

The Blue Guitar

Cool Mod for the Normal Channel of a BF/SF Reverb Amp

Introduction

The circuits contained in these drawings are based on several amp designs going back to the 50's. The treble and bass controls in the normal "Rock" mode are similar to the Fender 6G4 Super amp, with a few minor component changes. The mid control is not unlike the treble-cut tone control on a typical guitar, and also shows some similarities to the "Mellow" switch used on the Magnatone M-260-A amp.

In the "Jazz" mode, the treble and bass controls are configured virtually the same as those in the M-260-A, with a few minor changes in component values. As for the Boost switch it is not unlike the tone stack defeat switch used in the early Mesa Boogie Mark I amps.

The [local feedback loop](#) between the plate and grid of the second stage is similar to that used by the Fender 5E8A Twin amp (which uses a 10M resistor and a 0.1uF blocking cap).

So as a tribute to these sources which made great guitar amps in the 50's and 60's I have decided to call this project the "Cool Mod for the Normal Channel". BTW although I have mentioned the "Normal" channel in the title, it could also be used in the Vibrato channel, which might make things easier if your Vibrato channel already has the Mid control. (Even if it doesn't you could move one of the Vibrato pots to the rear panel to free up a space, thus keeping the front panel looking 100% stock.) Depending on your tastes, you could then reroute the Normal channel through the reverb circuit, or leave it stock.

Drawing #1

The first drawing below shows how to reconfigure the basic Normal preamp of a BF Fender amp as a simple version of the "Cool Mod". I selected the AB763 Twin Reverb layout drawing because its Normal channel includes the midrange control.¹

All of the coupling caps I have used in this amp are Sprague Type 418P Orange Drops and the smaller pF caps have generally been silver mica. However, for the Cool preamp, a 1kV ceramic treble cap gives a slightly different sound which is a bit more diffuse, while the mica cap delivers stronger and clearer highs. I could not decide between the two so I added a rear panel switch to select between the two types. (The ceramic sounds better with the Boost switch engaged so if you had to choose between the two varieties, use the 1Kv ceramic cap.)

Drawing #2

The second drawing adds in the Rock/Jazz switch which cuts the bass and low mid frequencies significantly. The thinner sound works great with reverb (which I added to the Normal channel of my amp) and it keeps the low frequencies from slamming the tubes or reverb springs for a much cleaner sound. The Rock/Jazz switch is shown wired on a replacement DPDT slide switch (unlike the original Bright switch which is SPST). The optional Boost switch shown on this drawing was an afterthought and it should be noted that it will not work properly with the Rock/Jazz switch set to the Jazz mode.

Drawing #3

In this drawing I added in a second DPDT switch for the Boost circuit so that it works properly regardless of the setting of the Rock/Jazz switch. While I used a 250kA push-pull pot for the Treble control, a DPDT toggle switch could be used instead.

Conclusions

The "Cool Mod" for the Normal channel is a tribute to some of those great amps from the 50's and 60's and I hope you enjoy working on this project as much as I did.

Here are a few notes on the local feedback loop consisting of the 22M resistor and the 0.05uF/600v blocking cap. I used heat shrink tubing to make up a small encapsulated package that can be easily added to the tube socket. To keep from getting mixed up I used 1/16" red heat shrink tubing on the leg from the cap that is added to the plate pin, and blue for the resistor which is connected to the grid. I then added a piece of tubing large enough to cover the cap and the solder joint between the two components so that it would not short out against the chassis or other components.

I have been using the local feedback loop on many of my other amps, with the cap hooked up to the middle terminal of a center-off double-throw toggle switch. The 22M resistor from the tube grid is connected to one of the outer terminals, which is then connected to the other outer terminal with a 10M resistor. In the middle position the "local feedback loop" is bypassed for stock sounds; with the switch up the 22M resistor from the grid to the switch is selected for a smoother, more filtered sound. With the switch down, the 10M resistor is added in series with the 22M resistor for a total resistance of 32M for a more subtle effect.

Once you have added the Cool preamp to the Normal channel of your BF/SF amp, there are other ideas that you may want to try. This preamp sounds great with reverb so you might want to try rerouting the output from the Normal channel preamp to run it

through the reverb circuitry (check my schematics and articles pages for instructions on adding reverb to both channels).

Good luck!

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The Drawings:

The basic design:

This drawing uses the "Bright" slide switch as a boost which essentially bypasses the tone stack. To keep it simple the Rock/Jazz switch has been omitted.

