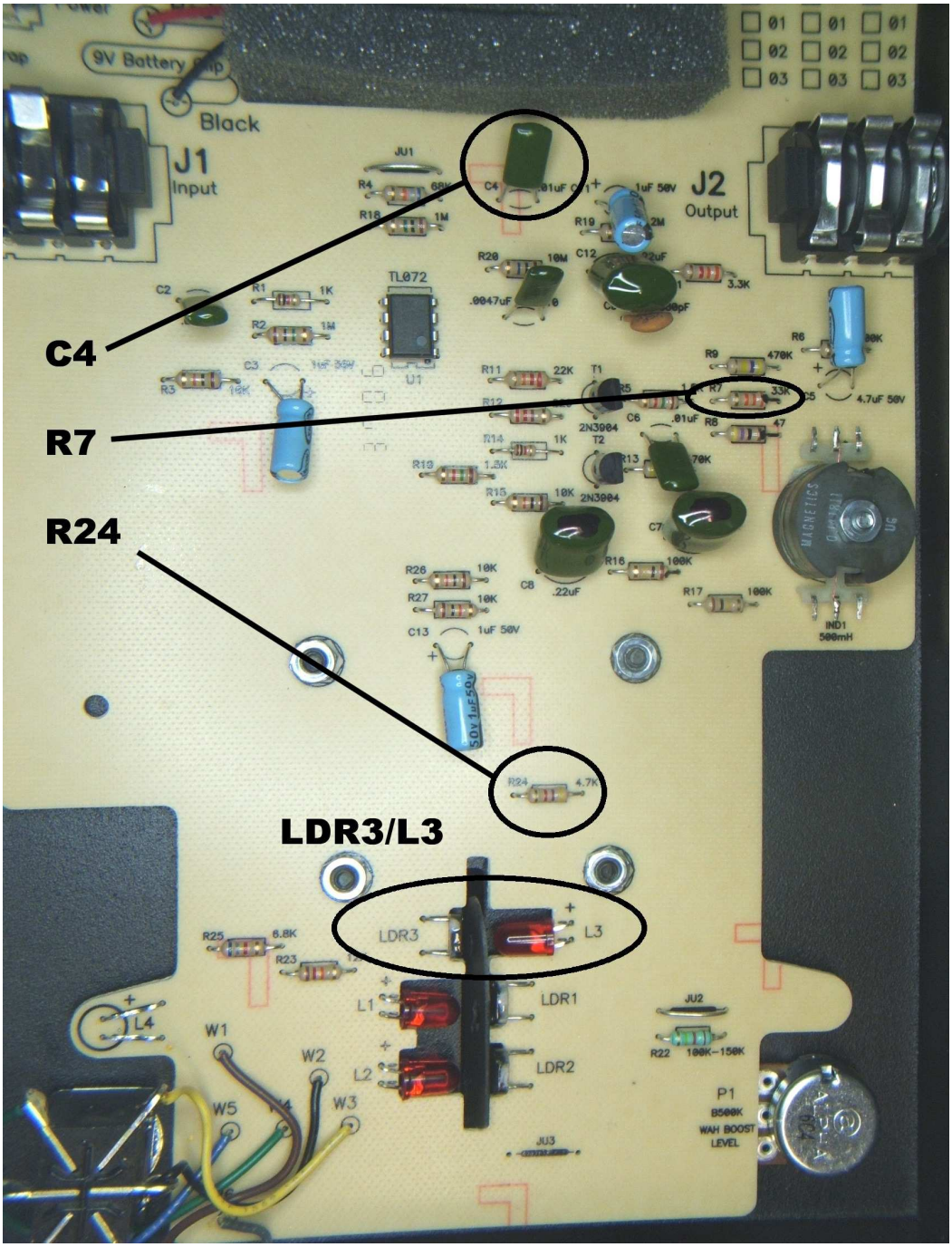
Location	Mod value
See changes	As shown in picture
Other tips:	Moving the led around will change the tone quite a bit. Feel free to experiment. If you are getting too much range of wah, you can add a 1k resistor in parallel with LDR3 (across from the led).




Black
J1
Input
J2
Output
Morley Classic Wah
Indyguitarist.com
Add 470 ohm
Add .0047uf
Add 2.2k ohm
LDR3
L4
L5
W1
W2
W3
W4
W5

Morley PWOV Power Wah Volume

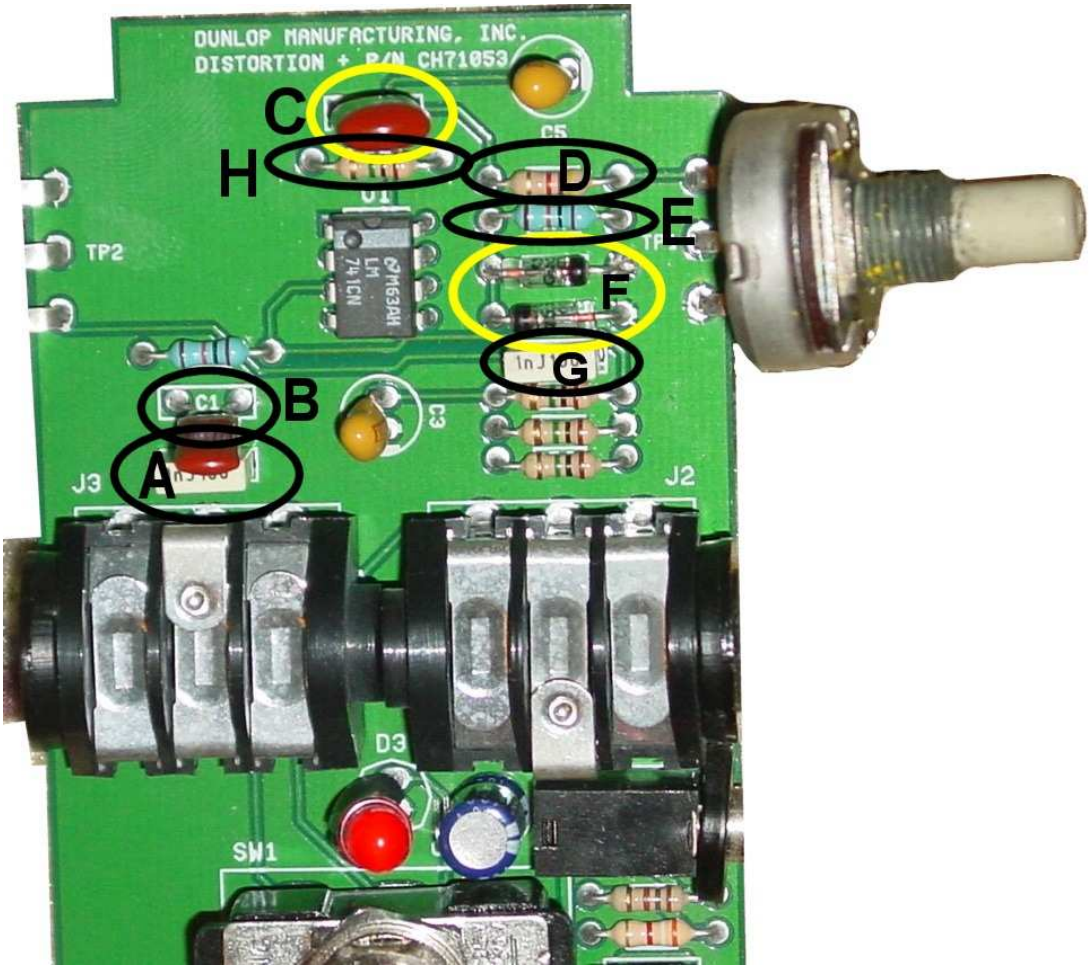
Location	Mod value	
R7	68K	MORE VOCAL EFFECT
R24	1K	MORE VOCAL EFFECT
C4	1UF	OVERALL FULLER SOUNDING
Other tips:	Moving the led around will change the tone quite a bit. Feel free to experiment. If you are getting too much range of wah, you can add a 1k resistor in parallel with LDR3 (across from the led).	


C4
R7
R24
LDR3/L3
Black
J1
Input
J2
Output
9V Battery
TL072
2N3904
LDR1
LDR2
LDR3
L1
L2
L3
L4
W1
W2
W3
W5
P1
WAH BOOST
LEVEL
IND1
500mH

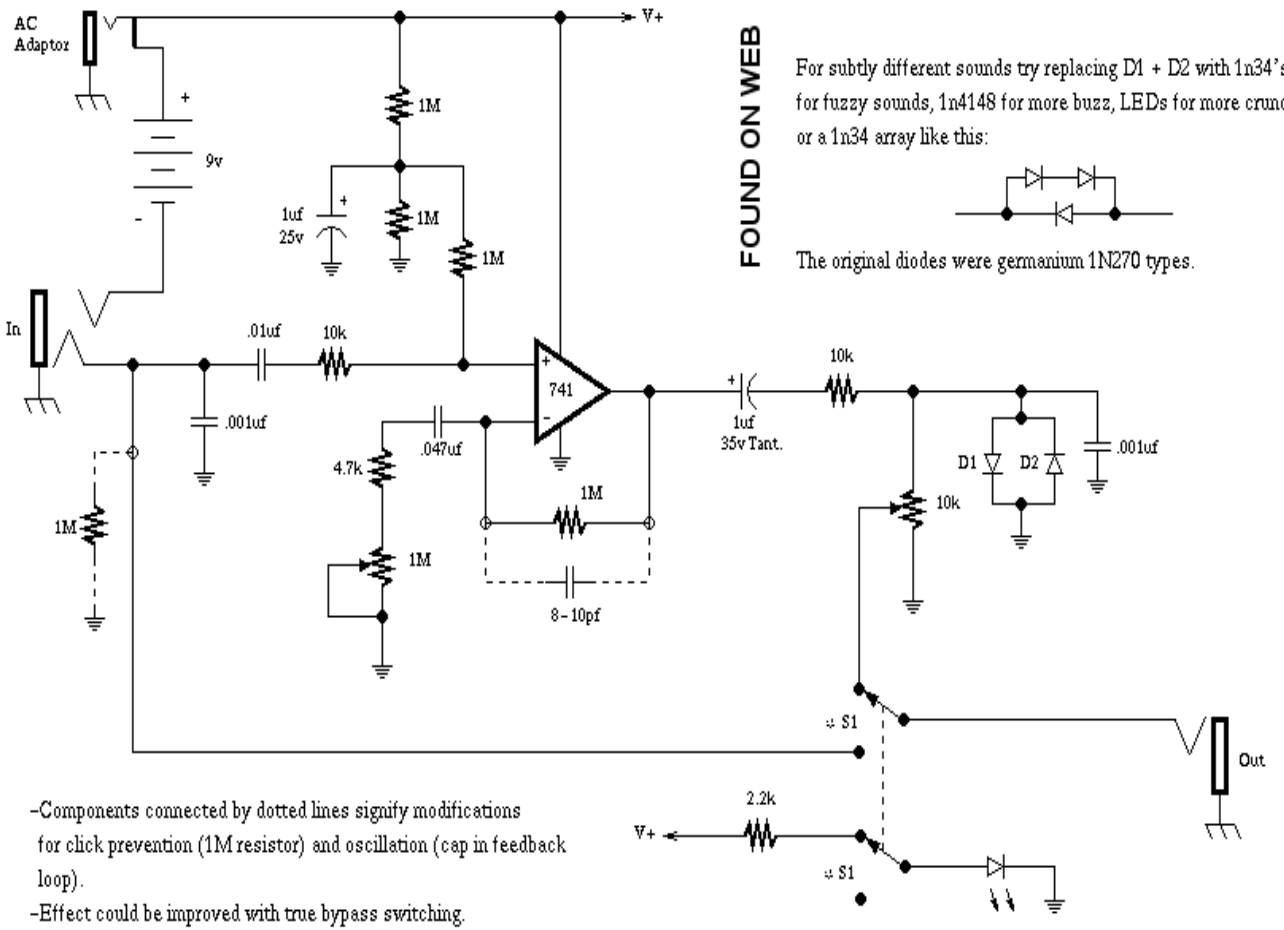
MXR Distortion Plus (newer versions)

Location	Mod value	What it effects
A	.1uf or for more bass try these values: .15uf, . 22uf, .47uf. For bass guitar use 1uf	Adds bass
B (DIODE 1)	1n4148	Will make the distortion less fuzzy, and more thick and dynamic.
B (DIODE 2)	1n4148 + 1n4148 connected in series	
C	1uf film cap	Better output tone
H	Replace with 1m pot	2nd gain control
D,G	Replace with desired value, it is a low pass filter. See http://www.indyguitarist.com/filter for values depending on what frequency you want to remove...for less highs, replace "G" with a larger cap.	

***NOTE: It doesn't matter which diode is "diode 1" or "diode 2".**



MXR Distortion +



FOUND ON WEB

For subtly different sounds try replacing D1 + D2 with 1n34's for fuzzy sounds, 1n4148 for more buzz, LEDs for more crunch, or a 1n34 array like this:

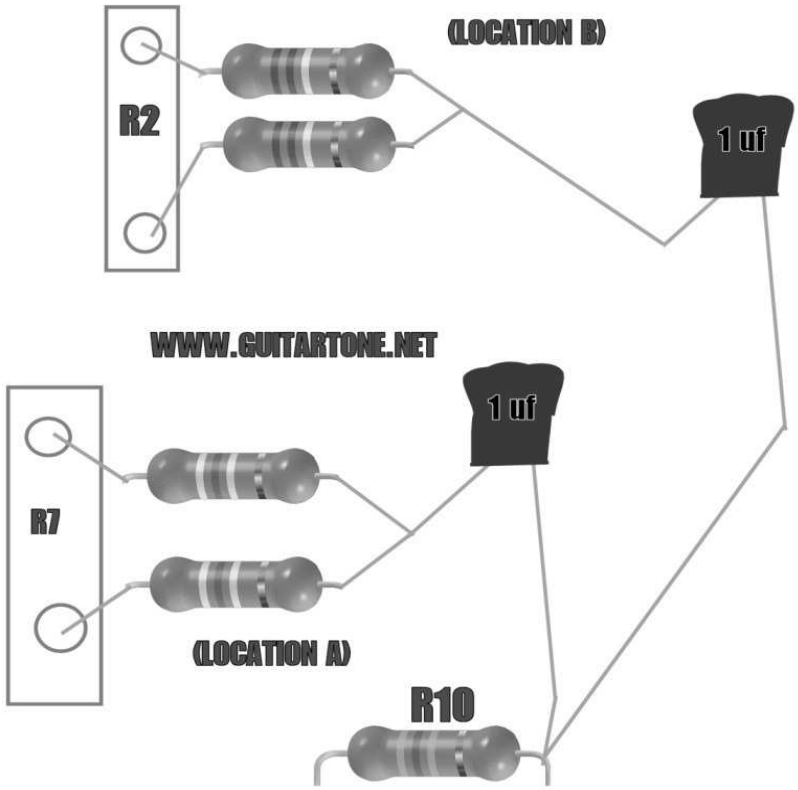
The original diodes were germanium 1N270 types.

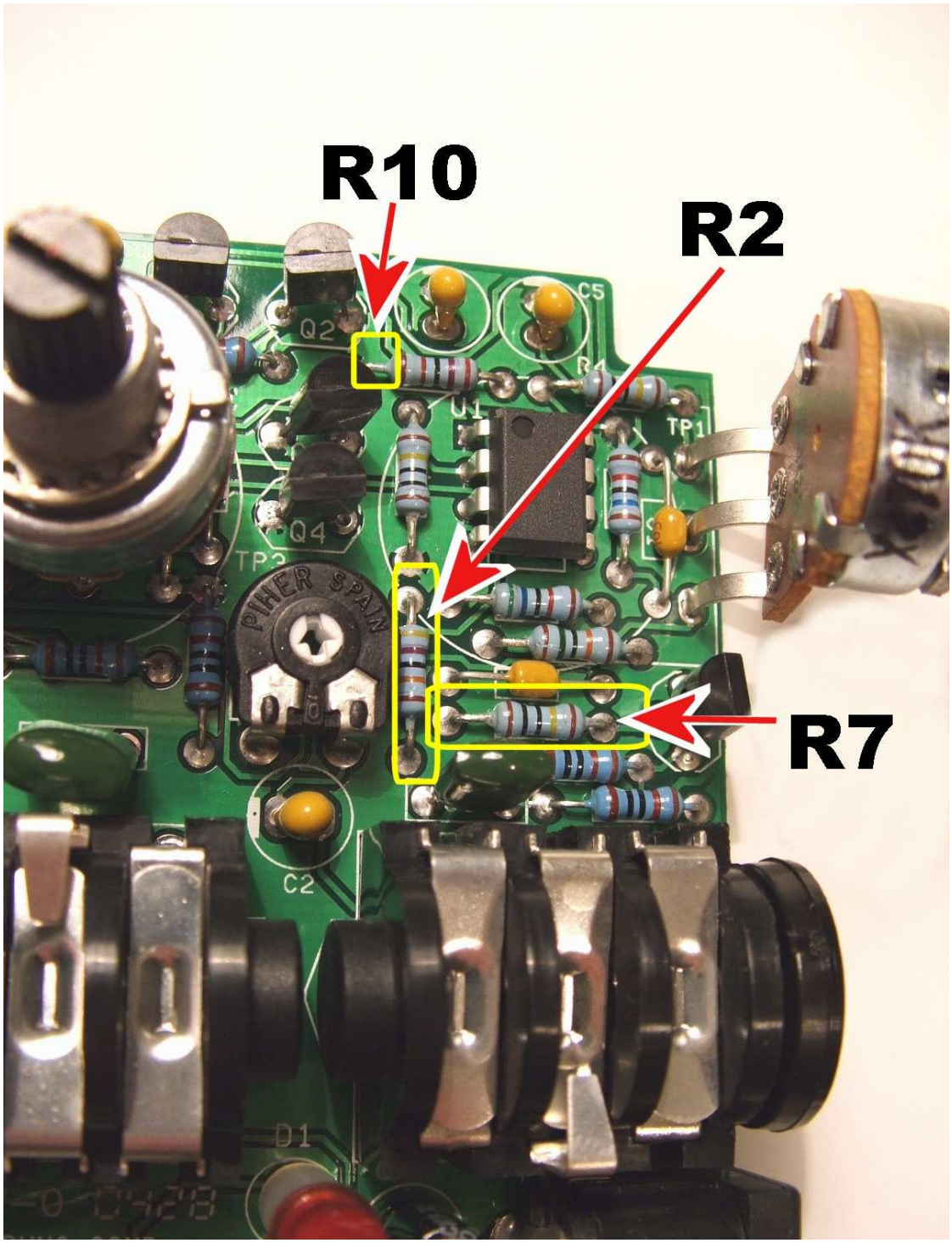
-Components connected by dotted lines signify modifications for click prevention (1M resistor) and oscillation (cap in feedback loop).

