

WARNINGS

- Attempting to repair this unit is not recommended and may void its warranty.
- Missing or altered serial numbers automatically void the warranty. For your own protection, be sure the serial number labels on the unit and exterior box are intact.

ONE-YEAR LIMITED WARRANTY

Manufacturer warrants unit to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase to the original purchaser and is not transferable. This warranty does not include damage resulting from accident, misuse, abuse, alteration, or incorrect current or voltage. If unit becomes defective within warranty period, Tech 21 will elect to repair or replace it free of charge. After warranty period expires, manufacturer will repair defective unit for a fee.

PROOF OF PURCHASE IS REQUIRED FOR ANY REPAIR

For residents of the U.S. and Canada, please call Tech 21's main headquarters for shipping instructions and a Return Authorization Number. Tech 21 will not accept packages without prior authorization, pre-paid freight (UPS preferred), and proper insurance.

FOR PERSONAL ASSISTANCE & INQUIRIES

Contact Tech 21 weekdays from 9:00 AM to 5:00 PM, Eastern Standard Time.

DESIGNED AND MANUFACTURED IN THE U.S.A.



Fill in the following information for future reference:

Serial Number _____

Dealer's Name _____

Dealer's Address _____

Date of Purchase _____

TECH 21
NEW YORK CITY

T: 973-777-6996

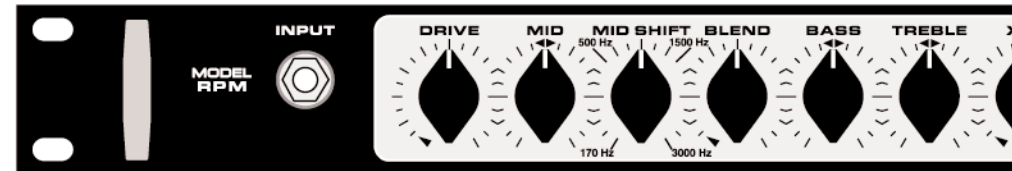
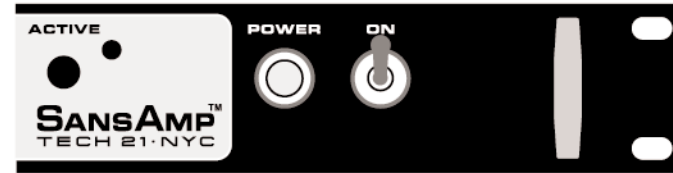
E: info@tech21nyc.com

W: www.tech21nyc.com

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SANSAMPTM RPM

TECH 21·NYC



Owner's Manual

IMPORTANT SAFETY INSTRUCTIONS. READ AND SAVE THESE INSTRUCTIONS. HEED ALL WARNINGS.



This symbol, wherever it appears, alerts the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol, wherever it appears, alerts the user to important operating and maintenance instructions in the accompanying literature. Read the manual.

This unit is powered by potentially hazardous voltage. Therefore, observe the following safety precautions:



1. Read and follow all instructions before using product.
2. Do not use product near water (such as near a bathtub, washbowl, kitchen sink, swimming pool, in a wet basement, etc.).
3. Unit should be located so that its location or position does not impede the flow of air through the ventilation openings.
4. Product should be located away from heat sources such as radiators, heat registers, or other products, including amplifiers, that produce heat.
5. Product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.

6. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the unit.
7. Do not allow objects or liquids to penetrate the enclosure through openings.
8. During heavy use, chassis may get hot to the touch. Handle with care.
9. Protect unit from strong impact.
10. Unplug product before cleaning. Never spray liquid cleaners into the amp: wipe with a clean, lint-free cloth to remove dirt and film.
11. Only use attachments/accessories specified by the manufacturer.
12. This product should be used only with a cart or stand that is recommended by the manufacturer. When a cart is used, use caution when moving the cart/product combination to avoid injury from tipping over.
13. Amplifiers may be capable of producing high volume levels that could cause permanent hearing loss or damage, if the exposure to such levels is prolonged. Such damage is progressive and irreversible! If you experience any hearing loss or ringing in the ears, consult an audiologist.



14. Unplug unit during lightning storms or when unused for long periods of time.

15. This unit must be earth grounded. To reduce the risk of electric shock, NEVER remove or otherwise attempt to defeat the ground pin of the power cord. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

WARNING: To avoid the risk of fire, electric shock or injury, do not expose this unit to rain or moisture. Do not remove the chassis from its cabinet, or remove metal covering from chassis parts. Removing the chassis from its cabinet exposes extremely dangerous high voltages. There are no user-serviceable parts inside. Hazardous voltages are present inside the chassis. Refer all servicing to qualified personnel.