The advanced design (simple version):

This drawing adds in the Rock/Jazz switch, which is shown wired up on a DPDT slide switch replacing the stock Bright switch. The simple version of the Boost switch included only works properly if the Rock/Jazz switch is set to the Rock mode.

The advanced design (complete version):

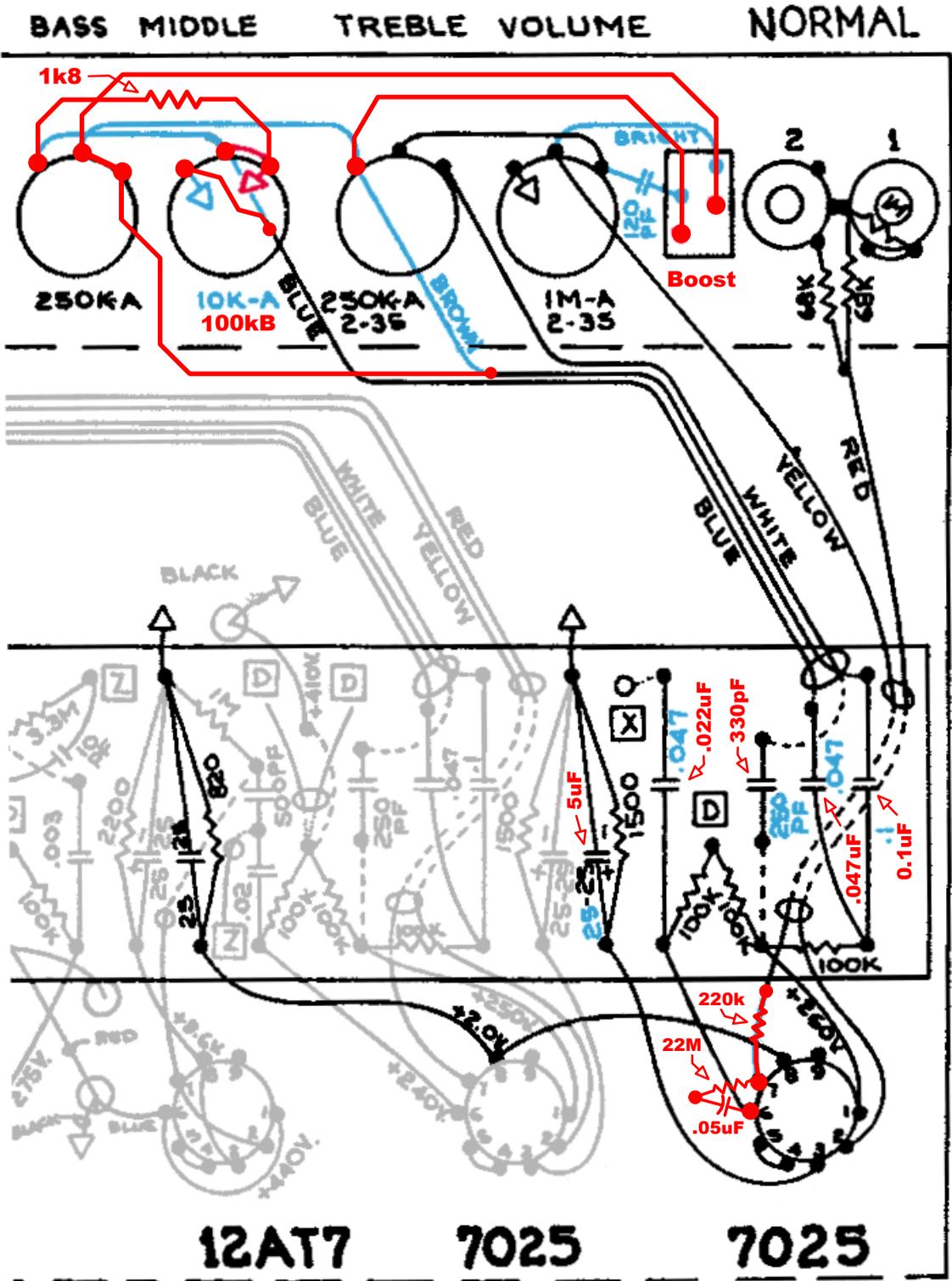
This drawing uses a second DPDT switch on a 250kA push-pull treble pot for the boost circuit and works properly regardless of the setting of the Rock/Jazz switch.

