

Blue Boy Overdrive

Owner's Manual



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Introduction

Hi there! Congratulations on purchasing the MI Audio Blue Boy. The Blue Boy is a low/medium gain overdrive pedal which features a standard 3 control format along with 3 internal controls which allow a huge range of customisable tones from one simple package. It is a new design which I have been working on for about 2 years now. It started off as a fairly standard pedal, but over time the design mutated. I've gone through a huge number of prototypes, working on the circuit, component layout, physical casing etc.

Features

Drive Control

The drive control of the Blue Boy controls the amount of gain and overdrive of the pedal. The soft clipping architecture of the overdrive circuit ensures that the original character of the signal still comes through the overdrive. The Blue Boy has a bit more gain up its sleeve compared to a standard overdrive pedal. For comparison, the Blue Boy has 3 times the gain of a typical Ibanez Tube Screamer. At the same time, when turned all the way down, the Blue Boy has less gain than a Tube Screamer turned all the way down. In short, the Blue Boy has a wider gain range than the Tube Screamer.

One of the things that I worked on very hard with this pedal was the matching of the pedal to all types of pickups. A typical 'blues' pedal is generally suited to single-coil pickups. Humbuckers don't tend to fair as well. I worked for quite some time designing a clipping system which would be suitable with humbuckers as well as single coils. This clipping system involved increasing the overdrive-to-clean ratio. For a typical blues pedal, there's a bit too much clean signal in the sound. This can be heard most of all during the attack. For high output single coils, humbuckers or active pickups, this attack can start to dominate the sound of a typical blues pedal, resulting in a 'popping' sound. The Blue Boy, by effectively reducing the clean signal in the final output, reduced that 'popping' and makes the pedal very usable with higher output pickups as well as with standard single coils. This also has the effect of reducing that 'compression' effect.

In order to get the warmest sound out of the pedal, I tracked down some JRC4558D opamps. If you're familiar with the history of overdrive pedals, you'll know that this particular IC was the legendary IC used in the original Tube Screamers. Also, I've put the opamp in a socket, so that you can muck around with different opamps to get a sound that you like. Just make sure that



the pin-out of the opamp is the same. Just remember that it's a dual opamp. Any 4558 variant, the TL072 or the LM833 are good choices. One of my favourites is the LM833,... I think it's one of the best kept secrets :-)

Tone Control

The tone control of the Blue Boy is taken straight out of the Tube Zone. I really like this tone control design, since it gives you much better control over the 'shape' of the pedal's frequency response.

Unlike most overdrive and distortion pedals whose tone control is generally nothing more than a basic low pass filter, the Blue Boy utilises a circuit which controls both the high and low frequency content of the signal. With the tone control turned fully anti-clockwise, the lower frequencies are boosted, whilst the higher frequencies are attenuated. As the tone control is turned clockwise, the low frequency content begins to decrease, whilst the high frequency content begins to increase. With the tone control turned fully clockwise, the high frequency components dominate.

This design provides the effective flexibility of a multi-band EQ in a single control. It will by no means replace the EQ on your amp, but it will certainly help you get quite close to the tone you're after, which you can then tweak with your amp's tone control.

Volume Control

The final output section of the Blue Boy has been designed to provide you with maximum output volume. With the volume turned all the way up, the output signal can reach 7Vpp, which can seriously overdrive a good tube amp. The volume control is also a logarithmic or 'volume' taper, which means that when the control is set to 12 noon, the volume is only a sixth of the way up, so there's plenty of volume up your sleeve should you need it.

Internal Controls

Brightness

The first of the internal trim pots is the **brightness** control. As the name implies this trim pot adjusts the brightness of the pedal. It is located near the end of the signal chain, and will not affect the character of the overdrive. I decided to add this control since guitar amps can vary greatly in terms of how bright they are. In the original Blue Boy, I tested the pedal with a whole bunch of amps, and set the pedal up so that the brightness was suitable with as many amps as possible. However, every now and then, an amp would come along that was just too bright or too dark, and the sound of the Blue Boy just wouldn't work. For example, I tried the Blue Boy through a friend's Carvin X100B (great amp,...), only to find that it sounded very shrill. I opened up the amp and checked out the clean channel circuit to find that the clean channel was designed with approximately 30db of high frequency boost!

So as a result, I decided to add the brightness control on the Blue Boy. This should be adjusted to suit your amp.

Voicing

The voicing control adjusts the overall frequency response of the final output stage of the blue boy. How do you like your sound. Fat mids? Big bass? Now with the voicing control, you can adjust the sound of the Blue Boy to get exactly the sound that you're after.

The way that the voicing control works is that it changes the frequency response of the feedback circuit in the final output stage. The low frequencies aren't affected, but as you turn down the voicing control, the mids and highs are attenuated. The classic TS tone can be found with the voicing control set all the way up. I like the voicing control at 50%, which means that the mids/highs are attenuated by about 6db. This makes the lows sound more prominent. With the voicing control at 50%, there's an effective 6db bass boost, which is like my limited edition prototype pedal. With the voicing control turned down to 75%, the mids/highs are further attenuated, and the lows are effectively 4 times (12db) louder than the mids/high. There's some serious bottom end to be had here!



Character

The third trim pot is something that I'm very excited about. It's something that I call a **character** control. To understand what this does, you'll have to bear with me while I explain the process of clipping.

Vintage guitar amps had a relatively flat frequency response. This is a large part of the 'warmth' of the vintage clean sound. As guitar players began to turn up their amps, and they started to distort, the amps would develop a bit of an edge, which sounded pretty cool. However, if you *really* push one of those old amps over the top (like with a 'flat' booster), they sound pretty muddy and unfocused. Not cool.

