WARNINGS:

*Attempting to repair unit is not recommended and may void warranty.

*Altered serial numbers automatically void warranty. For your own protection, be sure back panel and exterior box serial number labels are intact.

ONE YEAR LIMITED WARRANTY

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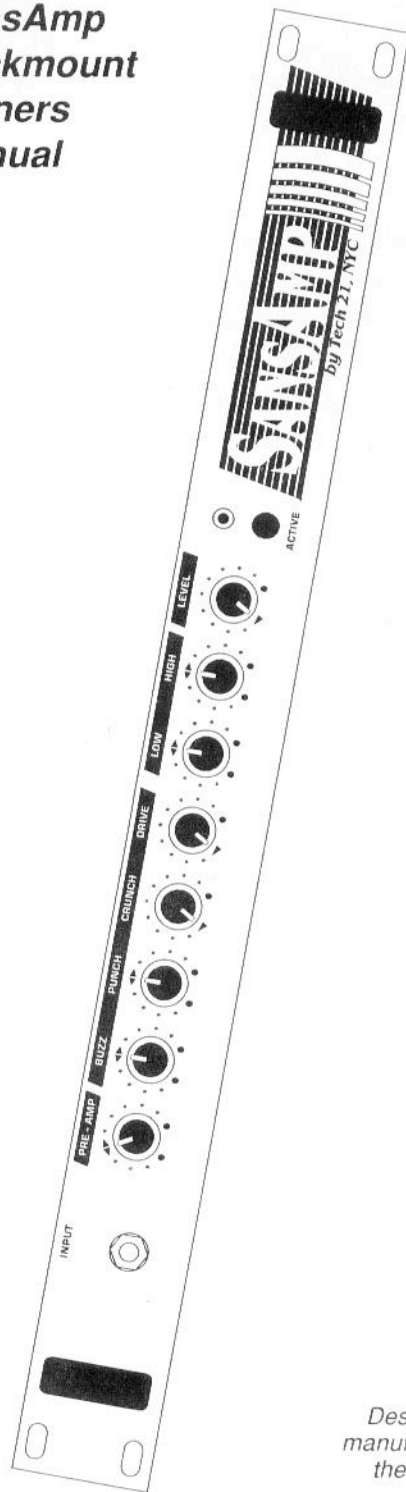
PROOF OF PURCHASE IS REQUIRED.

For residents of the U.S. and Canada, please call main headquarters for Return Authorization Number. Manufacturer will not accept packages without prior authorization and proper insurance.

MADE IN THE U.S.A.

Tech 21

1600 Broadway, NYC, NY 10019
212-315-1116 / Fax: 212-315-0825

SansAmp
Rackmount
Owners
Manual

*Designed and
manufactured in
the U.S.A. by*

Tech 21

INTRODUCTION

SansAmp Rackmount is a tube amplifier emulator designed and engineered for recording direct and performing live.

Just like its award-winning* predecessor, SansAmp Pedal, it delivers the same warm, pure, **natural** sounds of tube amplifiers, ranging from very clean to full saturation, without altering the original tonal personality of the instrument. SansAmp's versatility makes it uniquely suitable for any music style, ranging from jazz to thrash metal, be it for guitar, bass guitar, keyboards, samplers, sax, and even vocals.

Voiced for full range systems, SansAmp Rackmount can be used for a variety of applications including recording direct to tape, and in mixdowns. For live performances, it can be used as an outboard processor, a pre-amp and as a "monster direct box" through a P.A. system. With SansAmp Rackmount, consistent superior quality sound can be obtained from studio to studio, club to club, arena to arena.

*EQ Magazine 1991 Audio Engineering Society "Best in Show" Blue Ribbon Award Winner. 1992 Music & Sound Award Nominee.

THE HISTORY

The concept originated from my own needs and desires as a guitarist in search of an alternative to assembling a seemingly endless chain of mechanical and electronic devices to achieve an end result equivalent to a couple of millivolts of signal. All this in order to produce a sound suitable for recording and playing live. To me the whole process was like using a turbo-jet engine to blow out a candle.

With my extensive experience as a modifier and customizer of amplifiers, in conjunction with an engineering background (my initial "day job"), I probed the various stages of sound design inherent to particular types of tube amplifiers and their relationship with speakers and microphones.

After more than ten years of research and development, the end result is SansAmp - -"sans" meaning "without" in French.