CAUTION: Never modify the power cord. If original power cord becomes damaged, frayed, or has exposed wires, replace immediately with same rating and gauge, or higher. Replacements are commercially available or you can contact Tech 21 directly.

WARNING: Attempting to repair this unit is not recommended and may void its warranty. NOTE: In the U.S. and Canada, servicing is performed at factory only. In other countries, please refer repairs to the local Tech 21 authorized distributor.

FUSE



Fuse holder is located inside A/C cord receptacle. **You must unplug and remove power cord to change fuse.** Replace with similar type and same value: 100V and 117V units: use F 1A L
230V and 240V units: use F 0.5A L

QUICK START INSTRUCTIONS

Get your SansAmp RPM up and running before reading the entire manual. But by not reading the manual, you'll miss out on getting the most out of your new investment!

1. Plug your instrument into the front panel Input jack (on the left side).
2. Connect either the 1/4" or XLR SansAmp Output with the input of your mixer, power amp, powered monitor or amp.
3. Attach the AC cord to the unit and plug into a wall socket. Set the Level and XLR controls to minimum, then turn the SansAmp RPM on and engage the Active Switch.
4. Turn on the mixer or amp and bring up the Level or XLR controls of the SansAmp RPM. If the signal is too "hot," resulting in unwanted distortion, or too weak, check the mixer's or amp's input control as well as the Level control of the SansAmp RPM.
5. Play your instrument and you should hear sound coming through your system. If not, check that your instrument's volume control is turned up, recheck your connections, and be sure your cable isn't faulty. If there is still no sound, refer to factory or qualified technician.

TECH 21, THE COMPANY

Tech 21 was formed by a guitarist possessing the unusual combination of a trained ear and electronics expertise. In 1989, B. Andrew Barta incorporated Tech 21 and made his invention commercially available to players and studios around the world. His highly-acclaimed **SansAmp™** pioneered Tube Amplifier Emulation in professional applications for recording direct and performing live, and created an entirely new category of signal processing. While there have since been many entries into this niche, SansAmp continues to maintain its reputation as the industry standard.

After developing a full line of SansAmp models, Tech 21 expanded its offerings to include effect pedals; a compact, battery operable MIDI footcontroller, the *MIDI Mouse*; as well as “traditional” style amplifiers for guitar and bass. Each product is thoughtfully and respectfully designed by B. Andrew Barta himself with the player in mind.

Our goal is to provide you with flexible, versatile tools to cultivate, control, refine and redefine your own individual sound. Tech 21 takes great pride in delivering consistent professional quality sound, studio to studio, club to club, arena to arena.

SansAmp RPM, an Overview

Simply put, SansAmp RPM is a rackmount version of our popular SansAmp Acoustic DI pedal with the addition of a dedicated Drive control. With sweepable, semi-parametric EQ and variable gain, SansAmp RPM offers detailed tone shaping for any signal source. SansAmp RPM is a versatile, multi-instrument pre-amp particularly useful for acoustic guitar, electric and upright bass, mandolin, fiddle, etc.

Tech 21’s proprietary, 100% **analog** circuitry gives your instrument a natural warmth and presence as if you were miking your instrument through a tube pre-amp. For studio and live applications, our SansAmp Tube Amplifier Emulation technology enables you to go straight into the mixer of a recorder or PA system via the XLR Direct Output.

SansAmp RPM will complement any pre-amp system, particularly our own SansAmp RBI for bass, and our programmable SansAmp PSA for guitar and bass.

FRONT PANEL

SansAmp RPM is designed with **active** controls, which cut and boost, rather than traditional passive controls which only cut. This effectively doubles many of the control’s capabilities, giving you a much larger range of adjustability and, ultimately, more variety. It should be noted that you need not necessarily set everything at max to achieve maximum results. As you experiment and become familiar with the interrelationship of the controls, you’ll easily be able to customize your own sounds.