Enter the treble booster. By amplifying higher frequencies more than lower ones, treble boosters could overdrive tube amps to get a huge overdrive sound while retaining a large degree of character. This is because when low frequency signals distort too much, they actually sound quite muddy. So the basic principle for getting a good overdrive sound was to reduce the amount of low frequency signals being overdriven. This principle made its way into pedal design as well, and many of the great overdrive and distortion pedal do exactly that. They employ a low cut filter before the clipping stage to reduce the amplitude of low frequency signals.

Now for the new Blue Boy, I experimented with a new idea. We know that keeping the bass under control helps with clarity, but what if you want that big, fat, almost fuzzy sound of those old amps? Well, what you'd have to do is add more bass to the *pre-clipping* stage. This is precisely what the character control does.

Please don't think of this control as a bass control like you'd use on an EQ. This control is much more subtle than that. It really controls the character of the overdrive. At one end (fully anti-clockwise), you have focused, clear and 'clean' overdrive, which is the sound of the original Blue Boy. At the other end (fully clockwise), you have big, fat, and fuzzy overdrive. You will notice a slight increase in the low end of the signal as you turn this control up. You can compensate for this by turning up the tone control a bit to reduce the bass.

There are no instructions as such for setting up the character control. Do you like your tone tight, focused and modern? Then set the character control low (anti-clockwise). Do you like a bit fat vintage tone? Then set the character control high (clockwise).

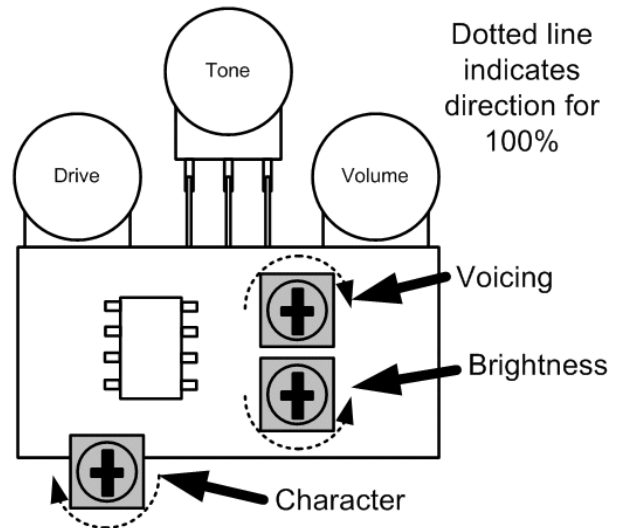
Note: It's a good idea to turn up the pre-overdrive bass (character control clockwise) if you're going to be using the pedal in conjunction with other overdrive pedals. With the character control turned up, it's a good idea to put the Blue Boy last in the chain of overdrive pedals.

Setting the Trim-pots

First unscrew the base-plate off the blue boy. Set the gain, the kind of setting that you'd typically use. Set the tone to 50% (12 O'clock) and the volume to 50%. Don't turn your amp up too high, since you'll be adjusting the trim-pots, and some noise will occur as you touch them. It's best to set the brightness first, followed by the voicing and then the character. The diagram below gives you a layout of where all the trip-pots as well as the directions for maximum (100%) setting.

I've drawn up this small table as a rough guide for the kinds of tones that you can get with the Blue Boy.

Tone	Internal Trimpot Positions
Classic Overdrive ala Tube Screamer	Brightness - 50% Voicing - 100% Character - 0%
A 'Fat Screamer'	Brightness - 60% Voicing - 40% Character - 30%
Fat 'almost' Fuzz	Brightness - 70% Voicing - 100% Character - 100%
Flat Clean Boost	Brightness - 100% Voicing - 100% Character - 100%



Just as a bit of an aside, I love the sound of 2 blue boys run into each other. I like to set the first to the 'classic Tube screamer' setting, and the second to the 'almost fuzz' setting (but with the voicing set down to 50%). I leave the drive, tone and volume at 50%. With the first pedal on, I get a classic OD sound. With just the second on, I get a really fat 'fender' sound. With the two on, I get a huge saturated lead sound.

Other Features

- High quality, heavy duty diecast metal casing.
- Heavy duty footswitch with true bypass.
- 9 volt battery operated or DC port (which accepts a standard barrel jack with a *Negative centre pin.*) Note that the Blue Boy has been designed to run comfortably up to 25V.
- High intensity 'clear lens' yellow LED.

To Change the Battery

To access the battery, unscrew the 4 rubber feet with a screwdriver and remove the bottom plate.

Registration

To register your pedal, you can email your name, contact details, purchase date, and retailer details along with the pedal serial number to:

registration@miaudio.com

Alternatively, you can send the above information to the postal address on the front of this manual. **PLEASE REGISTER YOUR PEDAL.** In the long run, it will be difficult to have your pedal serviced if you need to if the pedal is not registered.

Warranty

This pedal carries a 5 year warranty that covers all repairs due to manufacturer error. It does not cover any damage due to user mishandling, shipping, acts of God, and abuse. The owner should contact MI Audio directly for all repairs, and any work done by anyone other than MI Audio voids the warranty. All shipping costs are the responsibility of the owner, and are to be paid in advance of any work performed on the pedal. The owner may be asked to provide a copy of the sales receipt for verification.

Disclaimer

The owner or user assumes responsibility for death, injury and/or damages relating to the operation of this device. MI audio assumes no responsibility for death, injury or damages relating from the operation of this device.