Being a guitarist, I designed SansAmp as a pedal so I could take it anywhere and be totally independent in any situation. SansAmp Rackmount was the next logical step. It is an alternative form that gives you total freedom to explore fine and important nuances within the tube amp sound spectrum to achieve a personal voice.

B. Andrew Barta

Special thanks, once again, to Dale for all her help.

GUIDE FOR INDIVIDUAL CONTROLS

SansAmp Rackmount is uniquely engineered to give you access to specific tone shaping characteristics within the tube amplifier sound spectrum. Controls of this nature are traditionally inaccessible to end users, and adjustments can only be achieved by professional modification.

-Tonality, for instance, can be adjusted in a variety of ways; the individual *Character Controls* offer different results than the post EQ section (*Low, High*).

-Gain structure can be adjusted by the *Pre-Amp* control which results in a different kind of overdrive than the *Drive* control. Additionally, *Buzz, Punch and Crunch* each affect the gain structure within specific frequency bands.

As you experiment and become familiar with the interrelationship of the controls, you will be able to customize your own trademark sounds in addition to obtaining those currently established.

FRONT PANEL

### ADJUSTABLE INPUT GAIN
PRE-AMP:
Controls the input level of the instrument. This is particularly useful for obtaining a crystal clear signal from an active electronic bass or an acoustic guitar, and conversely, boosting low output electronic instruments when more overdrive is desired.

Arrows symbolize the unity gain point. To achieve the least amount of noise, keep *Pre-Amp* at unity gain or higher.

For best results, never set *Pre-Amp* lower than unity gain when *Drive* is at 9 o'clock or higher. Exception: A crystal clean sound is desired. The *Drive* control is already near minimum and there is still too much overdrive. (This is almost certainly due to a hot signal coming from the guitar/bass.) In this case, decrease from unity gain as needed.

Pre-Amp also influences different types of overdrive. For instance, a high setting emphasizes pre-amp distortion (see Boogie Lead-style sample setting) as opposed to when *Drive* is in a high setting, which emphasizes power amp distortion (see Vintage Marshall-style sample setting).

FRONT PANEL
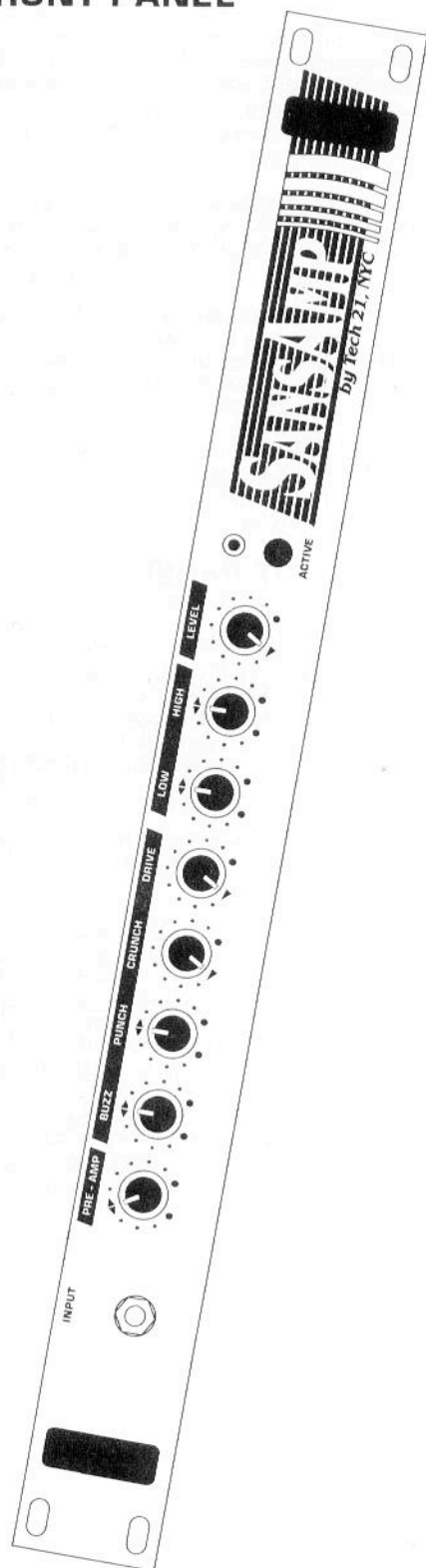
CHARACTER CONTROLS

Continuously variable *Character Controls* offer tremendous flexibility in adjusting tonality, gain structure and harmonic content.