-Effect could be improved with true bypass switching.

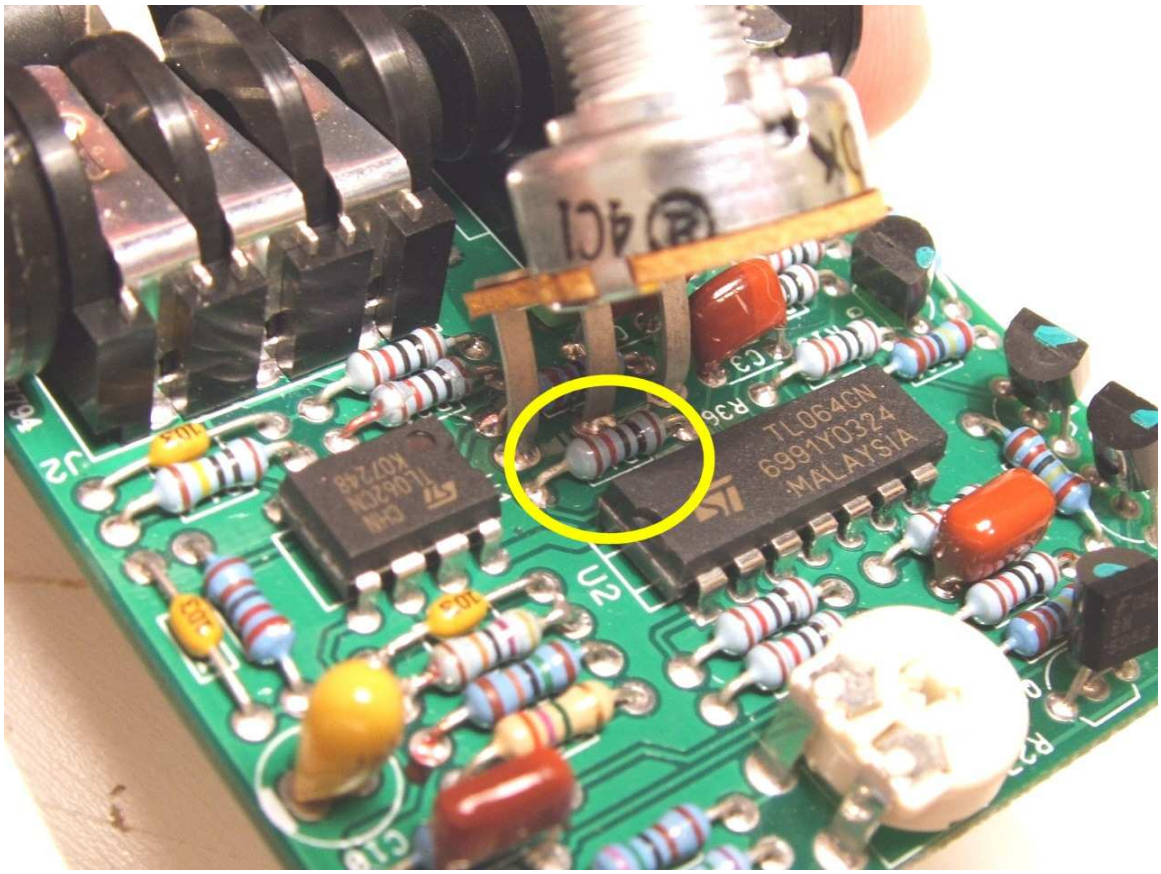
MXR Dynacomp – Ross Mod

Location	Mod value	What it effects
R7	Install 2 -- 470k resistors as shown	Connect exactly as shown, to a 1uf cap, that connects to R10
R2	Install 2 -- 220k resistors as shown	Connect exactly as shown, to a 1uf cap, that connects to R10

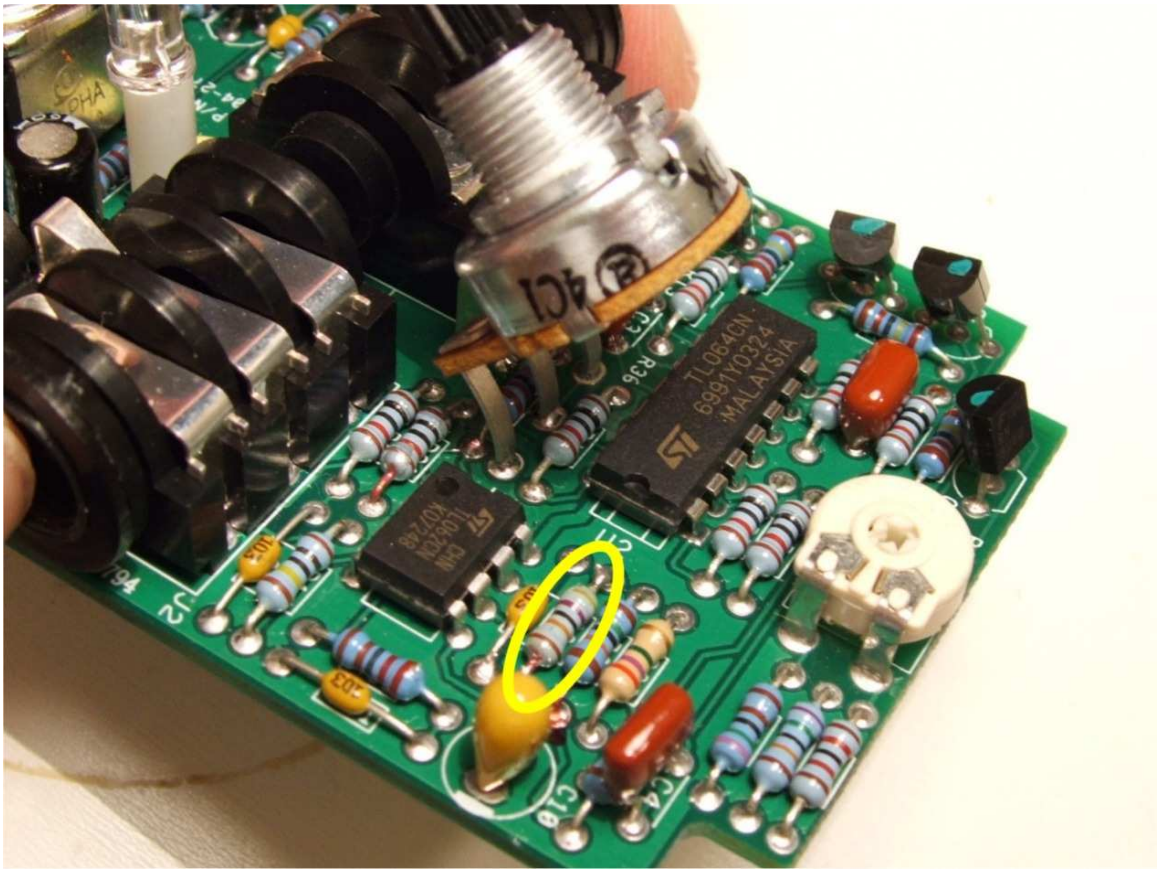



R10
R2
R7
Q2
Q4
C5
R4
U1
TP1
TP2
PIHER SPAIN
C2
D1

MXR PHASE 90 MODS

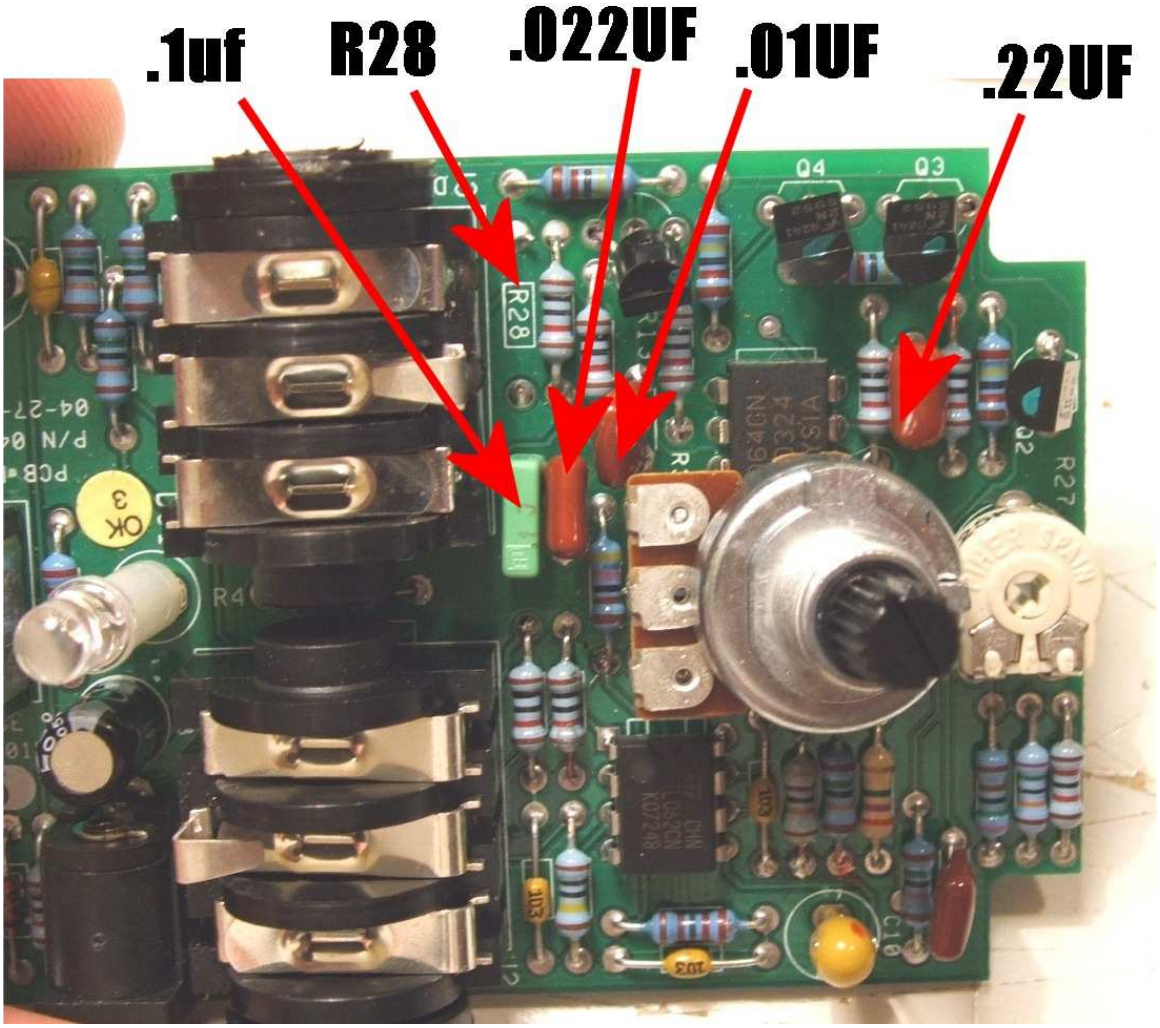


For faster speeds, replace the resistor shown above with a 470 ohm resistor



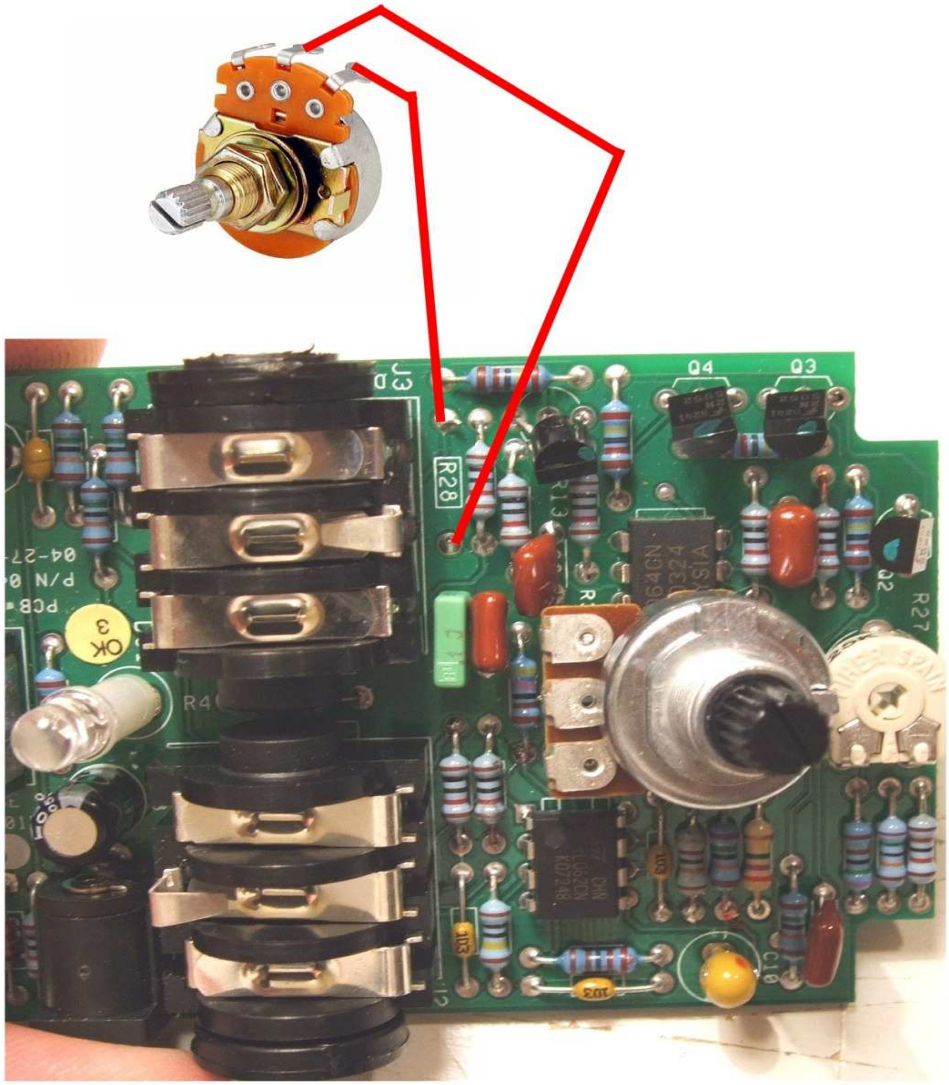
For changes in waveform of phasing, replace this resistor with a 10k resistor

UNIVIBE MOD
Replace Caps as shown
Remove R28 totally. (don't replace with anything)



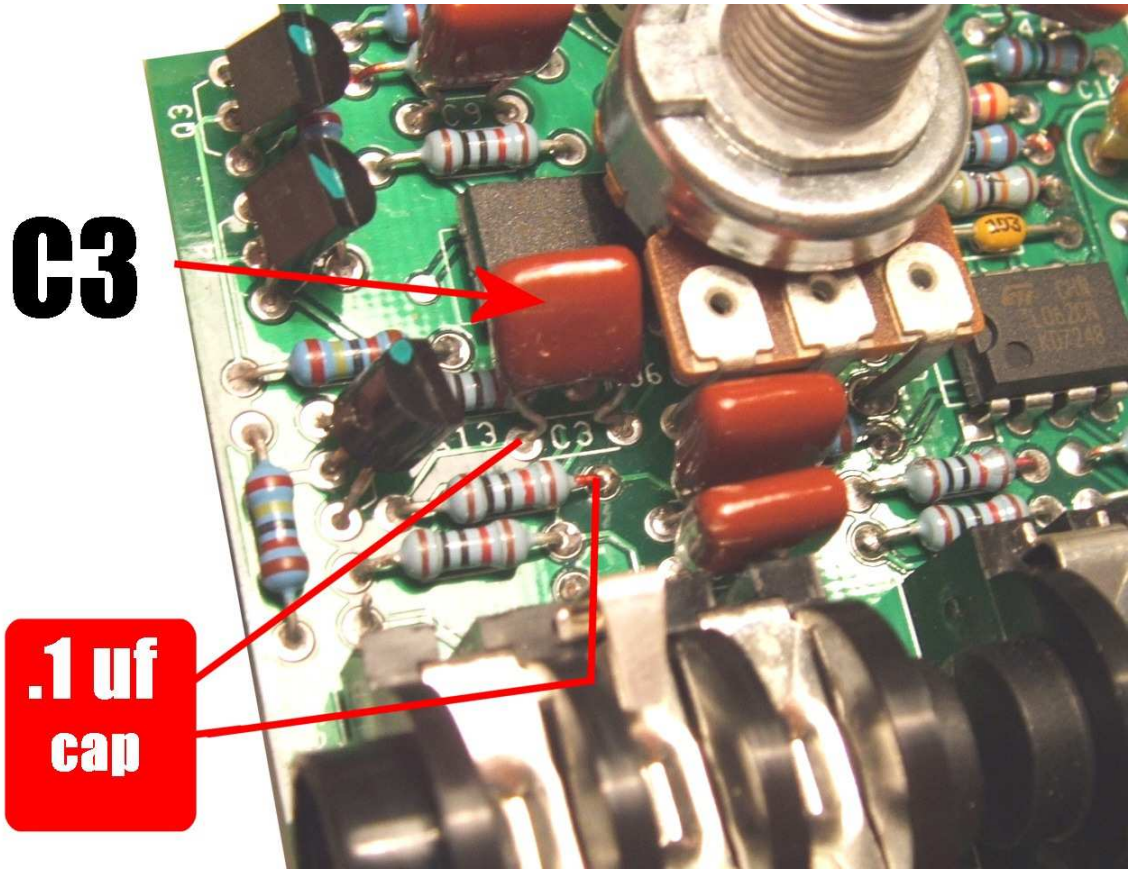
"R28" SCRIPT MOD
-remove R28 totally, do not replace with anything.
-remove C11 totally, do not replace with anything.

