



MMSR 3 Knob 3 Band

MM Style Volume, Bass/Treble & Mid Sweep Preamp

The BTB-MMSR has been designed with characteristics very similar to the original MM Stingray© 2 Band EQ, but is not a copy of the original circuit. The original used a single op-amp chip (single amplifier stage in the form of a chip) for both bass and treble circuits, whereas this unit utilises a more modern dual op-amp chip (two amplifiers stages in a chip). The bass and treble are stacked which allows the additional mid sweep stack to be installed on a 3 knob plate.

- **BASS & TREBLE CONTROLS**

The design of the 2 band EQ in the early Stingray© basses is unusual in that it does not follow the types of topologies around which the majority of equalisers are designed. It would seem that Leo Fender designed it to create a particular sound rather than follow any conventions, such as symmetrical EQ curves. Consequently the figures shown may appear unusual to those familiar with such specifications. In fact it's not easy to portray what this EQ does with a few numbers, but in any case some figures, based around a flat response input signal, are quoted as reference points.

NOTE: *Like the original, this circuit does not have a flat response when the controls are set midway. This unit is not designed as a clinical tool, where what goes in, comes out at some reference setting.*

- **TREBLE (+20dB / -16dB @ 10 kHz)**

The upper knob controls the treble. There is more boost than cut, giving rise the characteristic 'sizzle' associated with the Stingray© style of EQ.

- **BRIGHT (+5dB @ 7kHz)**

Pull the Treble knob for the Bright setting.

- **BASS (+14dB / -7dB @ 40Hz)**

The lower ring bass control has a little more boost than the original. The boost curve continues to rise towards the lower frequencies, without flattening out at any frequency within the normal bass guitar range. Conversely the cut characteristic is shelving, having an essentially flat response from 30 - 100Hz, when fully cut.

- **MID LEVEL & FREQUENCY**

- **BOOST/CUT (+/-12dB)**

The upper knob sets the amount of Mid boost or cut at frequencies according to the setting of the Frequency knob. The midway indent is the 'flat' setting.

- **FREQUENCY (100Hz - 1kHz or 200Hz - 2kHz)**

The lower outer ring sets the continuously variable Mid frequencies for boost or cut. DIL switches on the circuit board allow low or high ranges to be set. Both switch sections should be set to ON for the Low Range and both set to OFF for the High Range.

- **VOLUME**

Sets the level from the bass and treble section of the preamp feeding the mid section. This means that the pickup feeds the preamp directly, allowing the best possible transfer of signal, and full interaction of the pickup with the preamp. Since the mid section is after the volume control, it feeds the jack directly with a low impedance output.

Continued over:

- **POWER**

This unit can be powered from 9 - 18 Volts DC.

- **INSTALLATION**

- If necessary, remove the old electronics leaving the pickup wires, and any others, such as ground and battery wires, with plenty of length.
- The single pot is the Volume and its thread is 7.0mm size. Fit into its hole leaving the rubber spacer rings in place if the holes are the original larger size. Tighten once in place.
- Mount the bass/treble circuit board in the next hole, which is the position for the treble in the original 3 knob plate. (See BTB-MM diagram in order to recognise the bass/treble circuit board, which has two bare pins at one end, for the pickup input)
- Mount the mid sweep stack in the hole used for the bass control in the original 3 knob plate.
- Mount the pre-wired jack into the same hole as the original jack.
- Connect the pickups wires to the bass/treble circuit board, according to the BTB-MM diagram.
- A battery clip is provided with the preamp allowing it to be powered directly. But most basses will have a separate battery compartment. In which case, cut off the battery clip and join the red and black wires from the preamp to those in the bass. Before joining the wires, slip the heatshrink sleeves over the wires. After the joints have been made, the sleeving should be slid over the joints and heated with a hot soldering iron, or other localised heat source, held in close proximity. (The heatshrink sleeves can be found threaded on the black ground wire)
- Connect the black ground wire from the jack to any ground wires in the bass, such as the one to the bridge.
- Once all is proven to be working correctly, fit the knobs to their appropriate shafts, and refit plate.

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