Input Jack

1/4" Input is 4.7MΩ. The unusually high impedance was designed with piezo pickups in mind to provide maximum output and dynamics. It is factory set at -20dB instrument level. A second input jack (Input 2) is located on the rear panel. Plugging into the front Input jack overrides and disconnects the rear panel jack. This allows you to set up your SansAmp RPM as a permanent part of a rack or patch-bay system, with its usual input source plugged into the rear panel jack. Then, if you want to plug straight into the SansAmp RPM, bypassing other gear in the system, you can use the SansAmp RPM’s front Input.

Drive

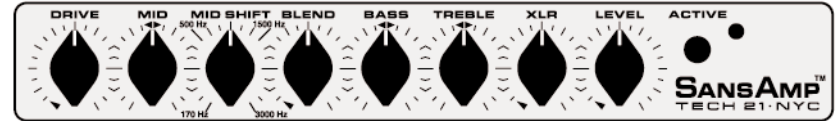
Adjusts the overall amount of gain and overdrive, similar to when the output section of a tube amp is being pushed.

Bass and Treble

These active tone controls cut or boost $\pm 12\text{dB}$ from unity gain at 12 o’clock. Bass is 80 Hz. Treble is 3.2kHz.

Mid Shift and Mid

Mid Shift is a parametric EQ control, with a sweep ranging from 170 Hz to 3.0 kHz, which allows you to select the center frequency of the Mid control. Mid will then cut or boost $\pm 12\text{dB}$ from the frequency selected by the Mid Shift.



Blend

Blends the direct instrument signal with the SansAmp circuitry. In most cases, you will probably have this set at maximum (100% SansAmp). For certain applications, however, such as an ultra-transparent sound or for use with piezo pickup-equipped instruments, you may want to blend-in the direct signal to achieve your desired sound. While the SansAmp Tube Amplifier Emulation circuitry is bypassed when *Blend* is at minimum, the *Bass*, *Mid Shift*, *Mid*, *Treble*, *Level* and *XLR* controls remain active.

XLR

Adjusts the volume level of the SansAmp XLR Output to optimize your amp’s output relative to the P.A. system.

Level

Adjusts the SansAmp 1/4" Output level.

REAR PANEL

Input 2 Jack

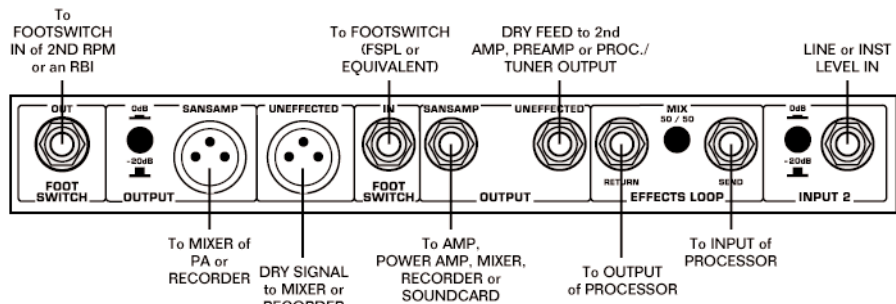
Plugging into Input 2 lets you match the SansAmp RPM’s input circuitry to the signal level being fed into it, thereby assuring the best signal-to-noise ratio and least distortion. This input is ideal for rack and patch-bay applications, especially if you use other signal processors or multi-track recorders before the SansAmp RPM. Note: Whenever you plug into the front panel’s Input, the rear panel Input 2 is disconnected. Also, you can set the Input level selector switch to its -20dB position when you plug in extra-hot signals, such as the output from active bass guitars.

Level Selector Switch

This switch lets you connect the SansAmp RPM to a wide variety of equipment with a variety of signal levels. It has two positions:

0dB position. Optimizes the rear panel Input 2 to receive an instrument level signal. In this position, Input 2’s sensitivity is exactly the same as the front panel’s Input.

-20dB position. Set the switch in this position when sending a line-level signal into the SansAmp RPM. When the switch is in this position, the signal coming into the unit is padded down by 20dB.



EFFECTS LOOP

Send and Return

The Effects Loop allows you to connect external effects with the SansAmp RPM and is placed between the tone controls and Level controls. Connect the input of your processor to Send; output of your processor to Return. Note: When nothing is plugged into the Effects Loop, the signal passes through from the SansAmp RPM to the Output jacks, with both the SansAmp 1/4" and XLR Outputs receiving the same signal.

Mix 50/50 Switch

The 1/4" Send routes 100% of the SansAmp RPM's signal through your effects processor when the 50/50 switch is not engaged. If you engage the 50/50 switch, then 50% of the SansAmp RPM signal goes through your effects processor, and the other 50% passes directly to the SansAmp 1/4" and XLR Outputs.