Add Depth control to phase 90
-use a 47k pot or 100k pot if 47k is not available
-connect as shown

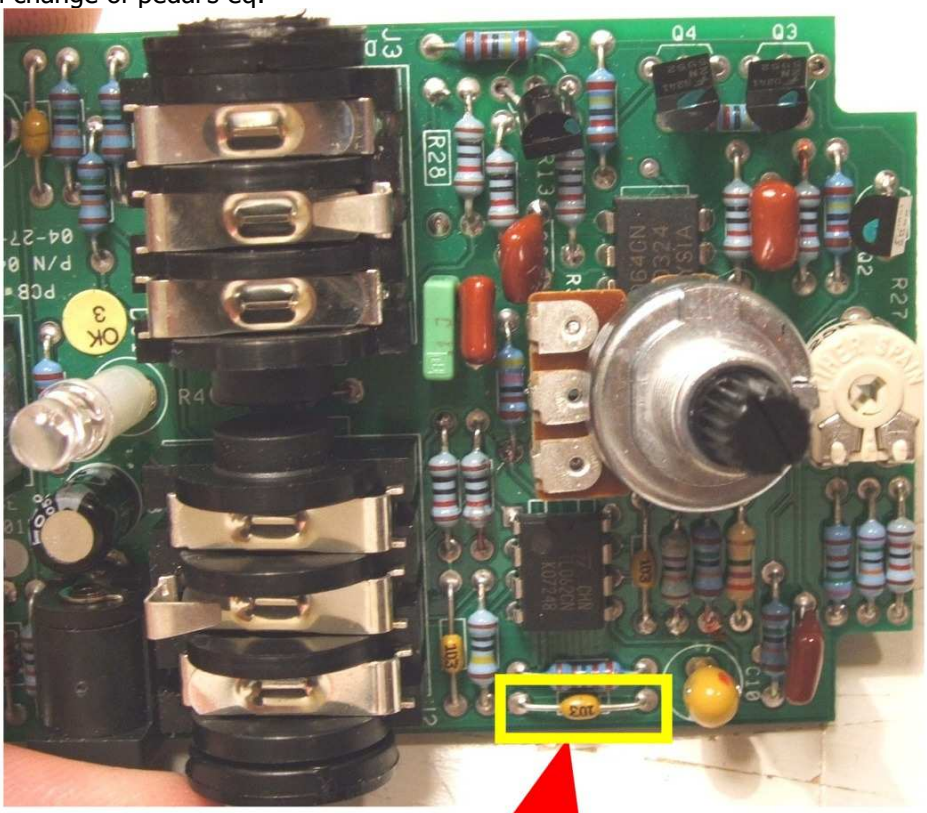


Tremelo Mod

Connect .1uf cap to the points shown below on the picture.
For standard Tremelo mod, do not change C3.
For 'Dirty Tremelo' mod, change C3 to .068uf in addition to the change above.

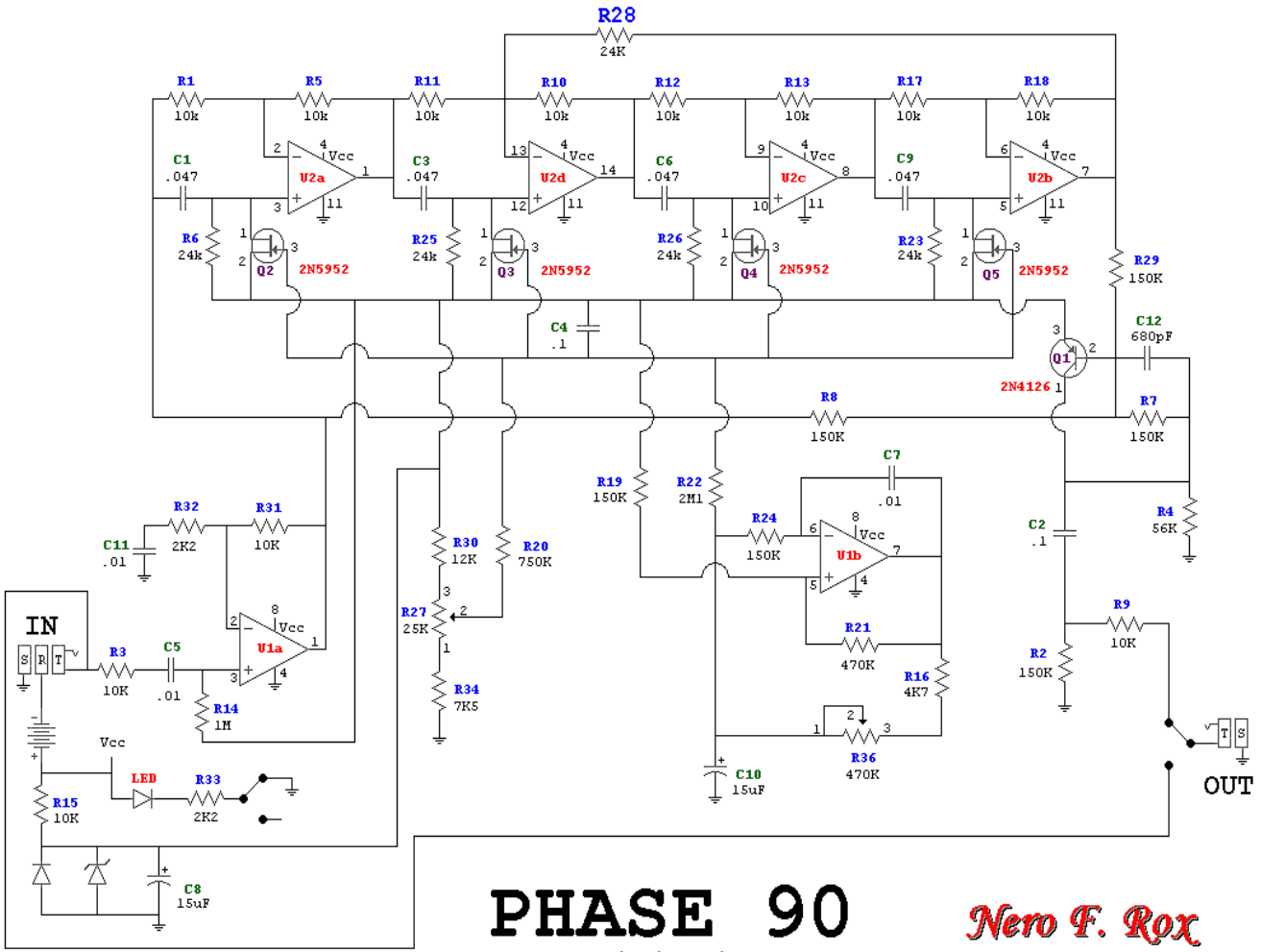


Optional change of pedal's eq:



increase value for more highs
(try .015uf, .022uf, .033uf)

For a big volume boost,
and mid shift, change to
a .22uf



PHASE 90

(Reissue)

*** Capacitors in uF unless noted
*** DC Jack Wiring nor Showed

Nero F. Rox

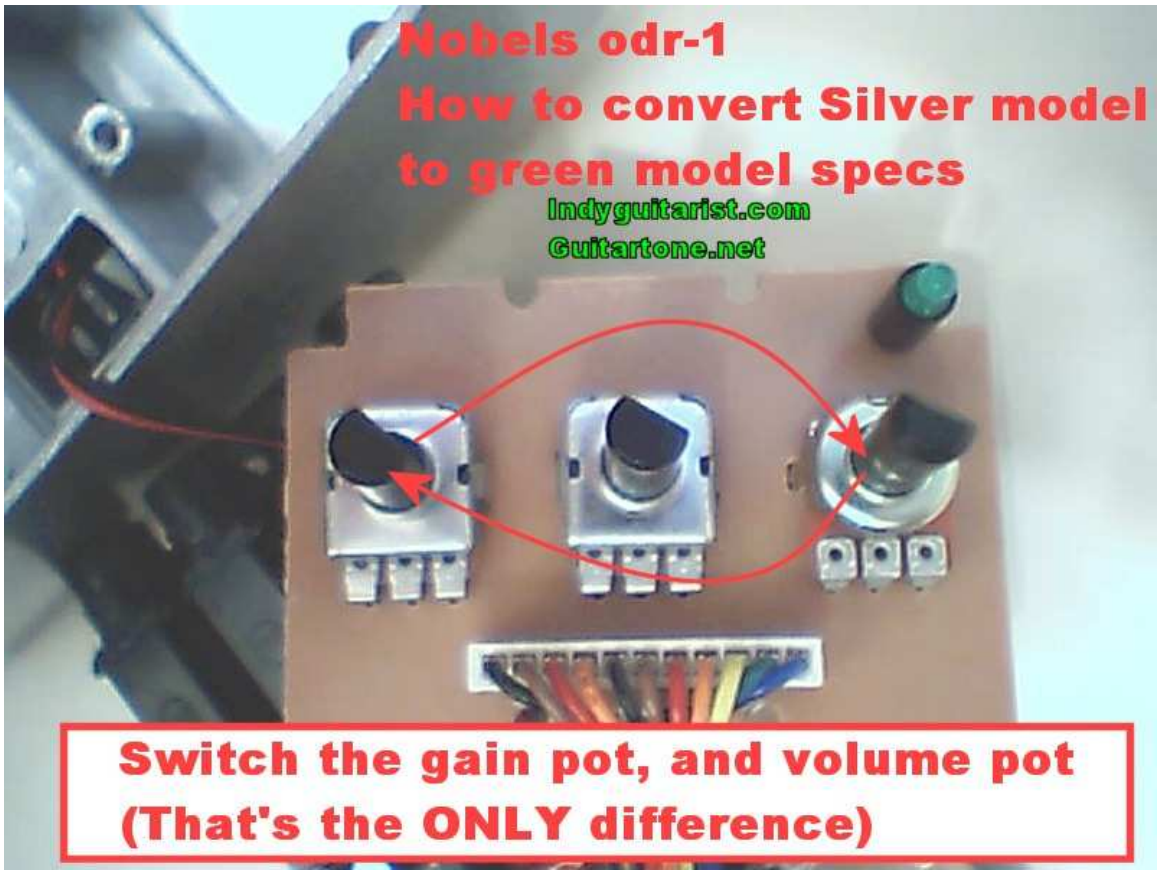
www.jeanhatesjohnmusic.com

www.myspace.com/jeanhatesjohn

nero@jeanhatesjohnmusic.com

Nobels ODR-1 Overdrive

How to convert silver model to green model specs, on the first version of the silver model. The newest versions are already fixed and are EXACTLY the same as the green nobels.



Nobels odr-1 modification

Location	Stock value	Mod value	What it effects
C34	.082 uf	.047uf / . 068uf/ .1uf / . 15uf/ .22uf / 1uf for bass guitar	Lower value for less bass, more value for more bass
R27	10k	4.7k	Adds highs
D4		LED and 1n4148 in series	Will add fullness, dynamics, becomes more responsive
D2		LED and 1n4148 in series	Will add fullness, dynamics, becomes more responsive

Hi Brian,
following our discussion re: Nobels ODR-1, the new version having the gain and vol pots reversed, i've done that and it sounds FAB !.
Also made these changes (after lots of trial 'n error) so thought you may appreciate the info for a "mod" @ indyguitarist
This apply's to the "Green" and the new "Silver" versions :

I didn't use diode "numbers" as they are blurred on the board !!
from those that I can read, these would seem to be D1/D2 and D3/D4.
Check the schematic to be sure of the numbers, from www.nobels.com

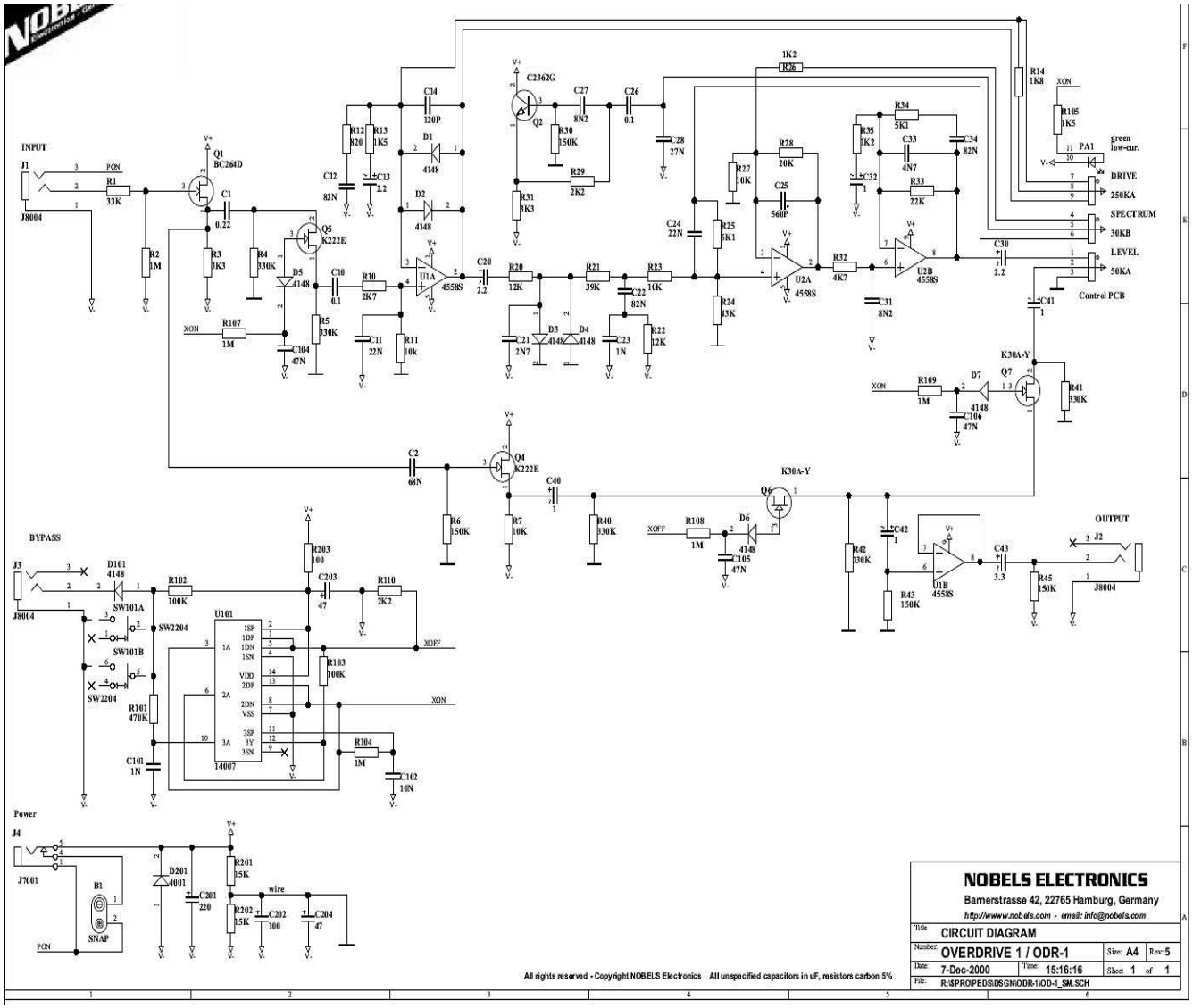
First "pair" of diodes near the "Flat inline op-amp" next to input/output jacks---- remove both 1N914's and use a single 3mm red LED.
A pair of 3mm red LED's also works but was to "Metal distortion" for me !

Second "pair" of diodes near the other "flat inline op-amp" middle of board --- remove both 1N914's and use a single Ge diode (1N34A)
This results in increased "volume" and a "tube" sounding sweet overdrive.

The 120pf cap around the first diode pair (tiny brown ceramic marked 121) can be increased to 150 or 180 to "roll off" a bit of the top end ---- result is smoother.
The 2.7nf cap around the second pair (C21) can be reduced to a 1.5nf to let some more "high mid/top end" come through.
Voicing is a personal thing, give it a try ?

The large 2.2uf input cap (C1) can be reduced to a 1uf and lets less bass through the circuit ---- result is a more "tube screamer" middle sounding pedal

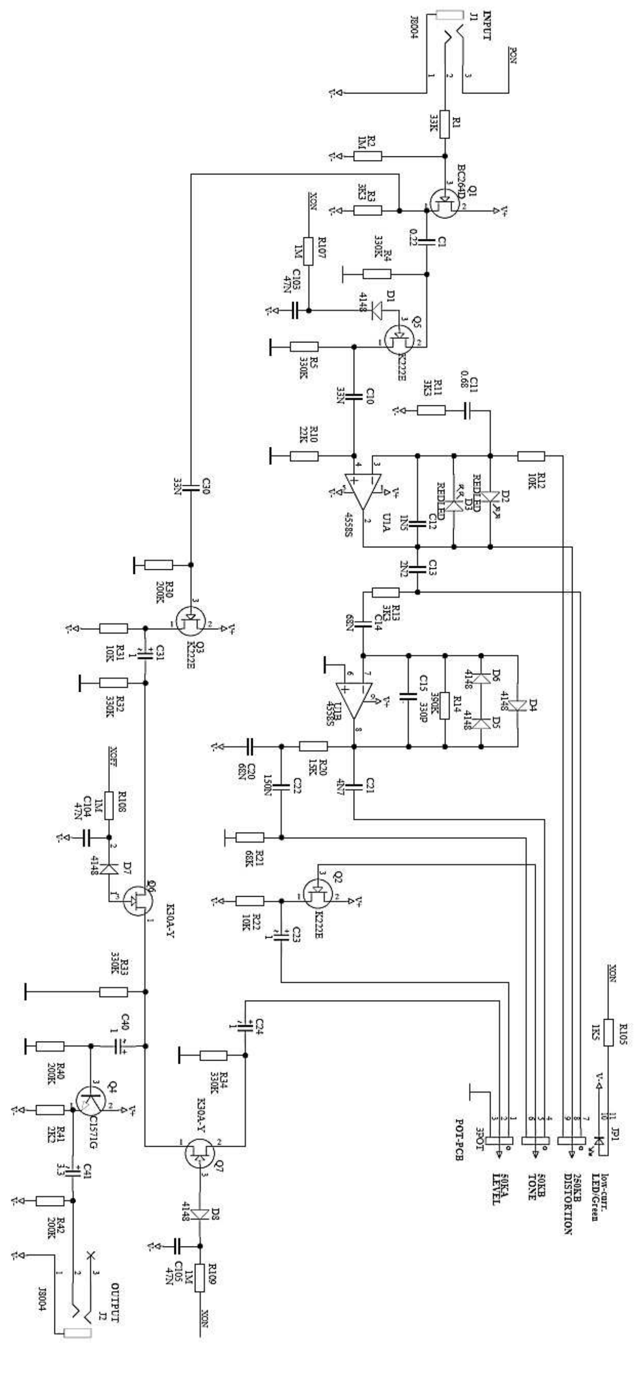
Hope you like this, most is obvious but worth the time
Regards,
Marty from the messageboard at http://www.diystompboxes.com/smfforum/


INPUT
J1
J8004
PON
R1 33K
Q1 BC264D
C1 0.22
R2 1M
R3 3K3
R4 330K
Q5 K222E
D5 4148
C10 0.1
R10 2K7
R5 330K
XON
R107 1M
C104 47N
C11 22N
R11 10k
C12 82N
R12 820
R13 1K5
C13 2.2
C14 120P
D1 4148
D2 4148
U1A 4558S
C20 2.2
R20 12K
R21 39K
R23 10K
C22 82N
C21 2N7
D3 4148
D4 4148
C23 1N
R22 12K
C2362G
Q2
C27 8N2
C26 0.1
R30 150K
R29 2K2
R31 3K3
C28 27N
C24 22N
R25 5K1
R24 43K
1K2
R26
R28 20K
R27 10K
C25 560P
U2A 4558S
R32 4K7
C31 8N2
R35 1K2
R34 5K1
C33 4N7
C34 82N
C32
R33 22K
U2B 4558S
C30 2.2
R14 1K8
XON
R105 1K5
PA1
green low-cur.
DRIVE
250KA
SPECTRUM
30KB
LEVEL
50KA
Control PCB
C41 1
K30A-V
XON
R109 1M
D7 4148
C106 47N
Q7
R41 330K
C2 68N
Q4 K222E
C40 1
R6 150K
R7 10K
R40 330K
K30A-Y
Q6
XOFF
R108 1M
D6 4148
C105 47N
C42 1
R42 330K
R43 150K
U1B 4558S
C43 3.3
OUTPUT
J2
R45 150K
J8004
BYPASS
J3
J8004
D101 4148
R102 100K
SW101A
SW2204
SW101B
SW2204
R101 470K
C101 1N
U101
14007
R203 100
C203 47
R110 2K2
XOFF
R103 100K
XON
R104 1M
C102 10N
Power
J4
J7001
PON
B1
SNAP
D201 4001
C201 220
R201 15K
wire
R202 15K
C202 100
C204 47
All rights reserved - Copyright NOBELS Electronics All unspecified capacitors in uF, resistors carbon 5%
NOBELS ELECTRONICS
Barnerstrasse 42, 22765 Hamburg, Germany
http://www.nobels.com - email: info@nobels.com
Title: CIRCUIT DIAGRAM
Number: OVERDRIVE 1 / ODR-1
Size: A4
Rev: 5
Date: 7-Dec-2000
Time: 15:16:16
Sheet 1 of 1
File: R:\$PROPEDS\DSGN\ODR-1\OD-1_SM.SCH

Nobels DT-1

Most feel that the downfall of the dt-1 is that it is noisy and feedbacks easy. These are fairly easy fixes. The mod below will fix it.