BUZZ: Controls the low end breakup and overdrive. Cut or boost from arrows at center point. Towards maximum, your sound will be (you guessed it) buzzy. In a clean setting, *Buzz* should be increased from center point, with taste, of course. For most distortion settings, position in center or towards **minimum** for increased definition. For special effects, i.e.,'60's distortion (see Big Muff π -style sample setting), *Buzz* should be increased *slowly and carefully* towards maximum.

NOTE: *Buzz* is not intended or recommended to be set at maximum, especially when in high gain settings. However, it may be good for a chuckle or two.

PUNCH: Controls the mid range breakup and overdrive. Cut or boost from arrows at center point. Decrease from center and it will produce a softer, Fender-style break-up. Increase from center and it will produce harder, heavier distortion. At maximum, it will produce sound similar to when a wah-pedal at mid-boost position is placed in front of a Marshall® amp.

CRUNCH: Controls the high end breakup and overdrive. Increase from arrow at minimum point. Gives definition to individual notes. In high gain settings, it brings out the upper harmonics. For a smoother (Fender-style) breakup, decrease to taste.

DRIVE: Adjusts the overall amount of gain and overdrive. Increase from arrow at minimum point.

LOW, HIGH
These active tone controls are specially tuned for instrument EQ. Ranges ± 12dB. Cut or boost from arrows at center point.

LEVEL
Adjusts the output level of the *XLR, +4dB* and *-10dB Outputs* on the back panel simultaneously.

ACTIVE SWITCH
When the LED is on, it indicates SansAmp's circuitry is engaged. When the LED is off, you are in bypass mode and the *Bypass Loop* becomes engaged. This facilitates remote switching (see *Bypass Loop* and *Foot Switch*).

BACK PANEL

LIVE SWITCH

SansAmp Rackmount puts you in control of your own sound. In a live situation, you can directly inject your signal into the mixing console and use your power amp and guitar speaker cabinets as your own personal monitors. The house gets a top quality signal, the audience gets uncompromised sound, and you get full resonant impact from your existing stage rig.

You no longer have to be at the mercy of the house soundperson or worry about mic placement or mishaps caused by over-zealous fans. SansAmp Rackmount delivers consistent sound from club to club, arena to arena, and greatly diminishes the chances of problems frequently encountered in such venues.

-*Line* and *Instrument Level 1/4" Outputs*, and the *XLR Output* are affected by the *Live Switch*. All three outputs can be used simultaneously. In live applications, you can send your signal direct to the house P.A. from the *XLR Output*. You get the sound of SansAmp through your guitar speaker cabinets from the *1/4" Outputs*. Even if your power amp or speaker cabinets blow, your signal still goes through the house P.A.

-The *Live Switch* affects the sound of whatever is in the *Bypass Loop*. If you insert SansAmp Pedal into the *Bypass Loop*, it will enhance its sound and enable you to switch between the pedal and the rackmount. (See Sample Set-Ups, pages 11-15.)

-When there is nothing inserted into the *Bypass Loop*, the *Live Switch* affects the bypass signal to create a virtual second "clean" channel.

IMPORTANT NOTE: The *Live Switch* greatly affects the sound. The unit is shipped with the *Live Switch* engaged and we recommend that it remain engaged at all times. Exception:Disengage when a flat output is desired for use with outboard EQ. (When this is the case, remember to set *Low* and *High* at unity gain.) Be advised that results can be less than spectacular when the *Live Switch* is disengaged and there is no external post-EQ.

BYPASS LOOP

Enables you to switch between 2 or more SansAmp Rackmounts, as well as between SansAmp Rackmount and SansAmp Pedal! (See Sample Set-Ups on pages 11-15.)

To activate, turn *Active Switch* off. *Bypass Loop* is automatically engaged. Can be remotely activated with a foot switch (see *Foot Switch*).
Bypass Loop Send - Output is unity gain to input signal. Output Impedance: 10k Ohm.
Bypass Loop Return - Input Impedance: 1M Ohm.

(More...)