To preserve the signal integrity of the SansAmp RPM, use the Effects Loop with the Mix 50/50 switch engaged. When the SansAmp RPM is in this mode, the effects processor's mix control should be set at 100% wet. Your relative wet/dry mixture can then be controlled by increasing/decreasing the effects processor's output level. NOTE: If you experience a thin, undesirable sound or phase cancellation, the effect may not be capable of a 100% wet signal. Therefore, we suggest disengaging the Mix 50/50 switch.

UNIVERSAL OUTPUT SECTION

The output sections of the SansAmp RPM are designed to be compatible with any application. The outputs can be used for full range (multi-track recorders, studio monitors, P.A. systems) or limited range systems (instrument speaker cabinets for bass or guitar), as well as *simultaneously*. Note: You can compensate for different frequency responses of speaker enclosures by using the Treble control.

1/4" SansAmp Output

Carries the signal from the SansAmp RPM, including any effects that are placed in the Effects Loop.

1/4" Uneffected Output

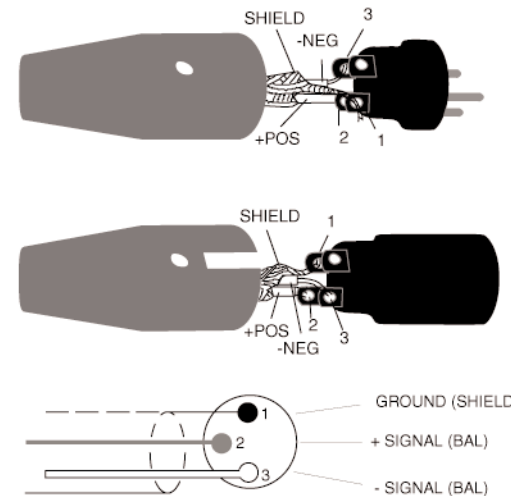
Buffered output without processing. Sends a direct signal to another channel on your amp, pre-amp, or effects chain, or it can be utilized as a tuner output.

SansAmp XLR Direct Output

Carries the signal from the SansAmp RPM, including any effects that are placed in the Effects Loop. For recording, the SansAmp XLR Output is like having a built-in direct box. Designed without a transformer, it provides a balanced, low-impedance output of extremely high quality for recording or interfacing with professional-quality signal

processors. You can go direct to the board and get the same sound you hear coming out of the speakers right onto tape or disc. The SansAmp circuitry not only captures the warm, rich, natural harmonics and sweet overdrive characteristics inherent to tube amplifiers, its speaker emulation encompasses all aspects of multiply-miked tube amp rigs. For live gigs, you can use this output direct into the P.A. system and you won't need a microphone in front of your amp.

If you experience hum from the output when there's no instrument plugged in, you most likely have a ground loop. Therefore, Pin 1 (signal ground of the SansAmp XLR) needs to be lifted or disconnected. You can easily make a small ground disconnect adapter by disassembling one end of the cable and cutting Pin 1 (the shield connection) as shown to the right.



XLR Output Level Switch

Sets the range of the signal level of the SansAmp XLR Output jack. When the switch is in the 0dB position (engaged), the Output is in the line level range. When the switch is in its -20dB position (disengaged), the Output is in the instrument level range. Note: The standard output level range of the SansAmp RPM is 0dB due to the wide availability of digital recorders, which are unforgiving to excessive input levels. This prevents overloading the input of a digital recorder.

Uneffected XLR Output

Provides a buffered balanced output of the direct instrument signal without processing.

FOOTSWITCH IN JACK

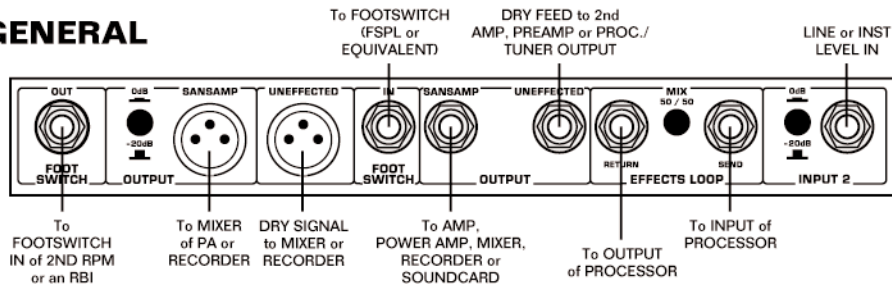
The Footswitch In jack can be used to activate the unit. Simply connect the output of a footswitch to the Footswitch In.