Location	Mod value	Notes
R12	1K	
R14	220K	Lower value until feedback and noise stops
C11	1uf	
R11	2.2K	
C15	500pf	

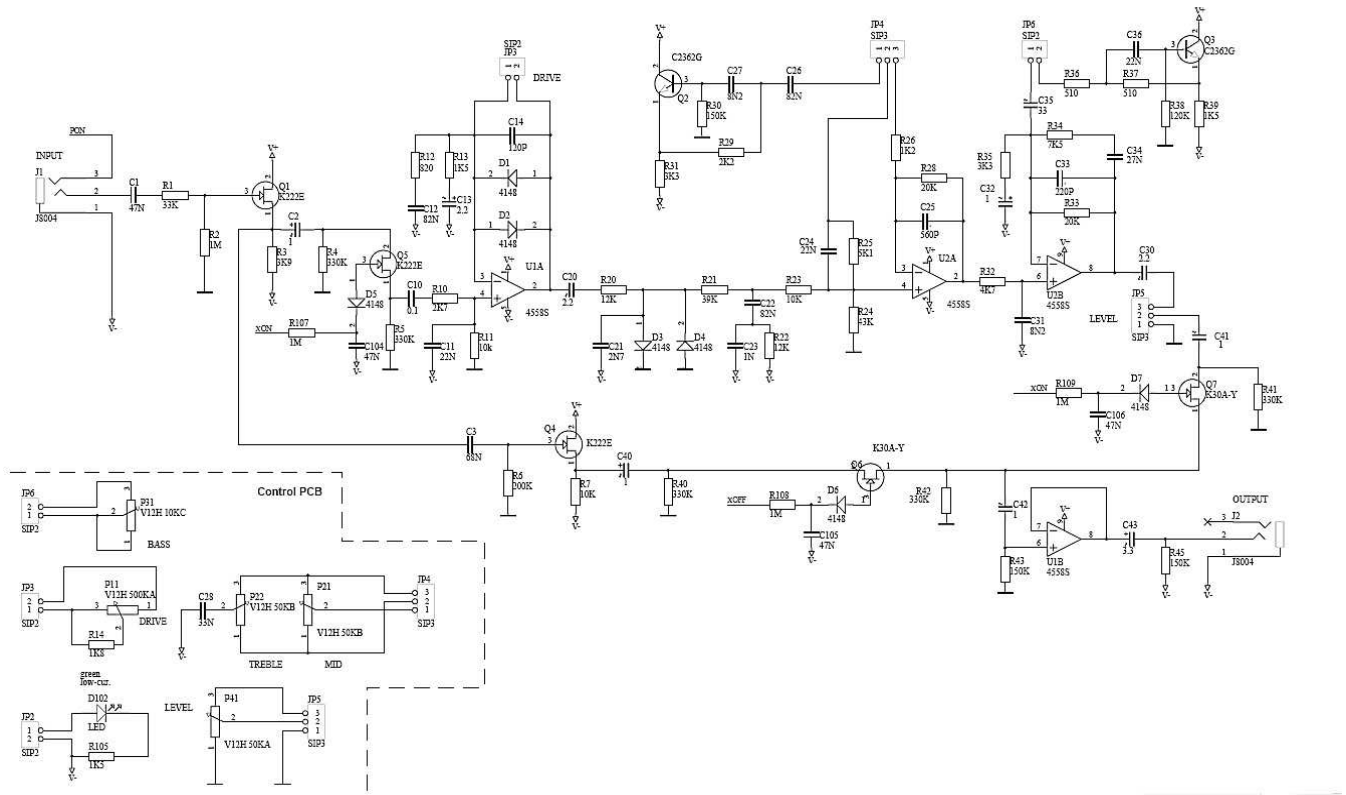


INPUT
J1
OUTPUT
J2
60KA LEVEL
60KB TONE
250KB DISTORTION
low-curr. LED/Green
POT-PCB
JP1

Nobels ODR-B

Most feel that the downfall of the ODR-b is that it is too compressed and too muddy. The mod below will fix that.

Location	Mod value	Notes
D1	Red led	
D2	Red led	
C21	.001uf	
R21	22k	
C25	220pf	
C33	100pf	


INPUT
J1
J8004
C1
47N
R1
33K
R2
1M
Q1
K222E
C2
R3
8K9
R4
330K
Q5
K222E
D5
4148
C10
0.1
R10
2K7
xON
R107
1M
C104
47N
R5
330K
C11
22N
R11
10k
SIP2
JP3
DRIVE
C14
120P
R12
820
R13
8K5
D1
4148
C13
2.2
C12
82N
D2
4148
U1A
4558S
C20
2.2
R20
12K
C21
2N7
D3
4148
D4
4148
R21
39K
C23
1N
C22
82N
R22
12K
R23
10K
C24
22N
R25
5K1
R24
43K
C2362G
Q2
C27
8N2
C26
82N
R30
150K
R39
2K2
R31
8K3
JP4
SIP3
R26
1K2
R28
20K
C25
560P
U2A
4558S
R32
4K7
JP5
SIP2
C36
22N
Q3
C2362G
R36
510
R37
510
C35
33
R38
120K
R39
8K5
R34
7K5
C34
27N
R35
3K3
C33
220P
C32
1
R33
20K
U1B
4558S
C30
2.2
JP5
LEVEL
SIP3
C41
1
xON
R109
1M
D7
4148
Q7
K30A-Y
R41
330K
C106
47N
C3
68N
Q4
K222E
R6
100K
R7
10K
C40
1
R40
330K
K30A-Y
Q6
xOFF
R108
1M
D6
4148
C105
47N
R42
330K
C42
1
R43
150K
U1B
4558S
C43
3.3
R45
150K
OUTPUT
J2
J8004
Control PCB
JP6
SIP2
P31
V12H 10KC
BASS
JP3
SIP2
P11
V12H 500KA
DRIVE
R14
1K8
C38
33N
P22
V12H 50KB
P21
V12H 50KB
JP4
SIP3
TREBLE
MID
green
low-cur.
D102
LED
JP2
SIP2
R105
1K5
LEVEL
P41
V12H 50KA
JP5
SIP3

Nobels ODR-S

Thicker, warmer overdrive

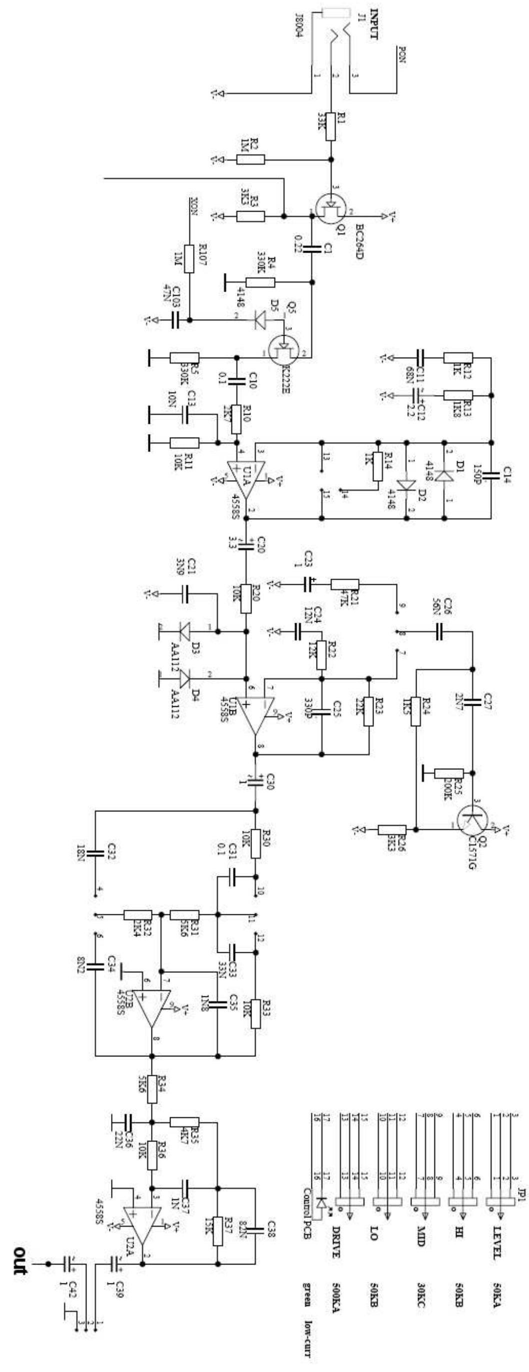
Location	Mod value	Notes
D1	1n4148 + 1n4148 in series	
D4	1n4148 + 1n4148 in series	
C21	.0022uf	
R23	10k-33k	for more mids, 33k, for less mids, 10k

For more distortion

Location	Mod value	Notes
R12	470 ohm	
C11	1uf	

For more volume

Location	Mod value	Notes
R37	22k-47k	Adjust to taste



INPUT
J1
out
LEVEL 50KA
HI 50KB
MID 30KC
LO 50KB
DRIVE 500KA
Control PCB green low-curr

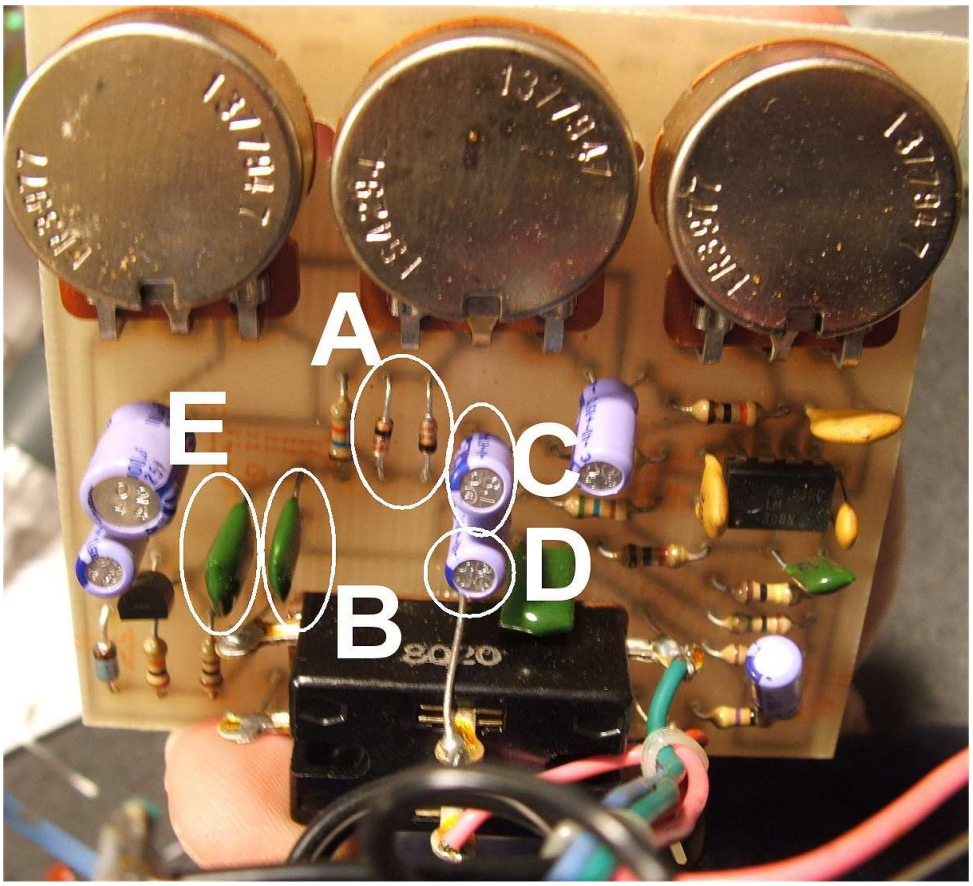
Proco Rat

Original Rat and Rat2 mods

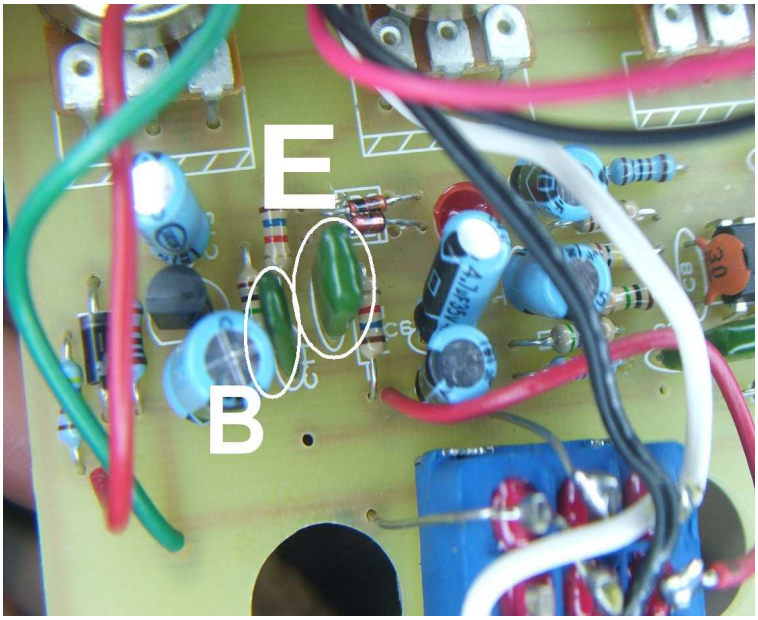
Warning! The newest Rat pedals have potentiometers that many have had a hard time with. Apparently, when you pull the knobs off the shaft comes off with it and makes it very hard to put back together. If you've purchased a new rat since 2007, I would avoid these mods unless you are comfortable replacing the pots.

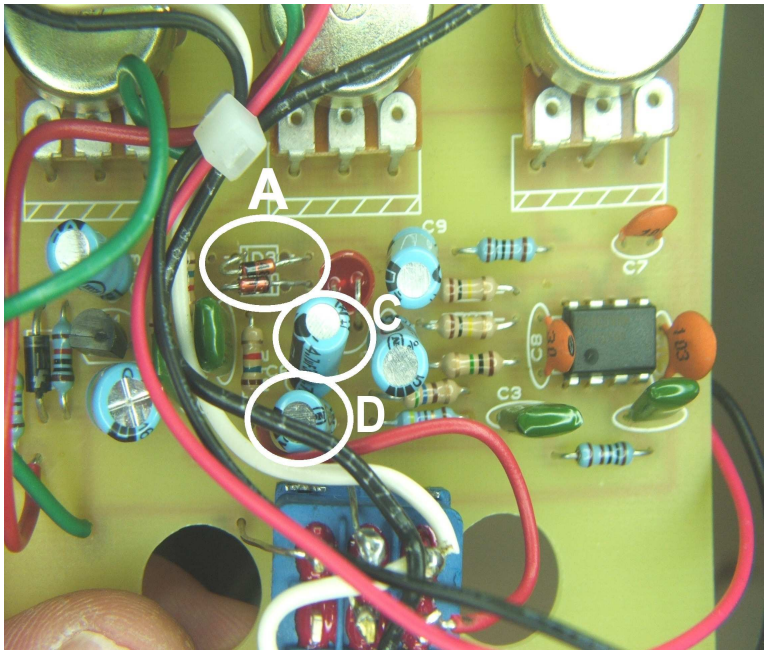
The original rat and rat2 circuits are very similar, nearly identical.
Here is a page that explains all the different version and the small difference between them:
http://happybob.com/rstrand/rat/rat_versions.htm