Endnotes:

¹ If your BF/SF amp lacks the Mid control, you can use the #2 input jack hole for the 4th control, although a regular Fender knob will be too close to the #1 jack to be comfortable. I'd suggest removing both stock jacks and saving them in a good place; in wiring up a new jack, be sure to use properly grounded cable and mount a 33k resistor right on the #2 pin of the tube socket to reduce hum and noise. An isolated jack with the shield run to the ground point for the V1A Rk and Ck components will further improve the s/n ratio.

Cool Mod for the Normal Channel

Twin Reverb AB763 layout drawing shown



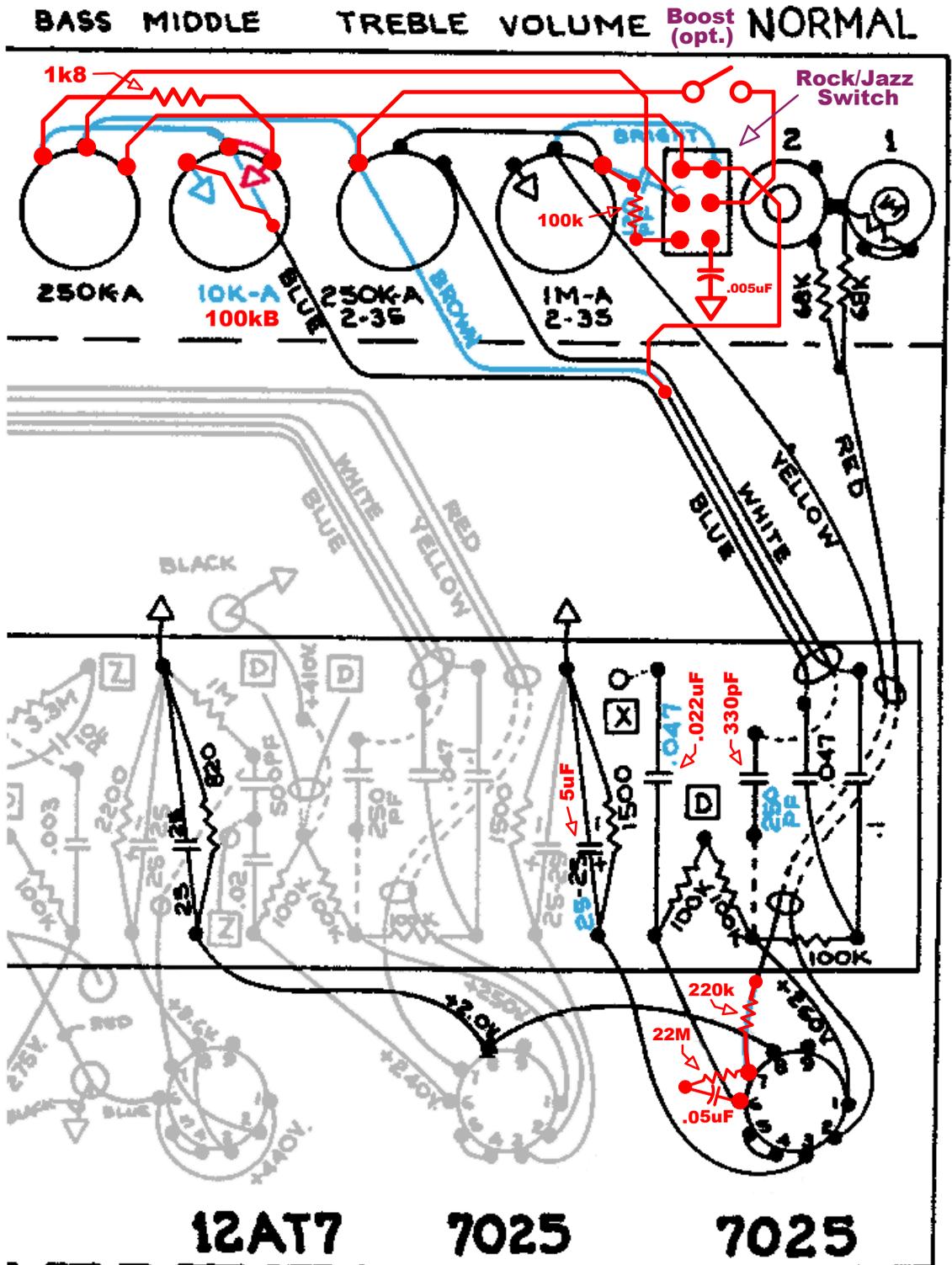
Blue VALUES replaced by values in RED
 Blue COMPONENTS removed from circuit
 Red components added to circuit

