

# The Blue Guitar

## Peavey Classic 30 mods: Revisited

### Introduction

It has been a year since I completed the mods on my Peavey Classic 30 described in the previous articles on this site, and I decided it was time to go back inside the amp and simplify things a bit. In adding a switch or pot to a circuit, you always run the risk of adding in noise or capacitance effects from the added cabling, etc. So I figured I ought to take out those switches and controls that I hardly ever use, and streamline the remaining ones. In addition to this article I have also prepared an annotated version of the schematic indicating which parts are to be replaced, along with the type and value of the component. In the annotated schematic, I have colorized the parts or values to be replaced in blue ink. New components or values are drawn in with red ink. In addition I have colorized the labels of caps to be upgraded as follows: orange for Sprague Type 418P Orange Drop caps and purple for silver mica caps.

Perhaps I should briefly summarize those mods that I find to be indispensable. The basic changes to the tone stack and boost circuit are a definite keeper, especially with the revised values spelled out in this article. It is optional whether you want to add in the relay board to connect the boost to the footswitch; I have simplified the design of the relay board, eliminating the alternate value for the bass cap. There are various caps and resistors throughout the circuit that have been replaced with higher quality components and/or different values; I have listed those parts which I find to be critical for a decent sound from the amp in the annotated schematic. Although not mentioned prominently in the original articles, I also recommend "Fenderizing" the inputs, removing the caps and using just a 33k series resistor and a 1M resistor to ground; rewiring the inputs to the specs used in the BF and SF Fenders makes the amp more responsive to a nice set of pickups.

The added bias adjustment pot is an important feature if you want to fine-tune your amp to work with any set of EL84's for the output section. I have simplified the installation of a 1 ohm resistor used to measure the current for all 4 output tubes; rather than cut traces to mount a 5 watt resistor directly on the circuit board you can replace the hinged jumper wire on the very end with a precision 1 ohm 1 or 2 watt resistor.

I personally find the added master volume control to be very useful; by setting the MV down to 4 or 5 there is a considerable reduction of background hum and hiss coming from the speaker which can be important if you are miking the amp. And at lower settings of the MV you can really crank up the preamp without blasting out your neighbors.

I did scrap the OD Tone control, replacing the stock 10k resistor in that circuit with an 8.2k resistor, which removes some of the harshness and "fizziness" from the OD channel, allowing for a better tonal balance with the Normal channel. By eliminating that control and hardwiring the 8.2k resistor on the circuit board I believe that amp is now a bit quieter.

As for the pseudo "Presence Control" in the earlier articles (actually a "variable Negative Feedback Loop control"), I removed that pot and added in a **real** Presence Control borrowed from the circuit for the Classic 50. If you choose to not install the optional Presence Control you may want to try hardwiring in a larger value for the 100k feedback resistor; a 120k or 130k resistor would "liven up" the response of output section a bit. (The revised Presence control circuit is included on the [1999 annotated schematic](#); there is no text file with instructions available at this time.)

I did leave in the Ck switches for V1A and V2B, along with a switch to select between a 0.001uF and 0.01uF coupling cap for C2 after V2A. For the V1A Ck cap, the stock 22uF value allows for a fuller response with plenty of gain, while the alternate 0.68uF value (preferably mylar) has a more midrangy sound great for OD leads. The third choice, 0uF, allows for a cleaner sound with lower gain and is very useful for the clean sounds from the Normal channel. As for the V2B Ck switch the 1uF cap works great in conjunction with the 22uF Ck cap for V1A, while the 22uF cap works great with the 0.68uF Ck cap for V1A. Using a full-sized toggle switch for the C2 coupling cap allows me to select between the 0.001uF value for a cleaner and brighter OD sound more appropriate for blues and the 0.01uF value for a thicker and fuller OD sound for hard rock.

## **An Overview of the essential mods**

Let us proceed through the audio signal path and I will outline the mods which I believe are essential. Starting at the Input Jack I prefer the basic tried-and-true input circuitry of the classic Fender and Marshall amps, rather than the more complicated circuit used by Peavey which squelches the sound of a nice vintage-style pickup. So the stock caps and resistors are scrapped and replaced with a single 1 meg resistor to ground and a 33k series resistor going to Pin #2 of V1. As for V1A, which is the initial gain stage shared by both channels, I like adding in a center-off DPDT mini-toggle switch to select between 3 values for the cathode resistor bypass capacitor (aka "Ck"). The stock 22uF electrolytic cap (aka "e-cap") is the traditional value used by Fender for a very full sound with plenty of gain. The first alternate value I suggest would be a poly cap around 0.68uF which is the traditional value used by Marshall for a more midrangy (or warm) sound. The other alternate value I suggest would be 0 uF (the center-off position of the switch) which has less gain, a flatter frequency response and an increase in the clean headroom. I generally use the 0.68uF or 22uF settings for OD sounds and the 0 uF or 22uF settings for the Clean sounds.