Original



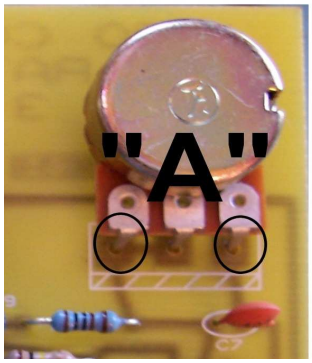
RAT 2



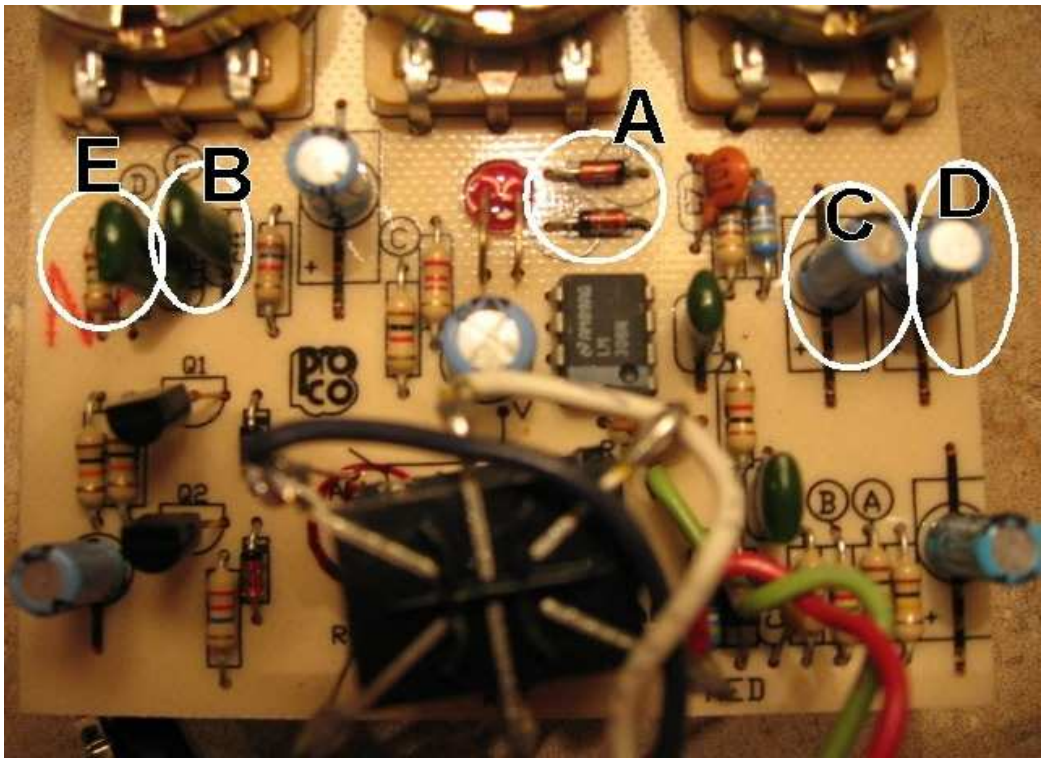


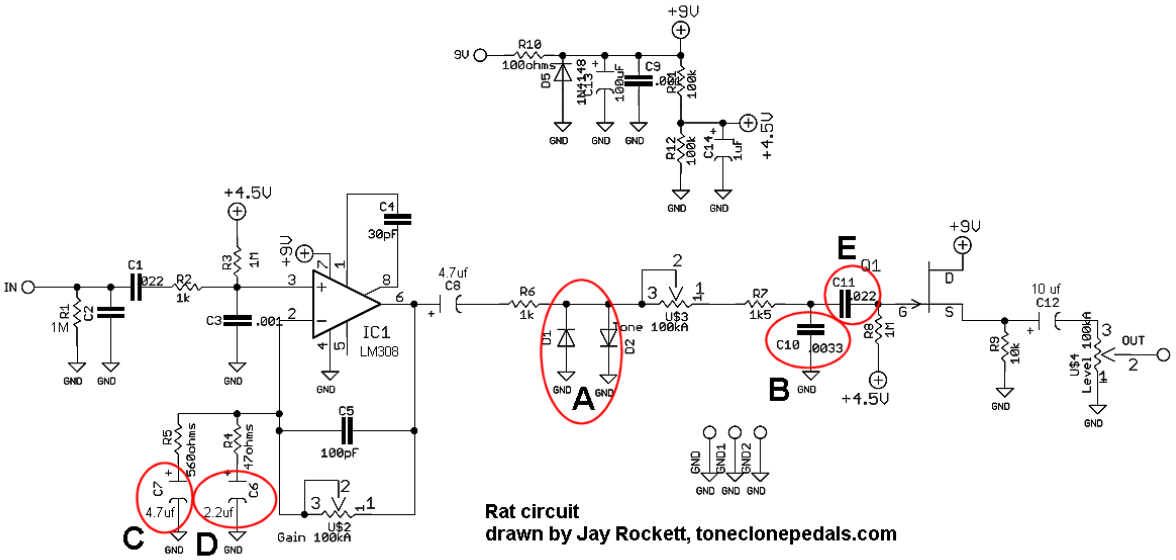
Location	*Stock*	*Mod*	*Effect*
A	1N4148 DIODES	2 – 1N4148 IN SERIES	REMOVE ONE OF THE DIODES. IN ITS PLACE, INSTALL 2 1N4148 DIODES CONNECTED IN SERIES. FOR SMOOTHER DISTORTION, INSTALL 1N34A GERMANIUM DIODES IN PLACE OF BOTH OF THE STOCK DIODES FOR CRUNCHIER DISTORTION (LIKE THE 'TURBO' RAT PEDALS), CHANGE THE STOCK DIODES TO RED 3MM LED'S ALSO TRY JUST CHANGING ONE OF THE DIODES TO A DIFFERENT TYPE... GERMANIUM 1N34A, LED, 1N4001 ETC.
B	.0033uF	.0047uF, OR .0068uF	CHANGE THIS CAP IF YOU FIND THE STOCK PEDAL TO HAVE TOO MUCH TREBLE.
C	4.7UF	10uF	CHANGE THIS CAP FOR MORE BASS CONTENT
D	2.2UF	4.7uF	CHANGE THIS CAP FOR MORE BASS CONTENT
E	.022uF	1uF	CHANGE THIS CAP FOR MORE BASS CONTENT

Options:
For a more compressed, smoother tone, install 2 diodes (experiment with type!) in parallel, but facing opposite directions, solder directly to lugs 1 and 3 (the outside lugs) of the gain pot. For a "smooth/compression" adjustment, install a 2nd potentiometer, possibly a 50k or so, in SERIES with these diodes. +



Another Circuitboard version:

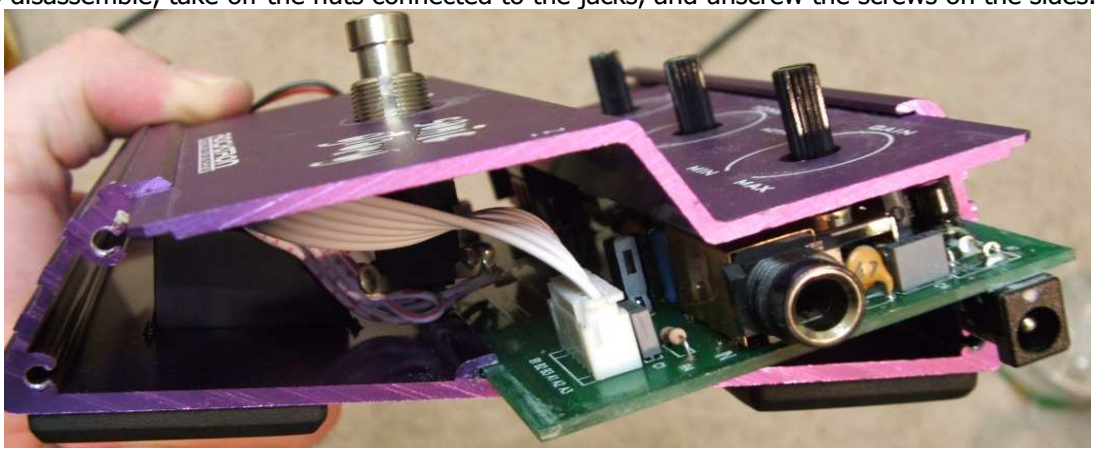




Rat circuit
drawn by Jay Rockett, toneclonepedals.com

Rocktron Sonic Glory Overdrive

To disassemble, take off the nuts connected to the jacks, and unscrew the screws on the sides.



Also, make sure you unscrew the switch, take off the knobs, and slide the bottom out and away from the top piece and then drop out the circuitboard from the top piece.

Circuit-wise, the sonic glory is almost an exact tubescreamer clone.

BSM (Brent Mason) MOD

Location	Mod value	What it affects
R13	1K RESISTOR	This mod will make the pedal fuller, more responsive, and dynamic. This is the same mod that Brent Mason uses on his TS9.
C4	.22UF x 2 in parallel CAP	
R12	10K RES	
D1	1N4001	
D2	1n4001 + 1n4001 SERIES	
C3	.15 uf or .047 + .1 uf in parallel (results in the same thing)	

316 MOD

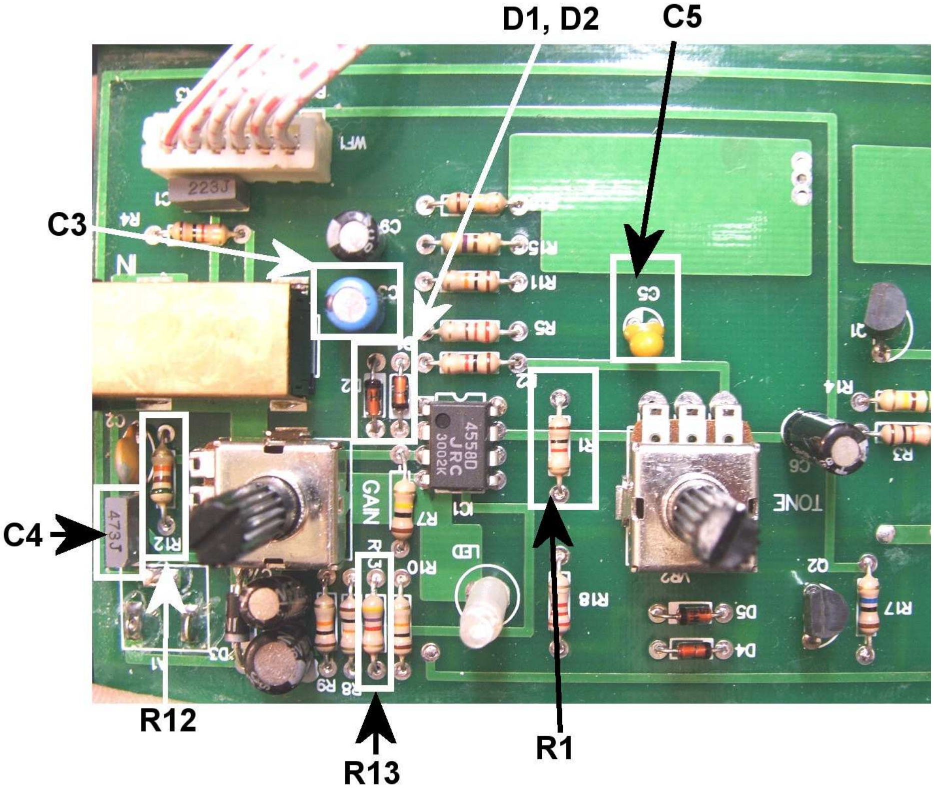
Location	Mod value
R13	1K RESISTOR
C4	.22UF
R12	10K RESISTOR
D1	LED
D2	LED + 4148 in SERIES

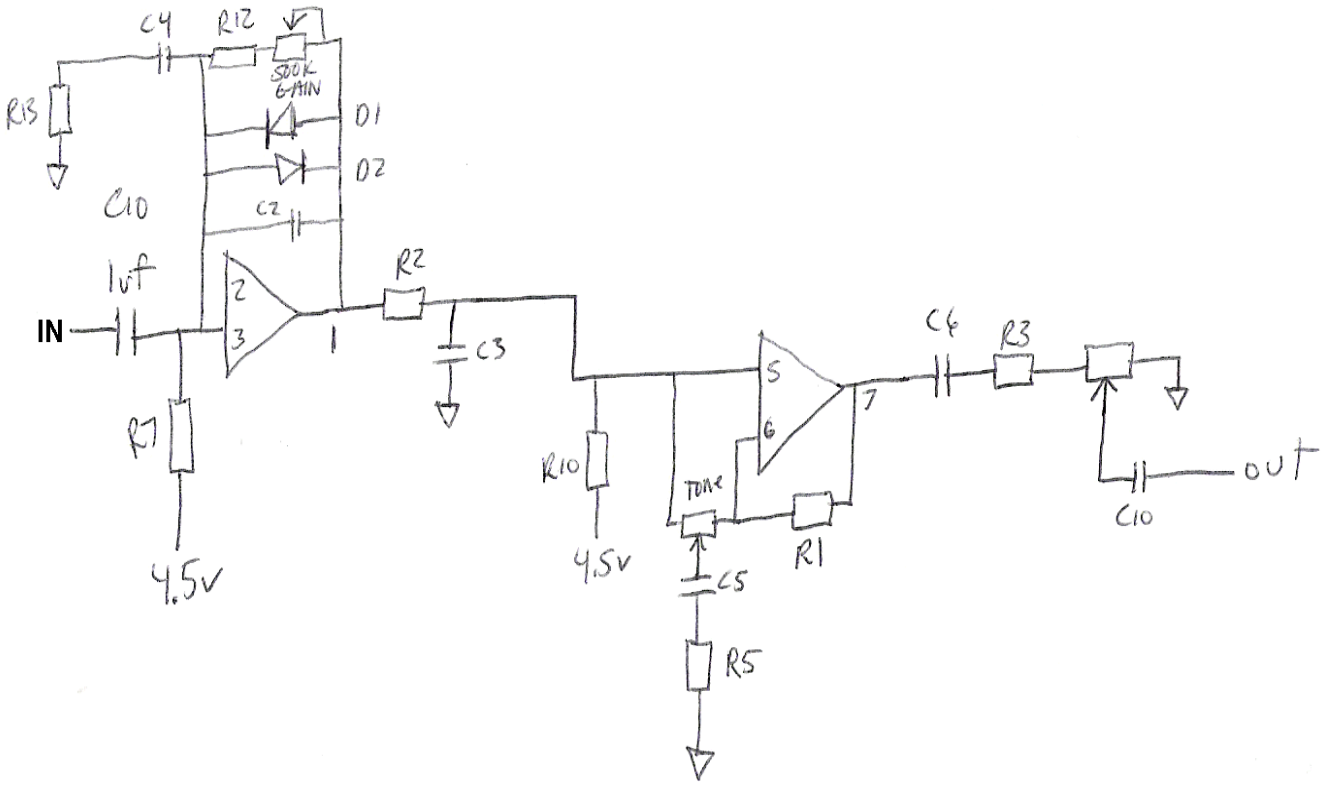
standard Mod

Location	Stock value	Mod value	What it affects
C4	.047 uf	.1 uf	Adds bottom end. For more, go .22 uf
D1	1n4148	LED & germanium 1n34a in series	Adds fullness, depth, and dynamics
D2	1n4148	1N4001	
R13	4.7k	3.3k	The lower the value, the more distortion available.

Explanations

Location	Mod Value	What it affects
R12	10k	Will allow pedal to clean up when gain knob is turned down
C3	Raise value - . 44uf, .1 uf	Raising value will decrease the highs. Alternatively, lessen the value to bring more highs in (.15uf, .1 uf)
C4	Raise value for more bass	.1, .22, .44, .1 uf – works in conjunction with # 6 resistor
D1, D2	Clipping diodes	Experiment—it will shape the tone and overdrive considerably!
R13	Gain resistor	Lower value for more gain, and clarity. 2.2k, 1k, works in conjuction with #4.
EXTRA		
R1	10K-22K	Adds volume and lows.
C5	.47uf and 1k resistor connected in series	Reduces the mids quite a bit.


D1, D2
C5
C3
C4
R12
R13
R1
GAIN
TONE
4558D
JRC
223J
473J



ROCKTRON SONIC GLORY OVERDRIVE
(C) 2006 BRIAN WAMPLER, INDYGUITARIST.COM

VooDoo Lab Sparkle Drive

BSM (Brent Mason) MOD

Location	Mod value
R4	1K RESISTOR
C4	.22UF x 2 in parallel CAP
R5	10K RES
D1	1N4001
D2	1n4001 + 1n4001 SERIES
C5	.15 uf or .047 + .1 uf in parallel (results in the same thing)

316 MOD

Location	Mod value
R4	1K RESISTOR
C4	.22UF
R5	10K RESISTOR
D1	LED
D2	LED + 4148 in SERIES