Drawing by Steve Ahola
 w/ Basic Boost Circuit

Revised 10/25/99

Cool Mod for the Normal Channel

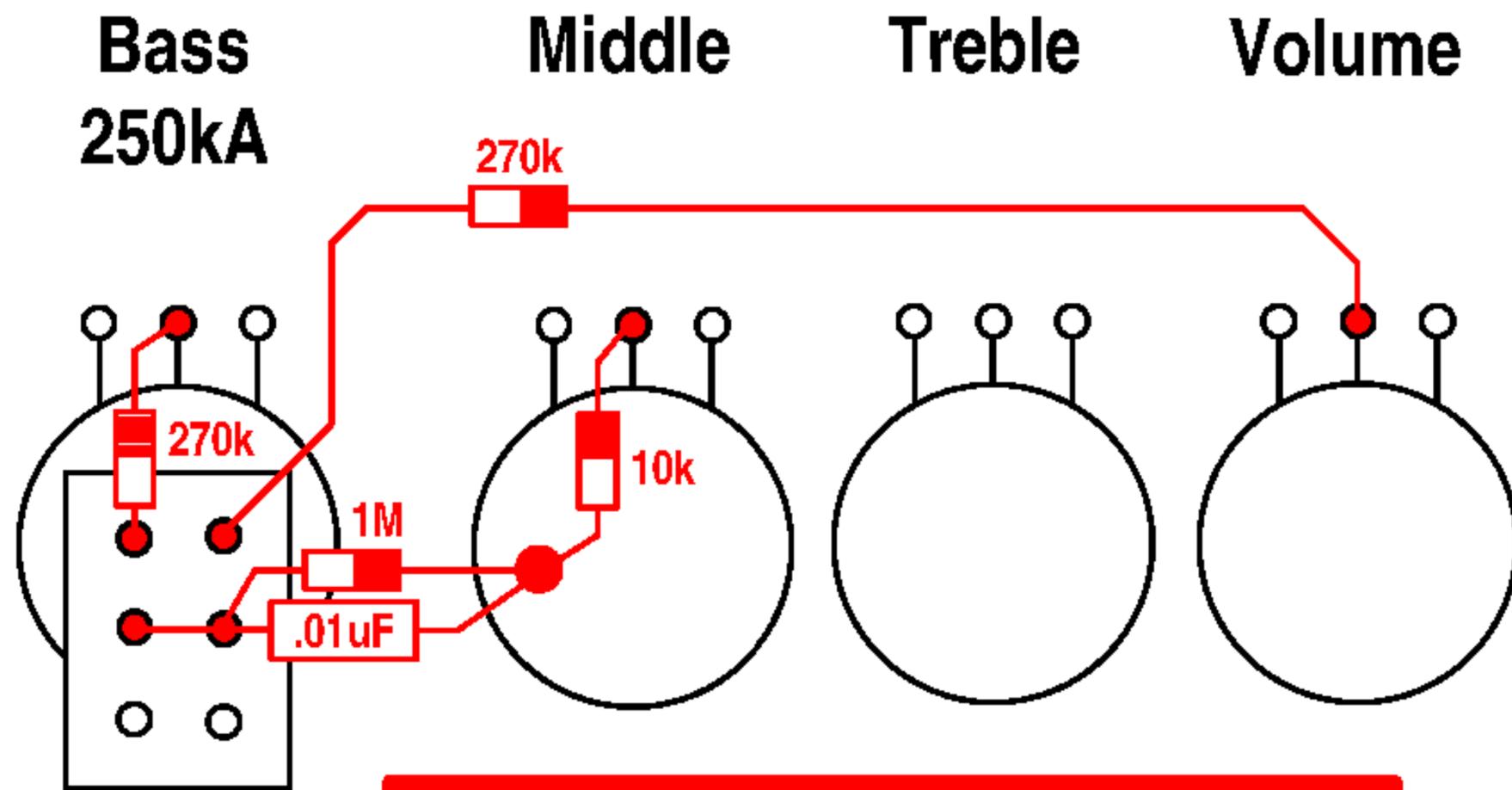
Twin Reverb AB763 layout drawing shown



Blue VALUES replaced by values in RED
 Blue COMPONENTS removed from circuit
 Red components added to circuit

Drawing by Steve Ahola
 with Rock/Jazz Switch
 Revised 10/25/99

Adding Deep Switch To Humble Tone Stack



Red components added
to existing circuitry

From Doward Humble

Revised 02/09/00