The audio signal leaving the first stage passes through the 0.047uF coupling cap and then branches off to the Normal volume control and the OD Pre gain control through

caps and resistors. The signal going to the Normal channel pot passes through a 470k resistor bypassed with a 0.001uF cap. You can improve the signal going to the Normal channel by replacing the stock 0.001uF cap; my favorites are a 1000pF silver mica cap for a slightly brighter sound or a 0.001uF SBE418P Orange Drop cap for a fuller sound. You can raise the value of the cap a bit to boost the signal from the Normal channel although that will make it distort more when you crank it up (which is not necessarily a bad thing depending on your preferences). To increase the treble response of the Normal channel at lower settings of its volume pot you can add in a "bright" cap across the two ungrounded terminals of the pot. For a subtle treble boost I prefer a very small mica cap such as 22uF or 47uF (the traditional values used by Fender or Marshall of 120pF, 500pF or even 0.001uF will be way too bright in the Classic 30). The signal from the Normal volume pot wiper is then routed to the channel switching circuitry.

It is the 470pF cap going to the OD Pre gain pot that I believe contributes to much of the harshness of the OD channel. If you want a fuller sound from the OD channel you can replace this cap with a silver mica cap between 680pF and 820pF, and optionally bypass it with a resistor of 470k to 1k. The higher value cap will allow more of the lower frequencies through, while the optional resistor will increase the overall gain and distortion of the OD channel along with boosting the low frequencies even more. If you are looking for maximum distortion you can try a 470k resistor bypassed with a 1000pF cap (as used on the Normal channel). The audio signal is then shaped a bit by a 470pF cap and 2.2M resistor to ground immediately before the grid of V2A. As other mods described in this article tend to remove most of the harshness of the OD channel, that 470pF cap can be replaced with a smaller value such as a 390pF mica cap, or eliminated altogether. The 2.2M resistor (part of the grid load for V2A along with the 1M Pre gain pot) can be replaced with a 1M resistor to reduce the gain and distortion of the OD channel a bit.

The audio signal from V2A passes through a 0.047uF coupling cap and through a contour network consisting of a 470pF cap and a 470k resistor. At this point there is a 470k grid load resistor to ground, so the contour network also acts as a voltage divider circuit to reduce the signal going into V2B. The 0.047uF cap (C2) can be replaced with a Sprague Type 418P cap to improve the overall sound of the OD channel. As for the contour network I personally like the sound of a 390pF cap for C1 and a 390k resistor for R5 in the Classic 30; you get a stronger signal going to the grid of V2B, with not quite as much highs as the stock 470pF/470k combination.

The second stage used in the OD mode (V2B) uses a stock 22uF Ck cap to bypass the 1.5k cathode resistor (aka "Rk"). If you are looking for cleaner or brighter sounds from the OD channel as an option, I'd suggest adding in a 2 position DPDT mini-toggle switch to select between the stock value of 22uF and an alternate value of 1.0uF. I generally use the 1.0uF Ck cap for V2B only when the Ck for V1A is set to 22uF; when used with a 0.68uF Ck cap for V1A the resulting tone is a bit too bright. Electronics theory tells us that the Ck cap in conjunction with the Rk resistor creates a high pass filter for the particular gain stage. The cutoff frequency for a 22uF cap is much lower

than for a 1.0uF or 0.68uF. I believe that by staggering the different hp filters for the various gain stages a more complex OD sound can be created in a preamp than if the same value of Ck is used for all of the stages.

Getting back to the path of the audio signal through the OD channel, the 0.022uF coupling cap for V2B (C5) is preceded by a 1M resistor which trims back the gain of the OD channel substantially. The signal then goes to the 10kA Post gain control, which is bypassed with a 10k series resistor R13 leading to a 0.015uF cap to ground (C16). This cap and resistor is like a treble-cut tone control on a guitar. Replacing the 10k resistor with a lower value such as 8.2k shaves off some of the harshness from the OD channel. Incidentally, the 10k value of the OD post gain pot seems very low for a tube amp circuit. I believe that Peavey used a 10k pot there to further attenuate the signal from the OD channel, possibly bleeding to ground much of the character of the OD channel gain stages. In the Tweed Bassman mod for the Classic 50, I replaced the stock 10kA pot with a small case 500k pot (commonly used on inexpensive imported guitars). Although I haven't tried it in the Classic 30, it might be an interesting experiment to replace the 10kA post gain pot with a 100kA pot. It would increase the overall gain of the OD channel a lot so the circuit would require additional "tweaking".

After the OD post gain pot the signal goes to the channel switching relay and we rejoin the audio signal from the Normal channel here. After the relay the signal branches down to the ss reverb circuit through a 220k resistor, while a 150k resistor goes to the grid of V1B, which is where the signal from the reverb circuit is mixed back in.

[To be continued!]

Good luck!

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<http://www.blueguitar.org/>

### **Reference materials:**

**Peavey Classic 30 schematic:**

<http://www.blueguitar.org/c30schem.gif> (115k)

**Peavey Classic 30 layout drawing:**

<http://www.blueguitar.org/c30layg1.jpg> (707k)

**Peavey Classic 30 annotated schematic (1998 mods):**

<http://www.blueguitar.org/c30scmod.gif> (143k)

**Peavey Classic 30 annotated schematic (1999 mods):**

<http://www.blueguitar.org/c30schmd.pdf> (171k)

**Peavey Classic 30 collection of 1998 articles:**

[http://www.blueguitar.org/c30\\_mods.pdf](http://www.blueguitar.org/c30_mods.pdf) (803k)

**Peavey Classic 30 revised Boost switch relay board mod:**

<http://www.blueguitar.org/c30rlybd.pdf> (539k)