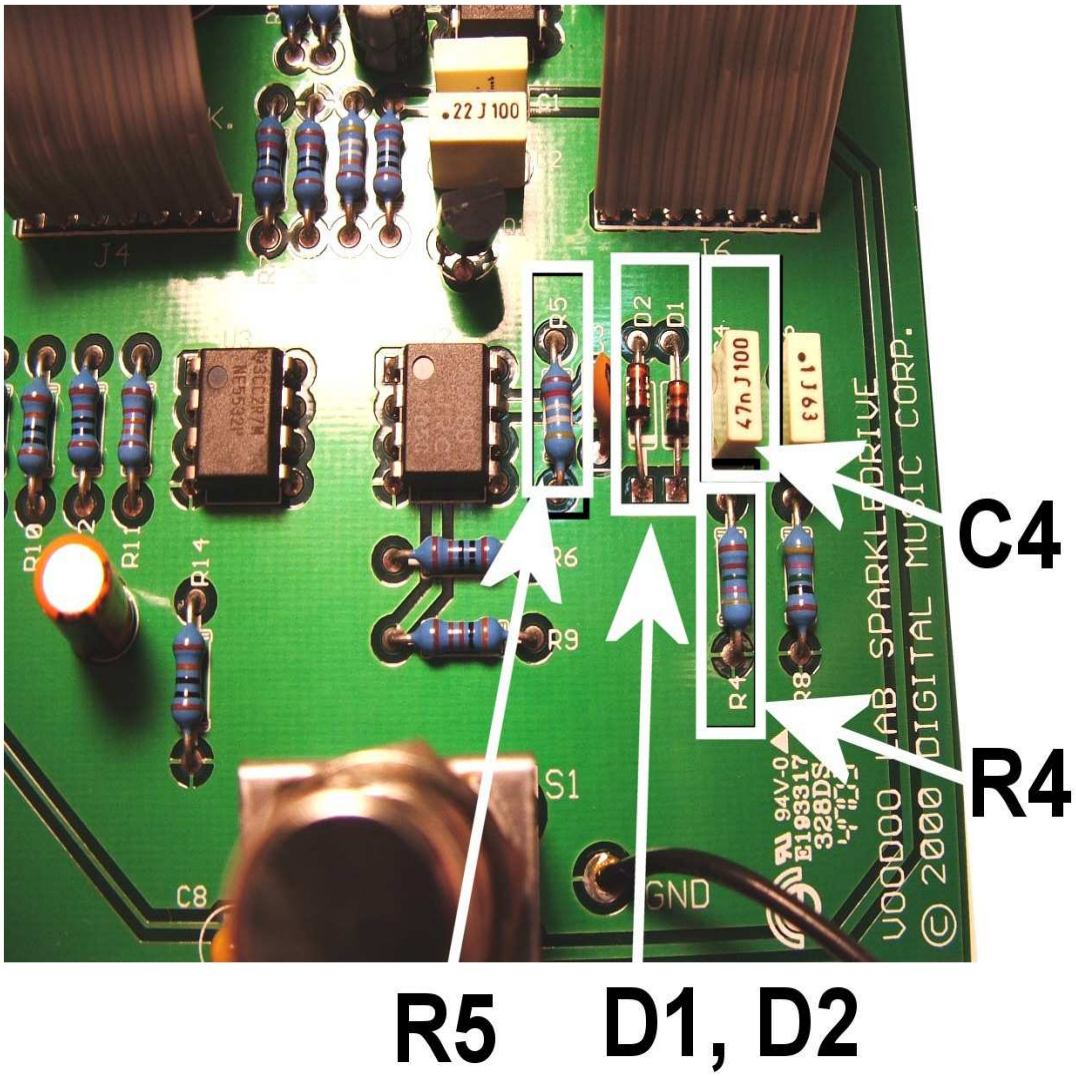
Standard Mod

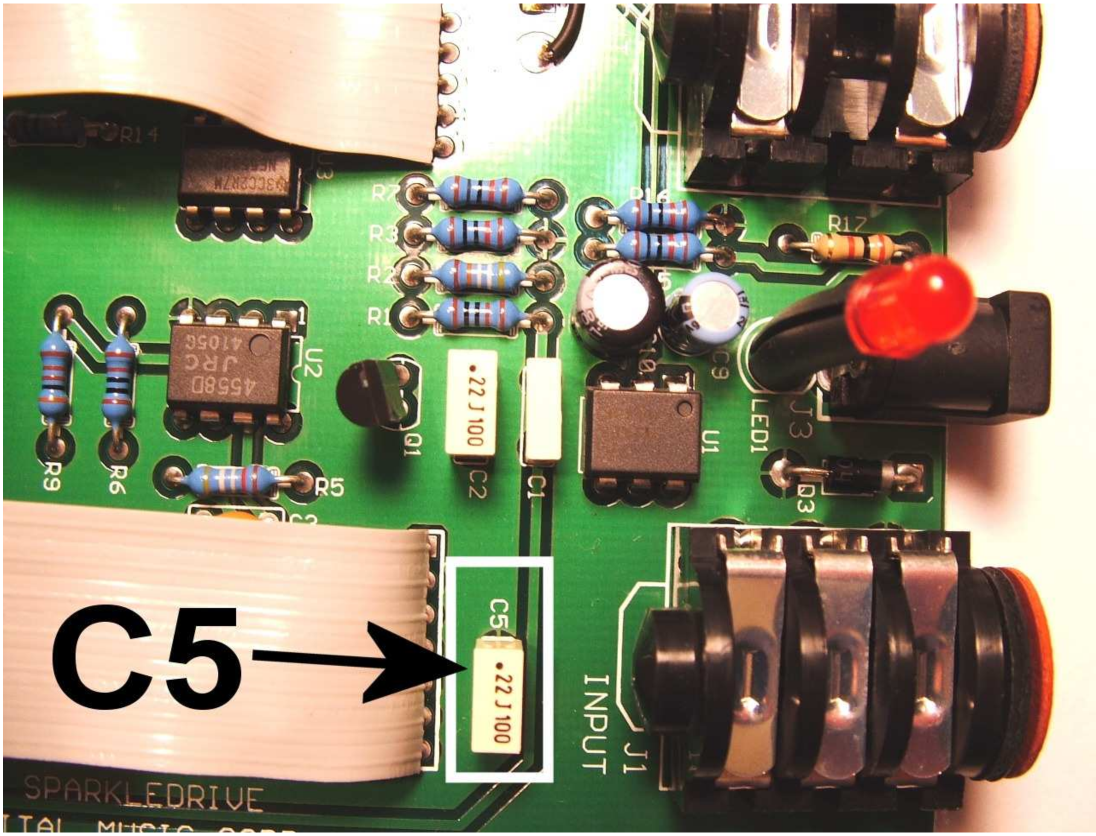
Location	Stock value	Mod value	What it affects
C4	.047 uf	.1 uf	Adds bottom end. For more, go .22 uf
D1	1n4148	LED & germanium 1n34a in series	Adds fullness, depth, and dynamics
D2	1n4148	1N4001	
R4	4.7k	3.3k	The lower the value, the more distortion available.
R5	51K	22K	Allows the pedal to get much cleaner with the gain knob down low.

Extra's

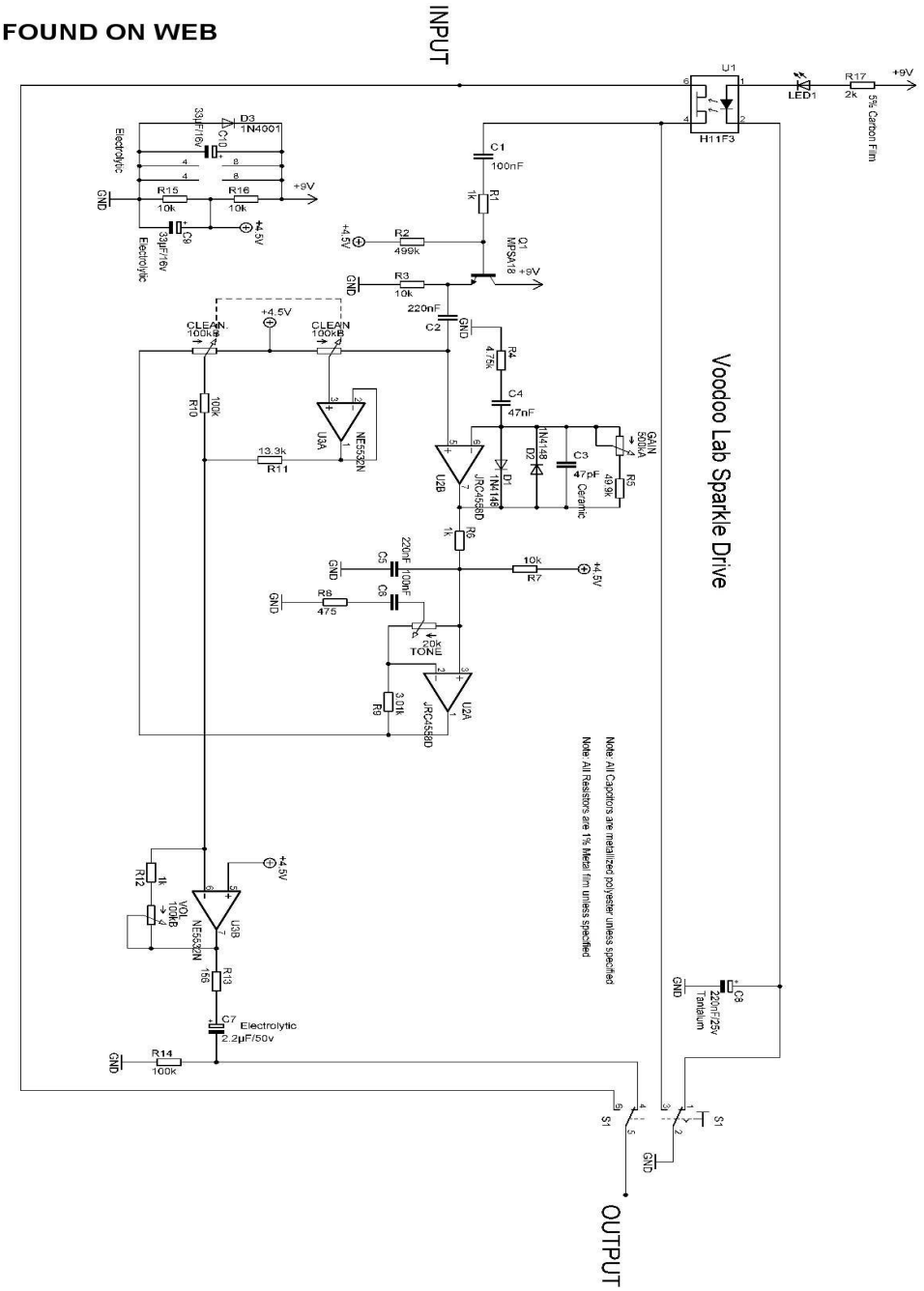
Location	Mod Value	What it affects
R5	10k	Will allow pedal to clean up when gain knob is turned down
C5	Raise value - . 44uf, .1 uf	Raising value will decrease the highs. Alternatively, lessen the value to bring more highs in (.15uf, .1 uf)
C4	Raise value for more bass	.1, .22, .44, .1 uf – works in conjunction with # 6 resistor
D1, D2	Clipping diodes	Experiment—it will shape the tone and overdrive considerably!

R4	Gain resistor	Lower value for more gain, and clarity. 2.2k, 1k, works in conjuction with #4.



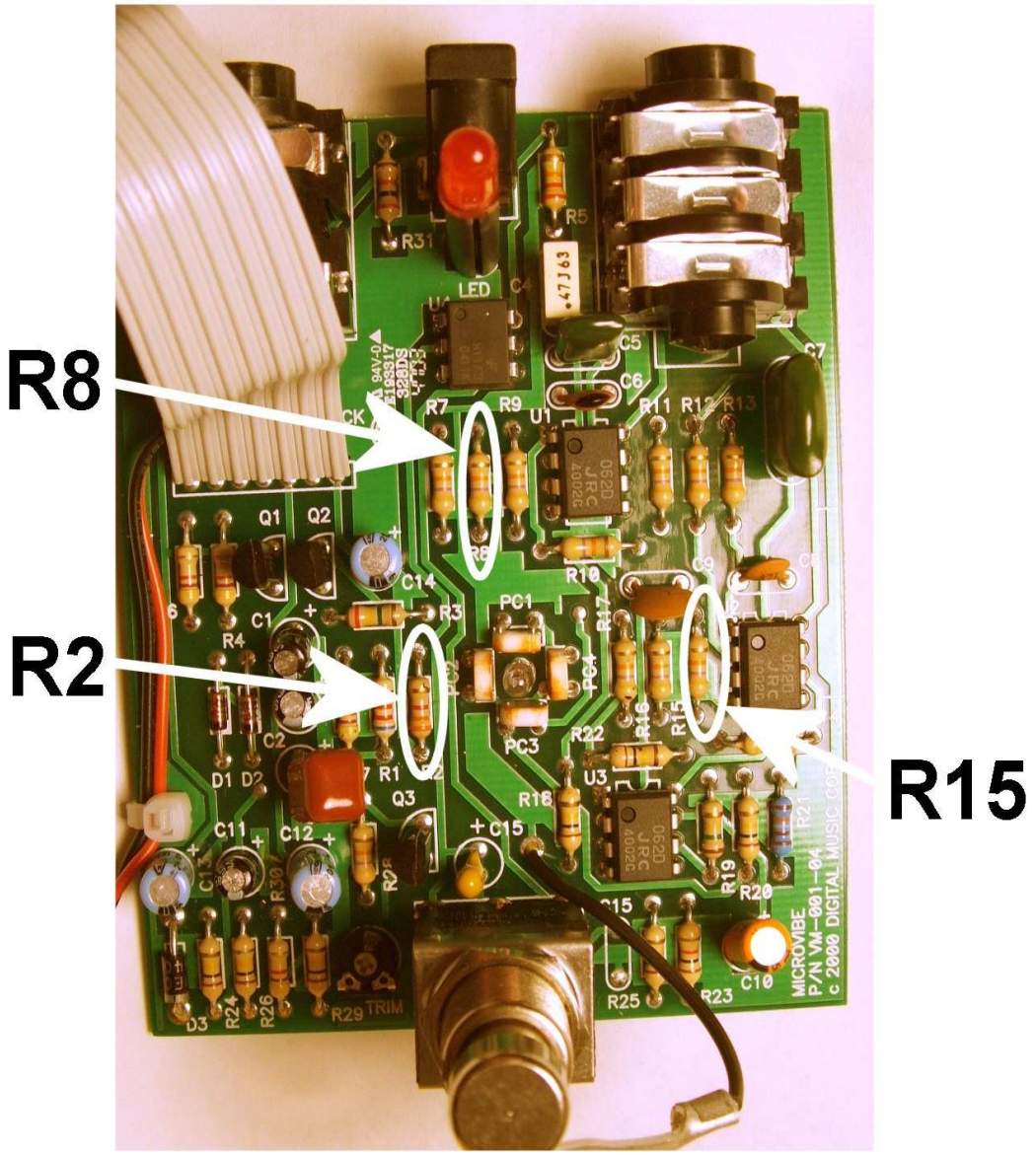

C5

FOUND ON WEB

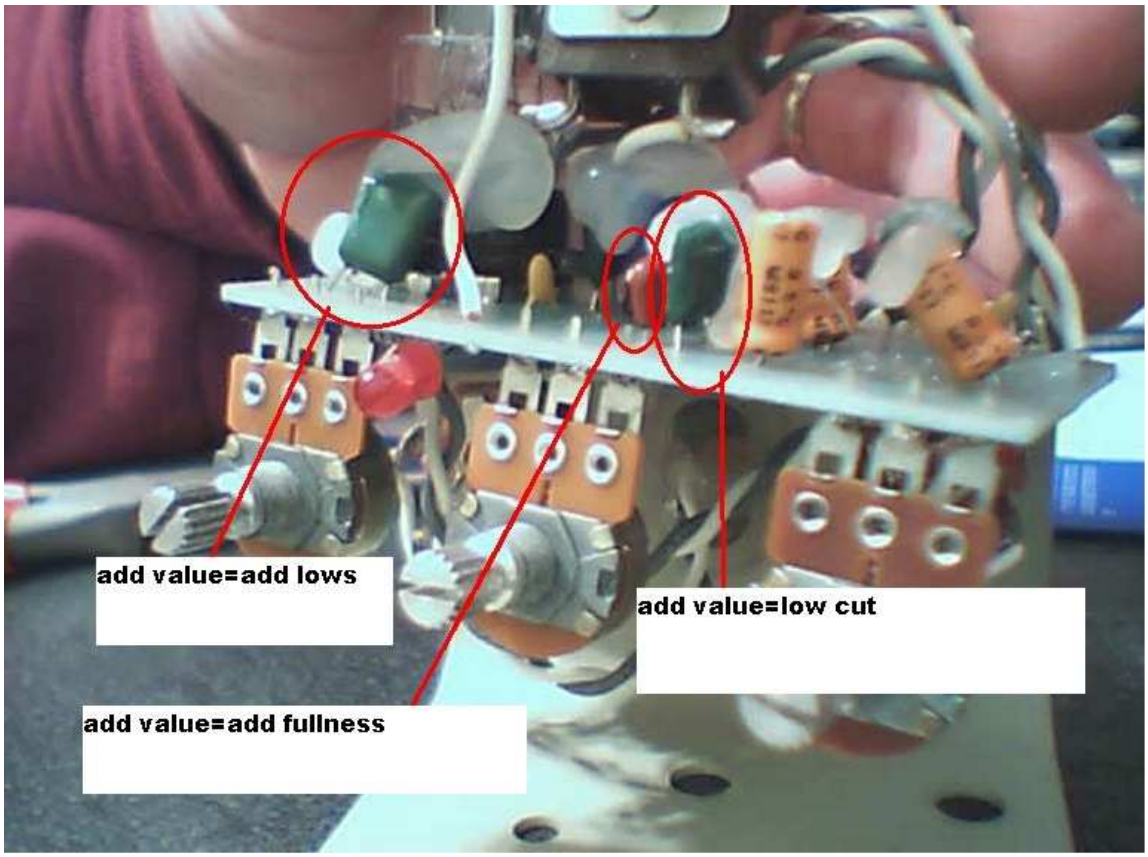

INPUT
OUTPUT
Voodoo Lab Sparkle Drive
U1
H11F3
LED1
R17
2k
5% Carbon Film
+9V
C1
100nF
R1
1k
Q1
NPSA18
R2
499k
R3
10k
220nF
C2
GND
+4.5V
CLEAN
100kB
R10
100k
R11
13.3k
U3A
NE5532N
R4
4.75k
C4
47nF
U2B
JRC4558D
D1
1N4148
D2
1N4148
C3
47pF
Ceramic
GAIN
500kA
R5
49.9k
R6
1k
C5
220nF
100nF
C8
R8
475
R7
10k
20k
TONE
R9
3.01k
U2A
JRC4558D
D3
1N4001
C10
33uF/16v
Electrolytic
R15
10k
R16
10k
C9
33uF/16v
Electrolytic
R12
1k
VOL
100kB
U3B
NE5532N
R13
165
C7
Electrolytic
2.2µF/50v
R14
100k
C6
220nF/25v
Tantalum
S1
Note: All Capacitors are metallized polyester unless specified
Note: All Resistors are 1% Metal film unless specified