To toggle between this unit and another SansAmp RPM (or SansAmp RBI), do the same as above and connect the SansAmp RPM Footswitch Out to the Footswitch In of the second SansAmp RPM (or SansAmp RBI). Now you can switch between 2 sounds. For the audio signal path, connect your bass into the Input of the first SansAmp RPM. Connect the 1/4" SansAmp Out to the Input of the second unit. The 1/4" and XLR Outputs of the second SansAmp RPM are then your main audio outs. (Refer to Hook-up Diagrams on Page 7.)

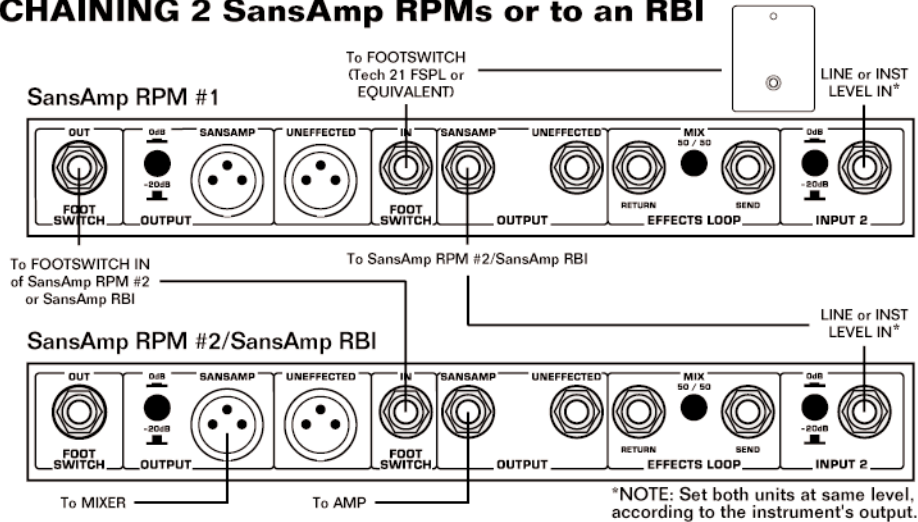
Any alternating (on/off) footswitch can be used. An optional factory footswitch with LED status indicator is available through your authorized dealer or Tech 21.

HOOK-UP DIAGRAMS

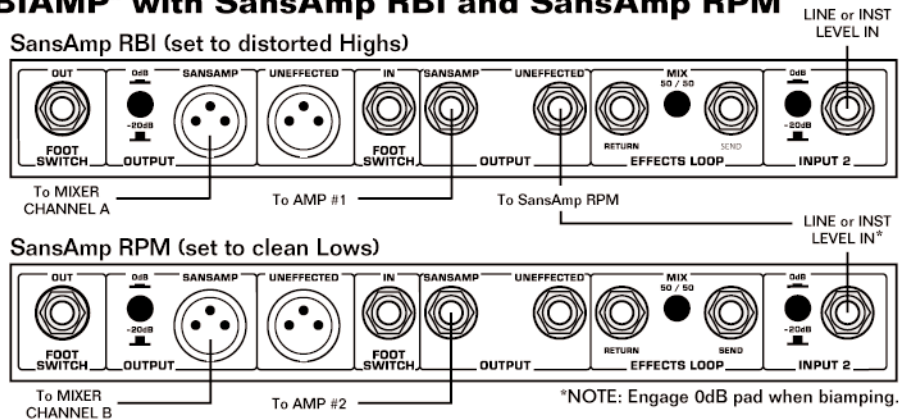
GENERAL



CHAINING 2 SansAmp RPMs or to an RBI



"BIAMP" with SansAmp RBI and SansAmp RPM



"Biamp" with channel switching can be accomplished with four units. For hook-up details, contact Tech 21.

SansAmp RPM Specifications

Note: With on-going product development and improvements, specifications and/or the cosmetic appearance of this unit may change without prior notice. **Replacement parts** are available, i.e., knobs, rack handles, faceplate, etc. For more information, please contact your authorized dealer or Tech 21, Inc.