(BACK PANEL - continued)
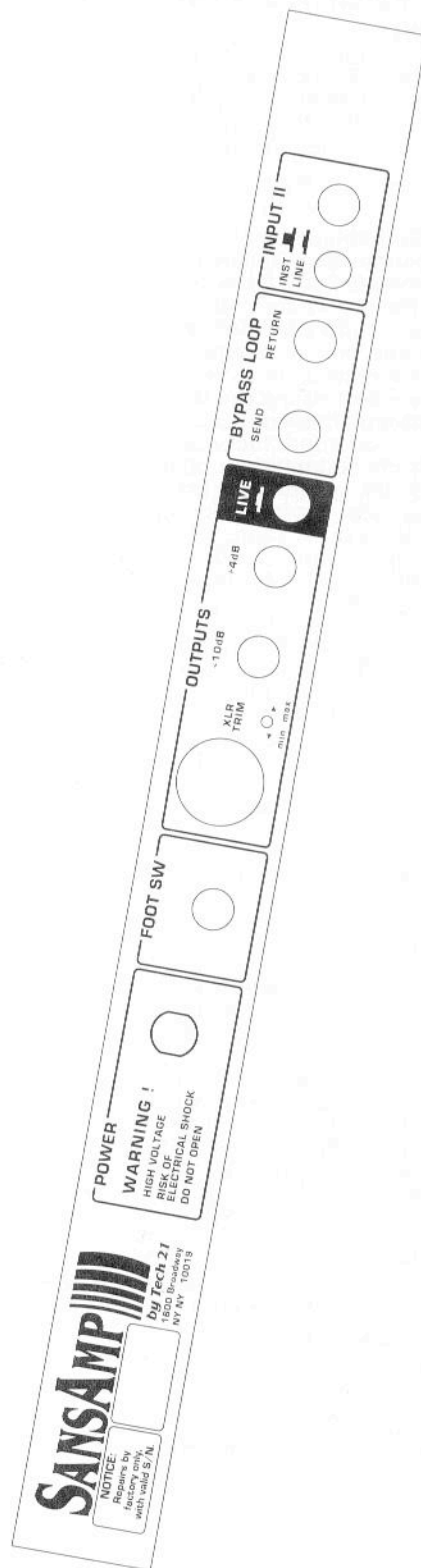
FOOT SWITCH

Utilizes any standard on/off foot switch with 1/4-inch mono jack. Any standard guitar cable is suitable between the foot switch and SansAmp Rackmount. Factory foot switch is optionally available and includes LED pilot light to indicate position.

OUTPUTS

XLR: Transformerless balanced low impedance output for professional applications. Output impedance: 600 Ohm minimum.

XLR Trim: Factory calibrated for +4dB output. To increase, turn clockwise. The *XLR Output* can also be lowered for instrument level XLR inputs typically used in live sound reinforcement applications. The trim control is conveniently accessed through the exterior back panel. To decrease, turn counter-clockwise.

- 10dB Output: Suitable for unbalanced low level recording inputs, i.e., running into a 4-track home recorder. Also can run into microphone level mixers or effects processors with only low level inputs. Output impedance: 10k Ohm.

+ 4dB Output: Suitable for professional applications, such as driving power amps, professional line level mixers/patch bays, and professional effects processors that accept line level input. NOTE: When using with a power amp, we recommend *Level* not be set above 12 o'clock. Output Impedance: 10k Ohm.

Bypass Loop Send: Can be used as a buffered direct output for additional applications. None of the controls affect the output, nor is it affected by the *Active* or *Live Switches*.

INPUT II

INSTRUMENT: Same as *Input* on front panel when in *Instrument* position. NOTE: Inserting a plug into front panel *Input* automatically overrides rear panel *Input II*.

LINE: When in *Line* level position, the input gain is trimmed by -14dB to accommodate line level signals. This is useful when SansAmp Rackmount is used to liven up existing tracks in mixdowns.

-For direct recording and mixdowns, SansAmp Rackmount can be permanently installed into a patch bay through rear panel *Input II*. We recommend keeping *Input II* in *Line* level position

-For live applications, SansAmp Rackmount can be permanently installed into a rack system: When utilizing the rear *Input II*, we recommend keeping it in *Instrument* level position; When using the front panel *Input*, we recommend *Input II* be kept in *Line* level position to reduce interference. (Also, refer to Question #1 on page 16.)

INTERNAL POWER SUPPLY

N. American: 110V two-prong AC plug.
European: 220V two-prong AC plug.
U.K.: 240V three-prong AC plug.
WARNING: High Voltage. Risk of electric shock. DO NOT OPEN UNIT. SERVICE BY FACTORY ONLY.

MULTIPLE SANSAMPS FOR LIVE APPLICATIONS

(Refer to Sample Set-Up Illustrations on pages 12-15)

With the *Bypass Loop*, you can have multiple SansAmps and switch between different sounds. Here, are two sample set-ups for live applications, which can be easily adapted to your needs.