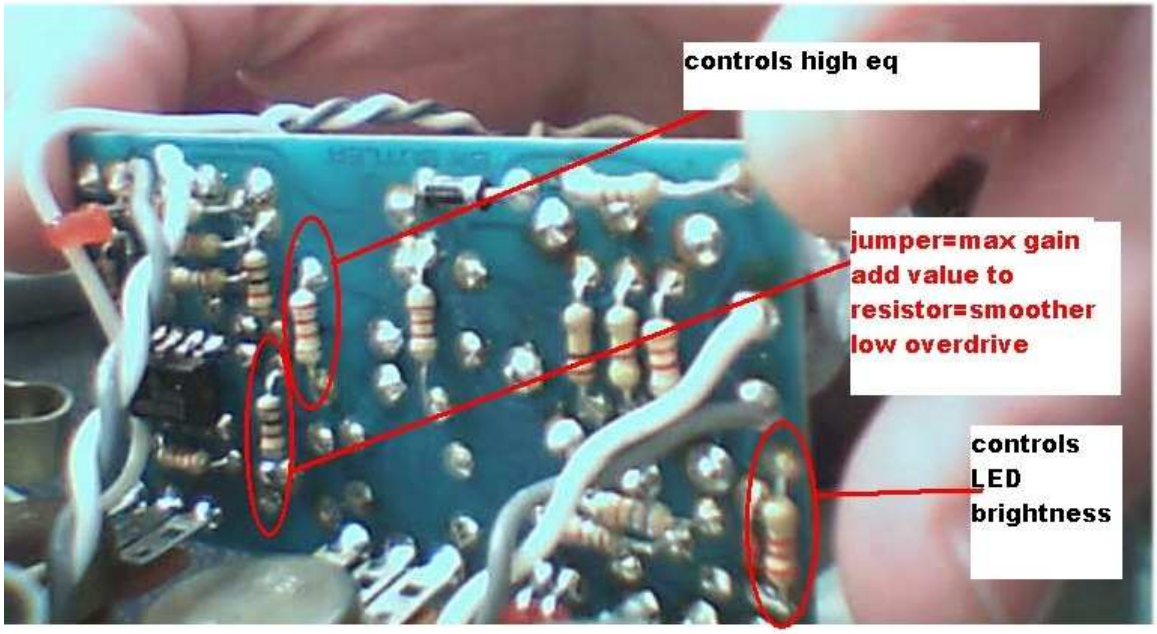
VooDoo Labs Microvibe

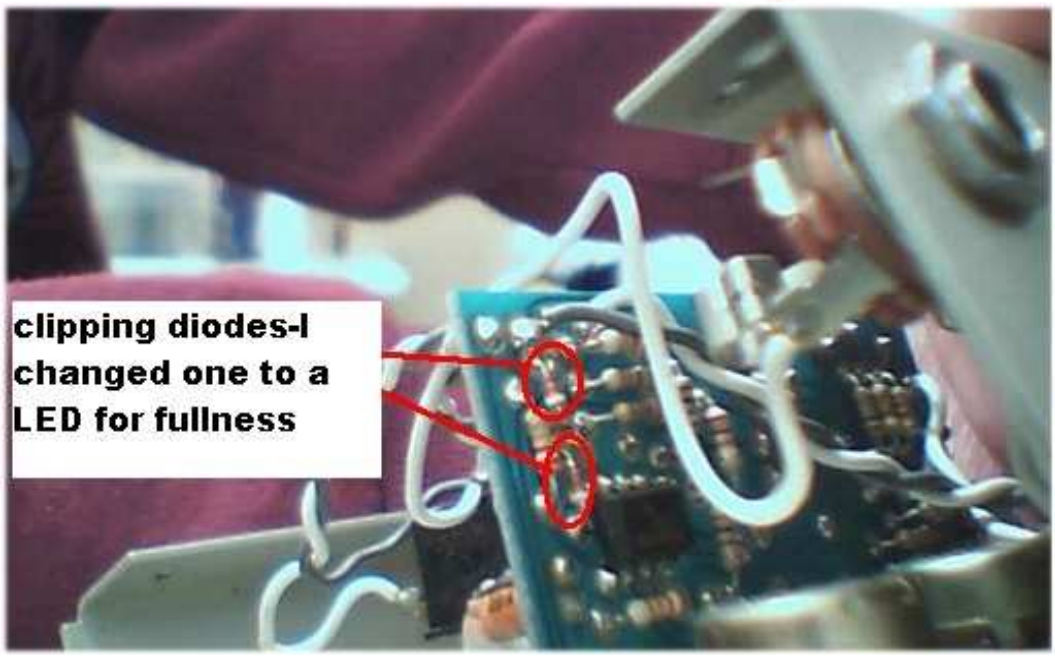
Location	Stock value	Mod value	What it effects
R2	3.3k	Jumper	Adds fullness, increases speed potential
R8	47k	39k	Lower value for more volume if needed
R15	47k	33k	Will give tremolo effect instead of rotating speaker



Tube Driver – 3 knob version





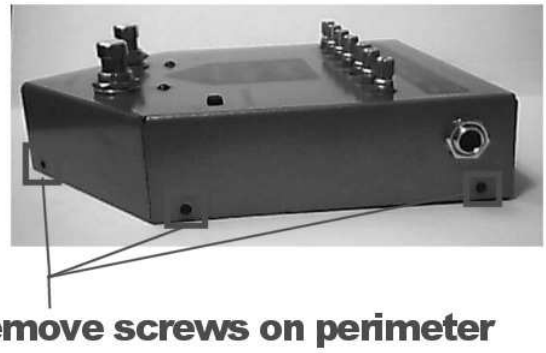


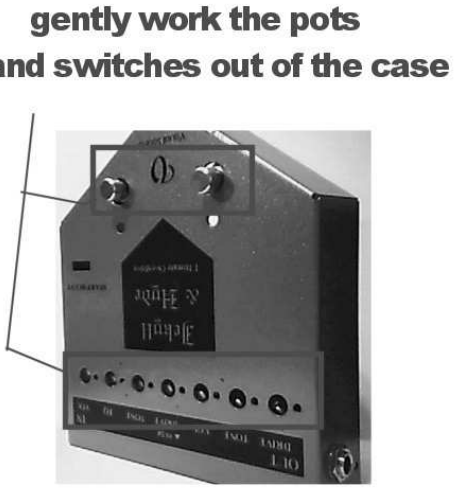
4 knob version of older chandler type tube drivers:
The stock tube drivers come with clipping diodes in the circuit board that generate most of the gain from about 9:00 to 'all the way up'. To get more tube gain, there is a 22uf cap wired the left side of the tube (when your looking at the tube itself). remove the 22uf and replace with a 47uf.

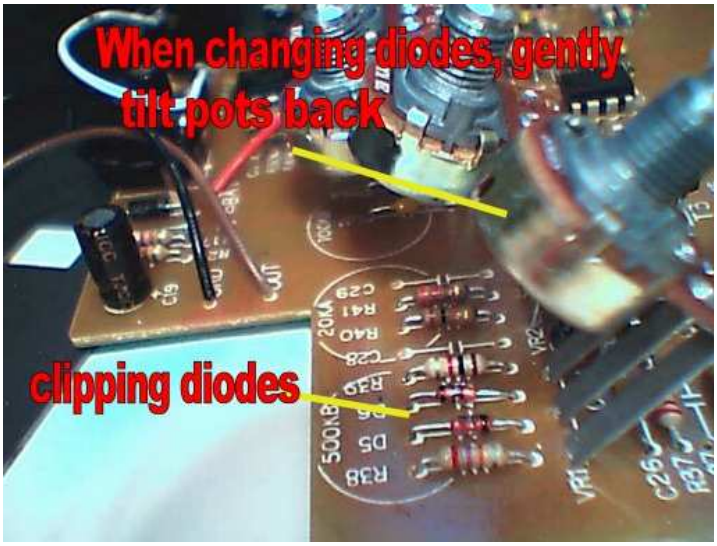
More tube gain instantly, and when you max the gain knob-it has an UNREAL amount of distortion.

replace the mediocre stock 12AX7 with a 12ax7 from http://www.eurotubes.com - Tell Bob I sent ya!

Visual Sound Quick How-to Guide





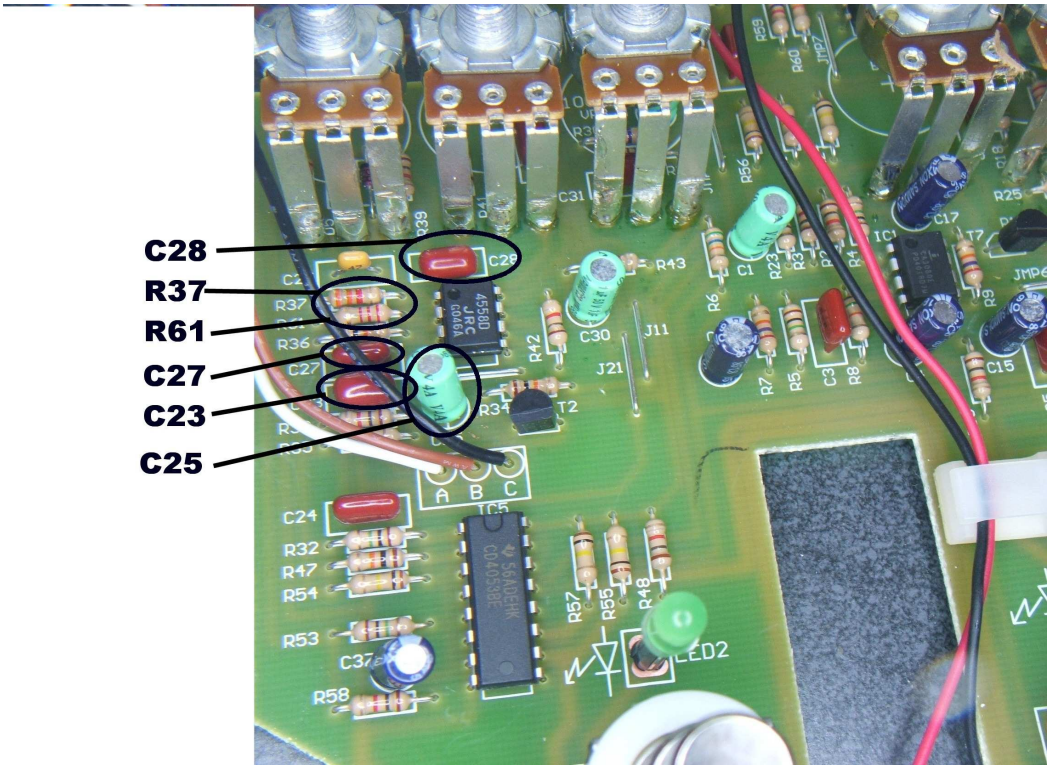


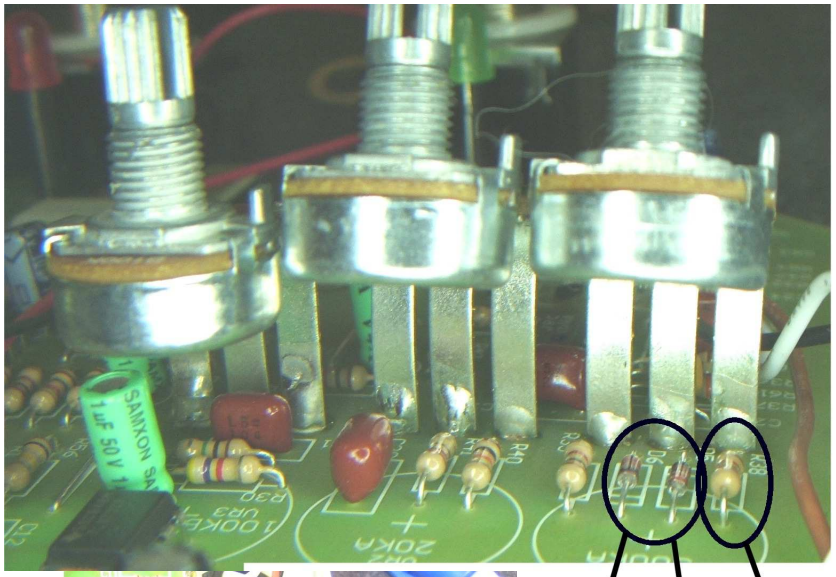
Note:
If your pedal looks like this, these modification do not apply:

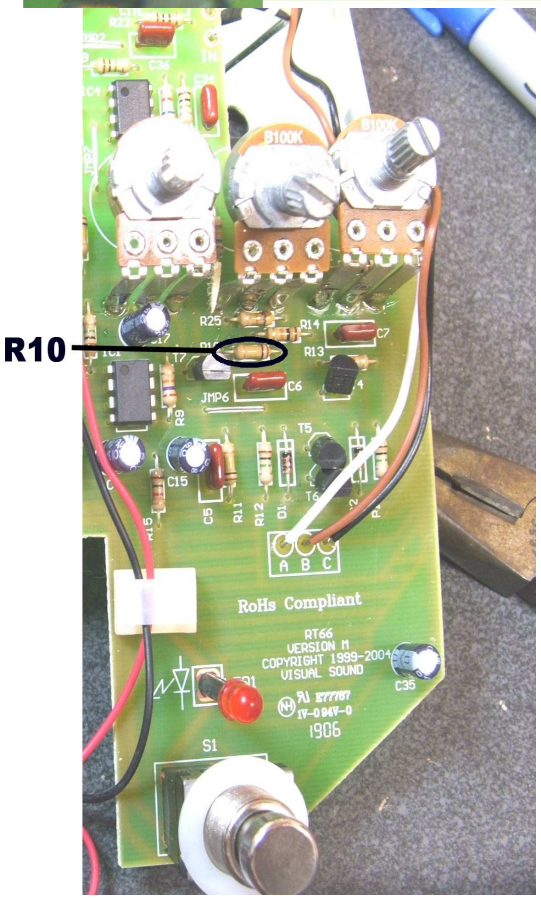
Route 66

Location	Stock value	Mod value	What it effects
Overdrive side:			
C28	.22 uf elec cap	.15 uf film cap	Makes the pedal have less mids
C25	1 uf elec cap	1 uf film cap	Clearer, more hi-fi tone
C10 (may be marked incorrectly, but see picture below for location	1 uf elec cap	1 uf film cap	
D5	4148's	1n4001	Makes the tone louder and fuller
D6	4148	1n4148 + 1n4148 in series	
R38	33k	4.7k	Allows the pedal to clean up better
Compression side:			
C23	.22 uf elec cap	.22 uf film cap	Clearer, more hi-fi tone
R10	100k	220k trim pot	Change the resistor to a 220k trim pot (lugs 1 and 2) to adjust the attack on the compressor.

Circuit explanation:
Basically, the route 66 is a tubescreamer type circuit, combined with a ross type compression circuit with a tone control that is similar to the tubescreamer tone control.

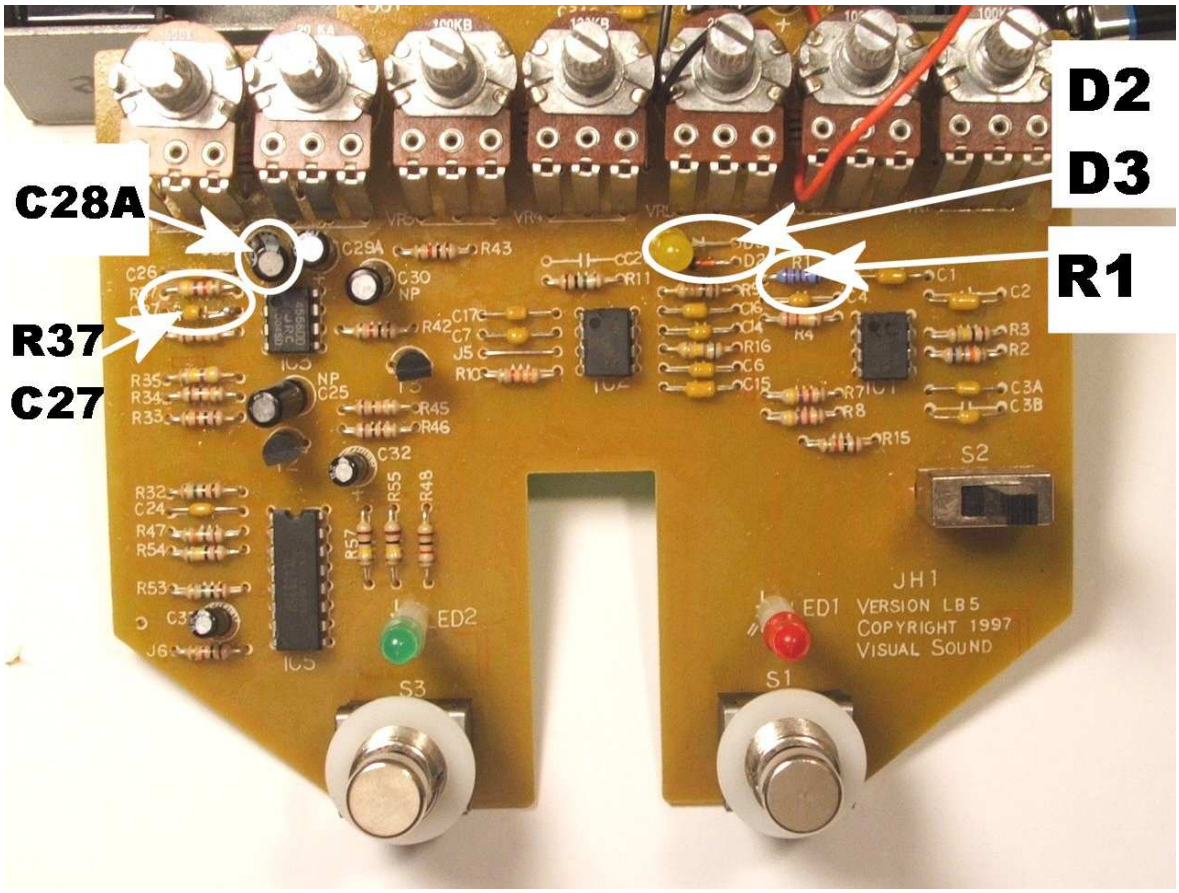

C28
R37
R61
C27
C23
C25
C24
R32
R47
R54
R53
C37
R58
IC5
R57
R55
R48
LED2
R43
C30
J11
J21
R42
T2
R34
A
B
C

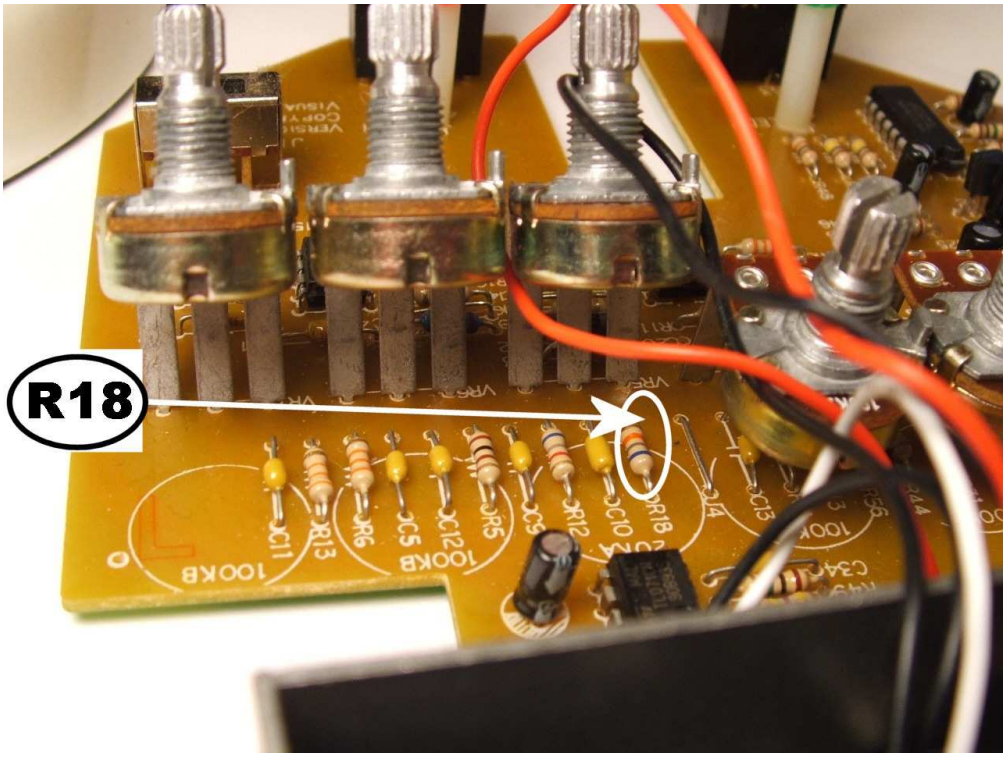

D5
D6
R38

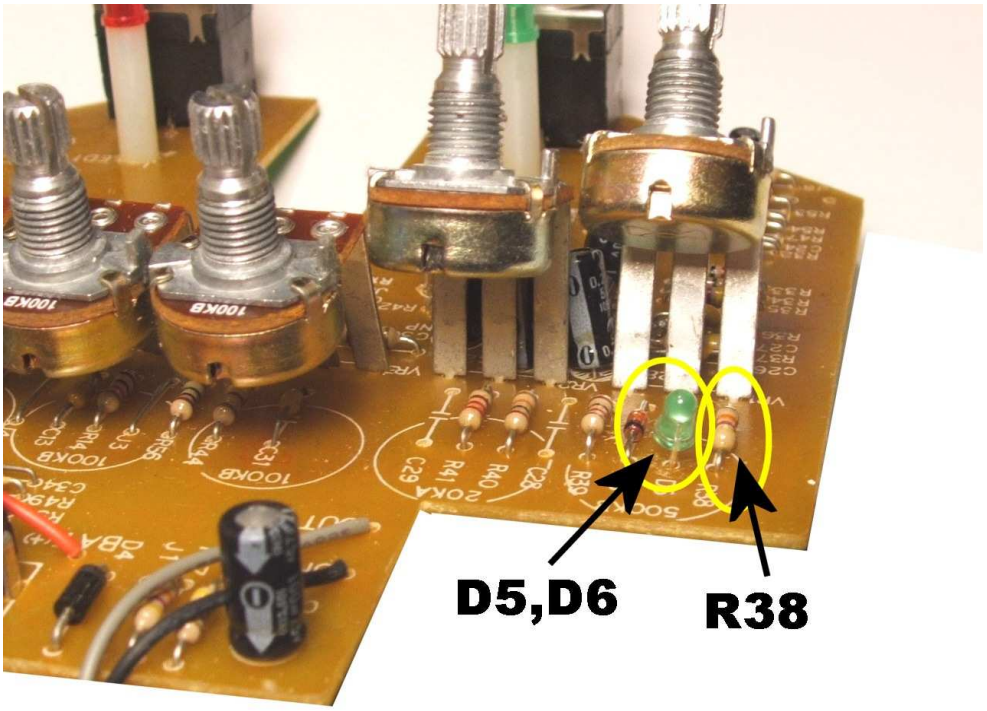

R10
B100K
R25
R14
R13
C7
C6
JMP6
T5
C15
R11
R12
A B C
RoHs Compliant
RT66
VERSION M
COPYRIGHT 1999-2004
VISUAL SOUND
C35
S1