Model Number:	RPM
Input Impedance-Input 1:	4.7MOhm
Input Impedance-Input 2:	1MOhm
Output Impedance-1/4":	1KOhm min
Output Impedance-XLR:	600 Ohms min
Input Level-Input 1:	1V RMS max
Input Level-Input 2:	1V RMS or 10V max, with -20dB pad engaged
Output Level-XLR:	Switchable to -20dB or 0dB range
Maximum Output Level:	+10dB or better
Effects Loop Send:	1K Ohm min, -20dB
Effects Loop Return:	100K Ohm min, -20dB
Low Frequency Response:	10Hz or better*
High Frequency Response:	Harmonic content, 20kHz or better*
Maximum Power Consumption:	5 Watts
AC Input Power (factory set):	100V, 117V, 230V, 240V
Cycles:	50/60 Hz

NOTE: Each unit constructed for specific voltages. AC power cannot be switched.

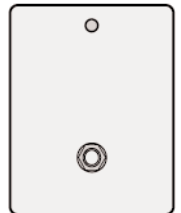
Enclosure:	Aluminum and steel, fully shielded
Dimensions:	19.0"w x 1.75"h x 5.25"d / Overall depth: 6.25"
Weight:	5 lbs.

*Due to the variety of amplifier emulations available, frequency response characteristics will vary.

OPTIONAL TECH 21 FOOTSWITCH (Model #FSPL)

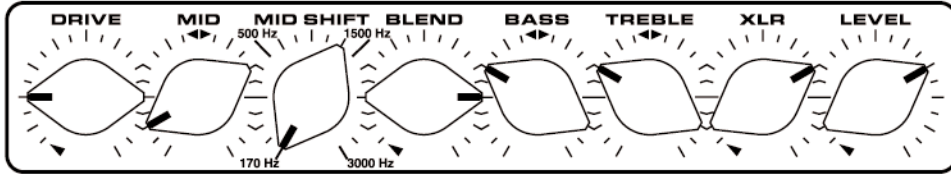
Footswitch has LED status indicator, and is powered via the cable, so no batteries are required. And, unlike most amps which require a custom multi-pin connector, this Footswitch is engineered to utilize **any** standard 1/4" instrument or speaker cable. You can easily replace the cable should you lose it, or purchase different cable lengths to suit your particular needs.

The Footswitch measures 3.5" x 4.5" x 1.25" and is available through your local authorized dealer or directly through Tech 21.

