Stringed Things

Back to the world of DIY stompboxes

About 25 years ago, the DIY-electronics bug bit me. For several years, I fired up the soldering iron, tried to understand schematics, pulled out my hair when the darned things didn't work, but generally had a blast.

Other hobbies came along, though, and the advancements in commercial stomp boxes took some of the financial benefits out of DIY electronics. However, you shouldn't do DIY stuff unless it's for fun. Unless you are really, really good, you likely aren't going to save any significant amount of money by building your own stompboxes.

However, the bug bit me again recently. It may have started when those old electronic skills helped me resurrect my Cry-Baby wah-wah pedal. I then salvaged an abandoned project and got it to work.

Then, I discovered Tayda Electronics. This company offers a nice selection of PCB boards and instructions for guitar-based stompboxes. They also sell a huge variety of parts at very nice prices.

The Tayda parts are less expensive than the parts I bought 20 years ago – and the value of the dollar is quite a bit less now. Ten metal film resistors for 12.5 cents? I couldn't get one metal film resistor for 12 cent back in the 1990s.

I'm not going to tell you that Tayda is the only company that sells parts at these kind of prices. I haven't done comprehensive research on parts prices. I stumbled across Tayda's site, liked what I saw, and off I went.

Tayda doesn't sell guitar stomp box kits per se; for a given project, they offer a circuit board, on-line instructions, and sell the individual parts that you will need.

Each project's web page lists the parts needed to build the project.. In some cases, there are links to order each part at Tayda's store.

I decided to further wade back into the DIY stomp box world. My DIY skills once were pretty good. (Hey, I built the Craig Anderton Quadrafuzz!) But those skills needed refreshing. A simple, fun kit would be the ticket.

Back in the DIY day, I built the treble booster from the book Electronic Projects for Musicians by DIY guru and general musical electronics genius Craig Anderton. I liked what it did to the sound of my guitar. Or, perhaps the high end of my hearing was starting to go.

Anyway, I thought I would revisit the treble booster idea. I went for the Brian May treble booster. I have May's book about how he and his father built the "Red Special," which to this day is Brian May's no. 1 guitar.

There were numerous references in the book about how May used a treble booster to create his signature sound. The Tayda project sounded like a good bet, so off I went.

I dutifully ordered the PCB board, a bunch of parts, and an enclosure. I eagerly awaited the arrival of the goodies.

I placed the order on a Sunday night. Arrival time was advertised at 7-16 days. The package arrived one week and a day later – Monday. Everything arrived in good order.

The parts all were enclosed in a bag. When I opened up the bag, I discovered the parts were in their own little bags! And labeled, no less!

This will make it much easier to identify the correct parts as well as store the leftovers for future use. I was very impressed with how the order was packaged.

OK, so now it was time to plunge into it. I holed up in my infamous mini-barn/workshop/man cave, turned on the heater and fired up the soldering iron.

Whoops, not so fast! One must survey the project and plan its construction before plunging into it. But that's no fun! Well, anyway, I decided to drill out the enclosure and place the outboard parts before doing any soldering.

The enclosure was an aluminum Hammond 1590B, which appears to be a standard among stomp box enclosures. I printed out the parts placement guide from the on-line instructions and proceeded to plan the drilling.

Carpenters say measure twice, cut once. So, I attempted to do that.

I had an idea of where the input and output jacks should be located, based on the diagram. However, I did get into a bit of a rush and didn't carefully plan the location of the other holes.

I used this handy drill gauge to determine the size of bit to use for the potentiometer. A one-quarter-inch bit was the ticket for this one.

However, I couldn't find my 3/8-inch bit to use for the jack holes. I re-organized my barn recently, and, as you might guess, I can't find anything!

So, how would I create a 3/8-inch hole for the jacks, much less a half-inch hole for the 3PDT switch? The tapered reamer, pictured above with the enclosure, would be the ticket.

However, the reamer is uncomfortable to use. I had to take several breaks during the process of expanding holes from

one-fourth inch to three-eights inch and to one-half inch. I have since bought a 3/8-inch drill bit!

Backing up a bit, here's how the drilling part worked. I am fortunate to have a small drill press. I used a clamp to hold the enclosure in position and drilled the initial holes with the one-fourth-inch bit. As mentioned previously, a tapered reamer finished the job.

In the picture above, the holes are drilled and I have begun test-fitting the parts. I drilled the potentiometer hole in the wrong place, so I drilled another one. I figure that the knob will cover up the mistake! (Hey, this is do-it-yourself stuff!)

So, now we're ready for some soldering! The small size of the board amazed me. The current practice seems to be to directly solder the pots to the board so that the pot(s) serve as the mounting for the board. That requires a small board.

Here's one look at the circuit board after I've soldered in a few resistors. Periodic inspections of your soldering work will save you much grief later.

Here's the project not long before completion. I didn't do a very good job of following the layout, so thing are kind of crammed. I may or may not be able to get a battery in there. However, I probably will run it off of a power adapter most of the time anyway.

Problem spots included the LED . With the 3PDT switch, it should've been possible to active the LED when the circuit was engaged. With a 3PDT switch, you can set it to either run your guitar's signal through a wire and to the output, which leaves the sound unaffected; or click the 3PDT switch again, and sends the signal through the circuit. Those functions take four of the six switches in the 3PDT switch.

A 3PDT switch consists of six open/close switches. When you push the button, one set of switches are closed. Push it again and the other set of switches close.

One of the remaining switches was for the LED. However, after much frustration, I discovered that the individual switch for the LED didn't work. I pushed the 3PDT button to the point I was certain the switches were set to send the effect through LED.

However, some detective work with a multimeter disclosed that the particular switch used for the LED didn't work. It didn't close, which means that the power signal could not connect to the LED.

I tried some experiments with the LED. With a resistor wired in series with the LED, I touched the appropriate end to a lug of the power supply and the other end to ground. It didn't work immediately. I suspect I didn't use the right resistor.

If the wiring of the 3PDT switch sounds complicated, Tayda has produced a PC board to which the switch is soldered. After solder ing it to the switch, you may then attach your wires to the appropriate pad, such as input, output, or positive and negative power, The LED also is connected to this board.

So, no LED "on" light for now. After some final testing came the big moment for a DIY'er. I plugged the guitar into the effect and then plugged the effect to a Mustang I amplifier. I plugged in the power chord.

I hit a chord. Success! It worked. So, now it was time to play with it. I compared the bypassed and effected sounds. The potentiometer increased the volume as the treble increased. It indeed was a biting sound.

Back in the day, I liked using a treble booster before a distortion. I didn't get that chance at the moment, but I will try it later.

So, here are the overall impressions of the Brian May treble booster: the instructions assume some basic knowledge of electronics. The instructions, which are online, are not detailed step-by-step instructions. However, the project is basic, so such instructions may not be necessary.

The board is priced reasonably at $6. As mentioned before, the parts prices are very good. The enclosure cost $4.99, also not a bad deal.

So, if you're looking for a basic DIY stomp box on which to learn skills; or, if you just want another stomp box for the board, then this is for you.