Jekyll & hyde (gray box version) mod

Location	Mod value	Part
Jekyll		
D5	1n4001	
D6	4148 + 1n4148 in series	
C27	.22uf or .44uf for more bass	The bigger the capacitor, the more bass is added to the overdrive side
R37	1k	Adds more gain potential, and adds clarity
R38	10k	Adds ability to be much cleaner when gain knob is turned down
C28a	.15uf	Adds fullness, less mid hump
Hyde		
R18	33k, or 22k	Lowers bass boominess
R1-stock 47k (optional)	1k-22k?	Lower value—adds mids
D3	1n4001 +1n4001 in series	


D2
D3
R1
C28A
R37
C27
C29A
R43
C30
NP
R42
C17
C7
J5
R10
C2
R11
C1
C2
R3
R2
C3A
C3B
R15
S2
R35
R34
R33
NP
C25
R45
R46
C32
R32
C24
R47
R54
R53
R57
R55
R48
ED2
ED1
JH1
VERSION LB5
COPYRIGHT 1997
VISUAL SOUND
S3
S1


R18
100KB
100KB



Red Version (newer version)next page.

Jekyll & hyde (Red Box version) mod

Location	Mod value
Jekyll	
D5	1n4001
D6	1n4001 + 1n4001 in series
C27 (option a: sub for R61)	.4 uf
R37 (option a: sub for C23)	1k
C28	.15 uf
R38	10k
Hyde	
R12	4.7k
IC2 and IC3	Change to a JRC4580 or LM1458
C5	Optional: Change the mid contour frequency by changing C5 to a .0015 or .002uf cap
C3b	330pf or for less highs 500pf

If you want to lower maximum volume (it's a loud pedal!), here is what Bob Weil of Visual Sound suggests:

The easiest way to lower the maximum volume on the new J&H is as follows:
For Jekyll, lower R21 from 6.8k to about 5.6k
For Hyde, raise R2 from 22k to about 47k.

All the best,
Bob Weil
Visual Sound LLC

Vox 847 wah

Location	Stock value	Mod value	What it effects
A	33k resistor	47k, 68k, 100k, If you use a 100k pot, you can custom tailor the 'vocal' effect *	Gives a cool 'vocal' wah type effect
B (optional)	1.5k resistor	2k, or 2.2k resistor	Controls amount of midrange present
C (optional)	.01 uf	.015 uf cap	Controls the sweep range

*See "how to replace a resistor with a potentiometer elsewhere in this book.

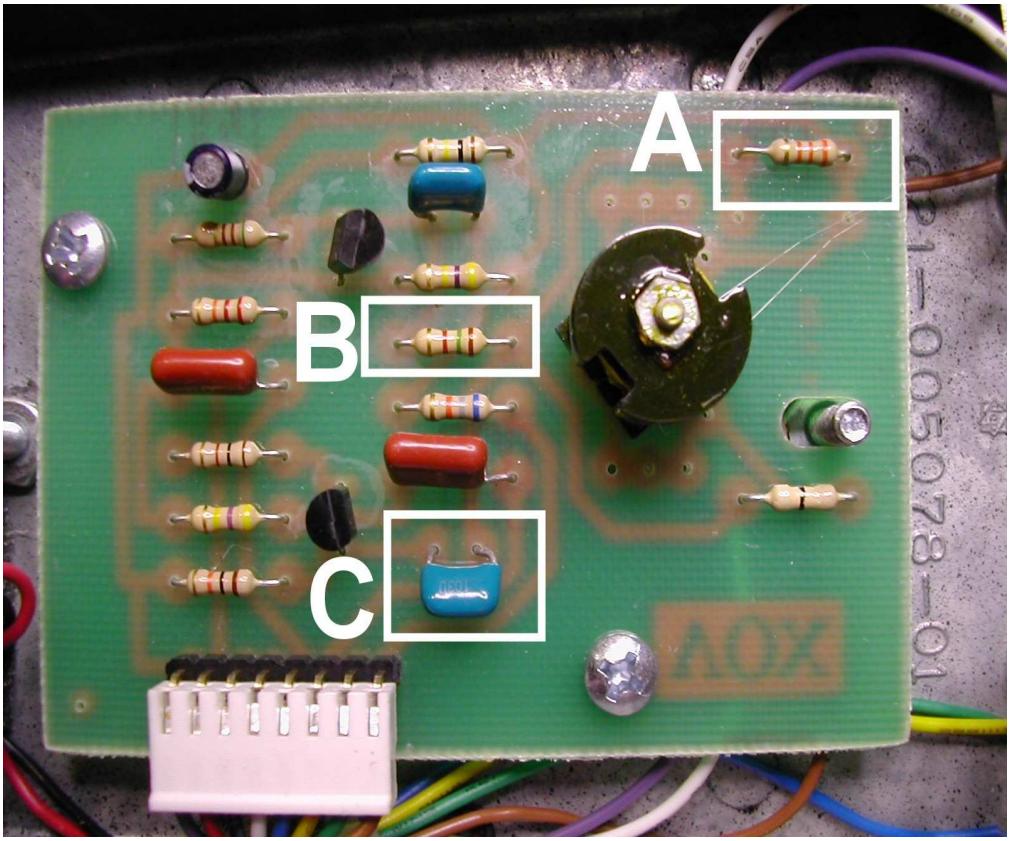
Diagram for '60's-'80's Vox, Crybaby, Dunlop: http://www.fulltone.com/vox6080.html

Text for '60's-'80's Vox, Crybaby,Dunlop: http://www.fulltone.com/vox6080copy.html

Diagram for Reissue Vox V847: http://www.fulltone.com/v847.html

Text for Reissue Vox V847: http://www.fulltone.com/V847copy.html

70's/80's Thomas/Dunlop wah: http://www.fulltone.com/ThomasCrybaby.jpg


A
B
C

H & K Warp factor

"Fat tone" Mod

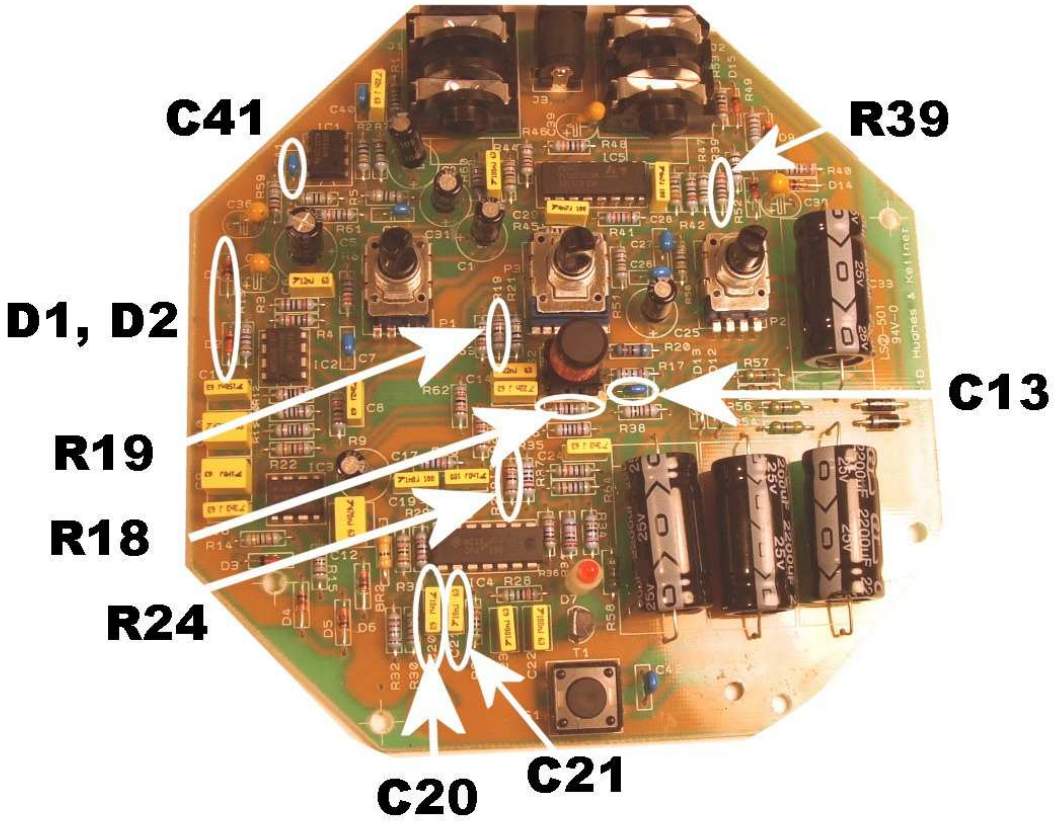
Location	Stock value	Mod value	What it effects
D1	1n4148	1n4001	Much warmer, better dynamically. Responds much better.
D2	1n4148	LED	
R39		ADD 1uf in parallel with stock resistor	Adds juicy midrange
R19	120k	JUMPER	Adds high mids around 1k or 1.5k hz or so. Connect a mini-pot to use as a mid adjustment.
R18	47k	10k	Adds more mids…almost into tubescreamer territory. Connect a 47k mini-pot (trimmer) and you will have a mid control.
R24	18k	10k, 4.7k, 2.2k	(Lower value for more highs)
C13	.0068UF	.22uf (optional)	Adds low bass

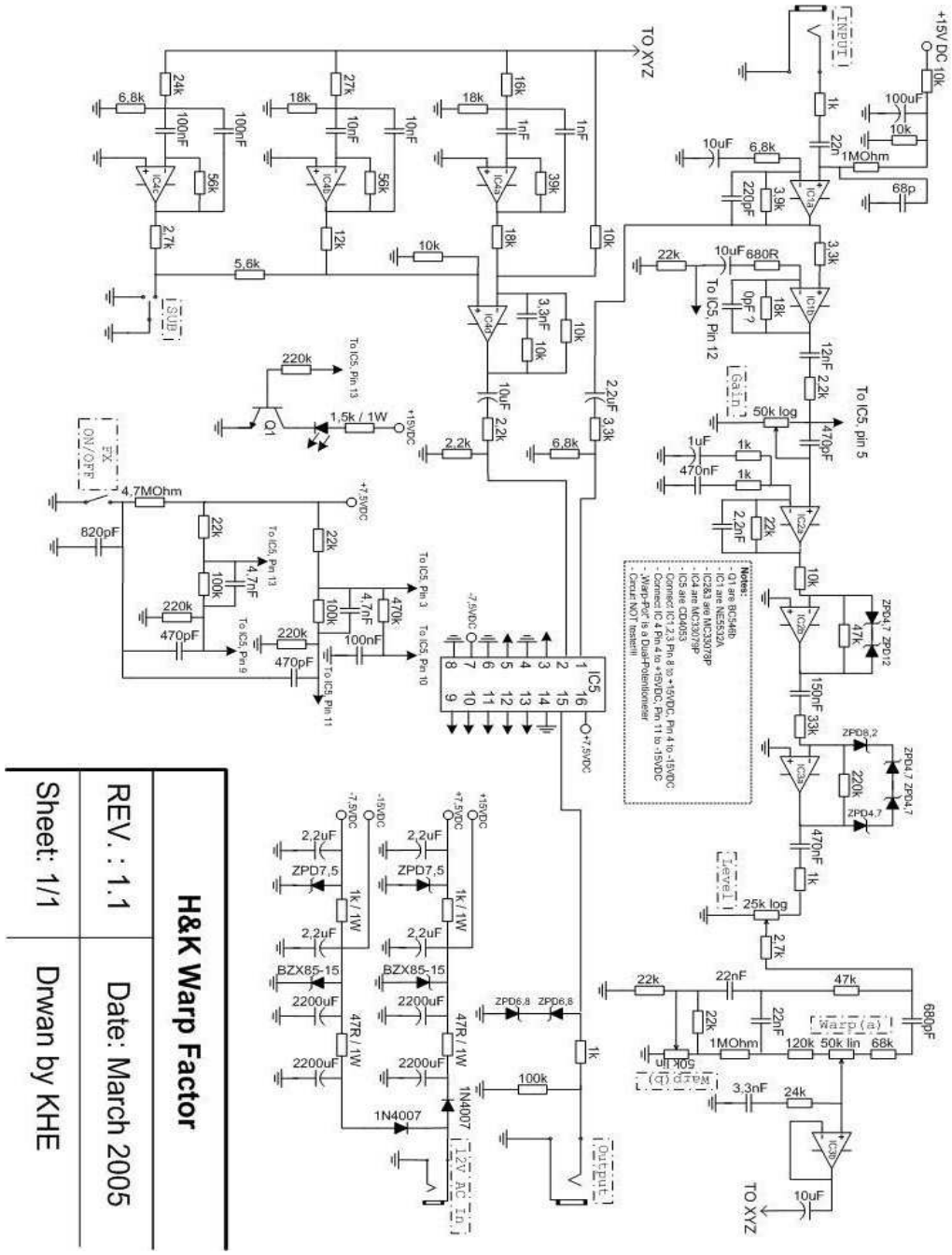
H & K Warp factor 'Rollins Mod'

Location	Stock value	Mod value	What it effects
D1	1n4148	1n4001	Much warmer, better dynamically. Responds much better.
D2	1n4148	LED	
C20	.01uf	.047uf	Raise value=more mids/low mids
C41	.22uf	Remove	Adds a little bit more highs

OPTIONS:

Location	Stock value	Mod value	What it effects
Options:			
R35		1k resistor	Adds a ton of volume, and headroom.
C20	.01uf	.047/.1/.22/.47 uf	Raise value=more mids/low mids
C21	.01uf	047/.1/.22/.47 uf	
C41	.22uf	.15 / .1 / .047 / .01 uf	Subtract value, will add clarity, and gain.
R18		10k	Adds more mids…almost into tubescreamer territory


C41
R39
D1, D2
C13
R19
R18
R24
C20
C21


H&K Warp Factor
REV. : 1.1
Date: March 2005
Sheet: 1/1
Drwan by KHE

In Closing…

Building and modifying effects is a seriously addicting hobby…one that many enjoy for years and years. It definitely is a lifetime journey. This is by means NOT everything that can be done, but it should be the guide to help you on your journey to build some of the best effects you've ever heard. Please realize that every pedal will sound a little different, even if they are the exact same circuit. Every part has a + or – tolerance, and when added up as a whole, one circuit can sound much better compared to the other. This is very evident in the earlier fuzz pedals, tubescreamers, and most of the old vintage equipment.

The 'key' to optimal happiness and enjoyment in this hobby is just the desire and willingness to experiment – there are many times when you just 'try' this or that just to 'see what happens'. This is by far the best way to learn. Getting an electronics engineering degree won't do this totally, but it will tell you the theories behind why it does or does not work. Mike Fuller of Fulltone is a prime example of this. Not schooled in electronics originally, he built his first pedals by tweaking them by ear (much like I did). Mike has an AMAZING sense of tone and an excellent ear. As a result, he's built one of the prime 'boutique' pedal companies around today.

A great sense of marketing helped him out a bit as well. ;)

I hope this book has inspired you to open up your guitar pedals, and start tinkering – there is SERIOUS tone hiding in there!! :)

I must insist, however, that you follow each step in this book very carefully – and do NOT use this guide to work on amplifiers, or multieffects, or ANYTHING except for the pedals I have listed in this book. After you become more familiar with electronics and working on pedals, you may want to try your hand at building your own. For that I recommend you check out our other books, "How to build effect pedals...(for beginners)", and "How to build effect pedals...(for advanced DIY'ers.)" Also, if you want to learn how to tweak your guitar amp, you may be interested in our new DIY amp modification series... see www.DIYampmods.htm for more info.

Thanks for your interest in the DIY effect pedal scene – keep in touch with me and let me know how you are coming along! : -)

Take care,
Brian Wampler
Author, and avid stompbox nut!!

Contact Information

http://www.guitartone.net – DIY modifications and "how to build effects" books

http://www.ToneClonePedals.com – Build your own pedal kits and instructions

http://www.indyguitarist.com/ - if you would rather not do your own mods, check out http://www.indyguitarist.com/ --indyguitarist.com developed the mods originally, and is the only company with permission to do the mods under the "IndyGuitarist" name at this time. You MAY, however, perform modifications designated as 'similar to indyguitarist.com,', or 'using guitartone.net templates'.

Email: brian@wamplerpedals.com