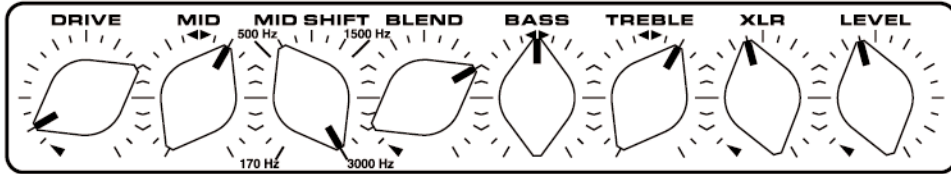


SansAmp RPM Sample Settings

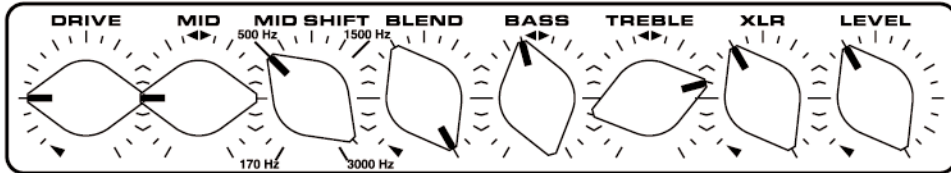
ACOUSTIC GUITAR - LIVE



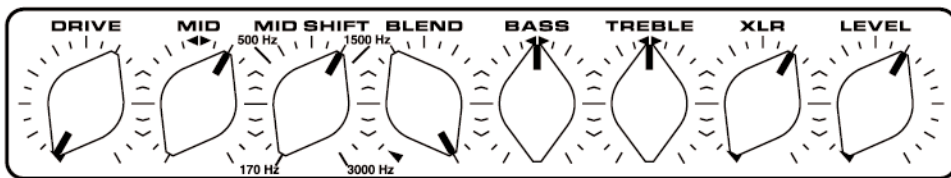
ACOUSTIC GUITAR - STUDIO



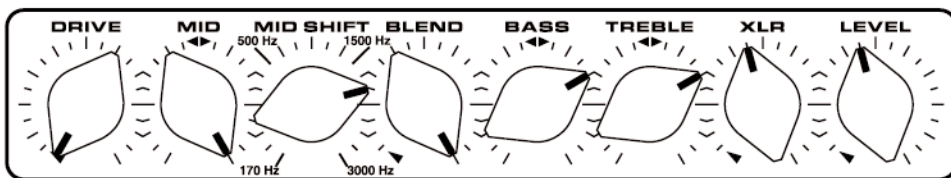
BASS GUITAR - FAT TUBE



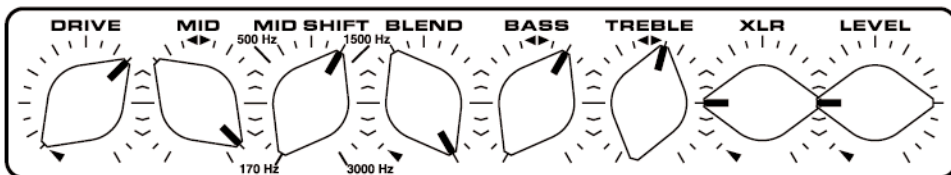
BASS GUITAR - BASSMAN®



BASS GUITAR - SVT®

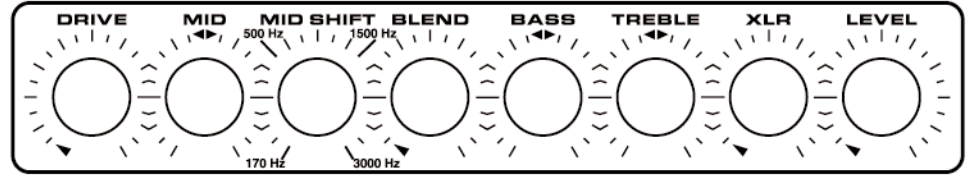


BASS GUITAR - OVERDRIVEN

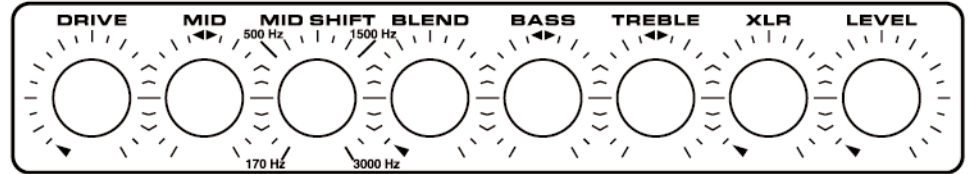


SansAmp RPM Custom Settings

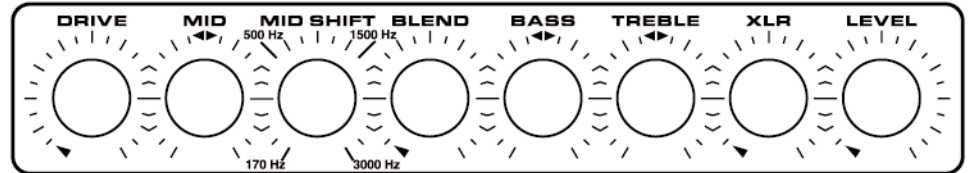
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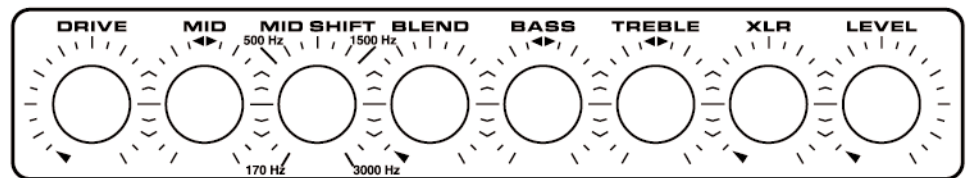
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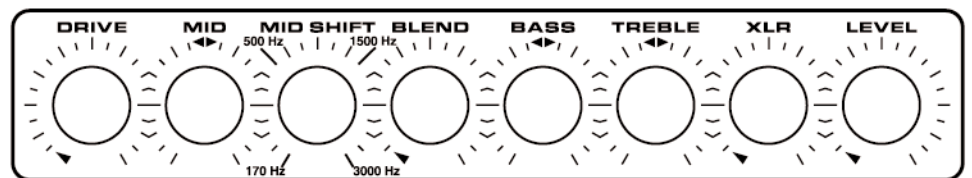
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