SAMPLE SET-UP A: 3 SANSAMP RACKMOUNTS

When 3 SansAmp Rackmounts are inter-connected you can, for instance, set one for clean, one for rhythm, and one for lead. With 2 foot switches, you can switch between the three sounds. Rack **B** is inserted into the *Bypass Loop* of Rack **A**, which is then inserted into the *Bypass Loop* of the **Main** Rack. Using the outputs of the **Main** Rack into the power amp, you get whichever of the three sounds you select via the foot switches. Only the one *XLR Output* of the **Main** Rack needs to go to the house P.A. to give you each of the three sounds.

IMPORTANT: MANUALLY ACTIVATE ALL 3 *ACTIVE SWITCHES* ON THE FRONT PANEL. The **Main** Rack will be activated when the main foot switch is engaged. (All 3 front panel *Active Switch* LEDs will be on.) When you step on the foot switch, the **Main** Rack goes into bypass mode (its front panel LED will go off) and activates whatever is in the *Bypass Loop*. In this case, Racks **A** & **B**. Foot switch **A** & **B** will activate Rack **A** when engaged; Rack **B** when disengaged.

REMEMBER: The *Live Switch* affects the sound of whatever is in the *Bypass Loop*. Therefore, the **Main** Rack's *Live Switch* is engaged, while each *Live Switch* on Rack **A** and Rack **B** is disengaged. To incorporate an effects processor, insert between the **Main** Rack and power amp. (See Sample Set-Up B.)

SAMPLE SET-UP B: SANSAMP RACKMOUNT & PEDAL

When SansAmp Pedal is inserted into the *Bypass Loop*, you can, for instance, set SansAmp Rackmount for rhythm and SansAmp Pedal for lead. With one foot switch, you can switch between the two.

SansAmp Rackmount is activated when the foot switch is engaged. (Front panel *Active Switch* LED will be on.) When you step on the foot switch, SansAmp Rackmount goes into bypass mode and activates whatever is in the *Bypass Loop*. In this case, SansAmp Pedal.

The *1/4" Output* is sent through the effects unit. The signal is split into stereo left & right. The effects outputs go to the inputs of the power amp and speaker cabinets.

The *XLR Output* goes direct to the house mixing console. You get the sound of whichever SansAmp you select (without effects) via the foot switch.

SAMPLE SET-UP A

REFER TO TEXT EXPLANATION PAGE 11

INSERT EFFECTS PROCESSOR HERE, IF DESIRED. REFER TO SET-UP B.

SPEAKERS

POWER AMP

INPUTS
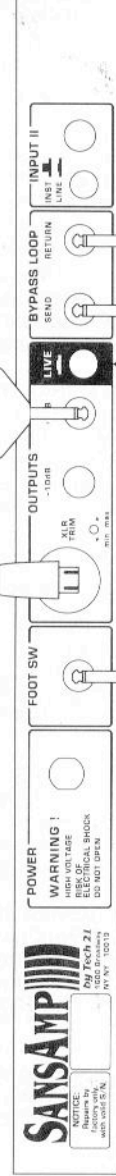L   R

OUTPUTS
L   R

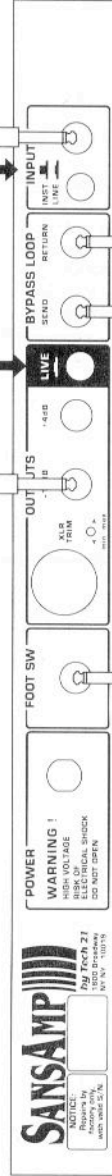1/4" MONO MALE -TO- DUAL 1/4" MONO FEMALE

TO HOUSE P.A. MIXING CONSOLE

INSTRUMENT IS PLUGGED INTO FRONT PANEL INPUT OF MAIN UNIT

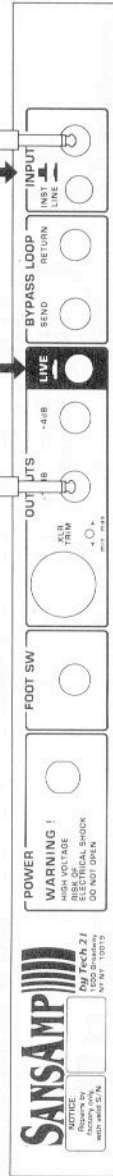NOTE: MANUALLY ACTIVATE ALL THREE FRONT PANEL *ACTIVE SWITCHES*
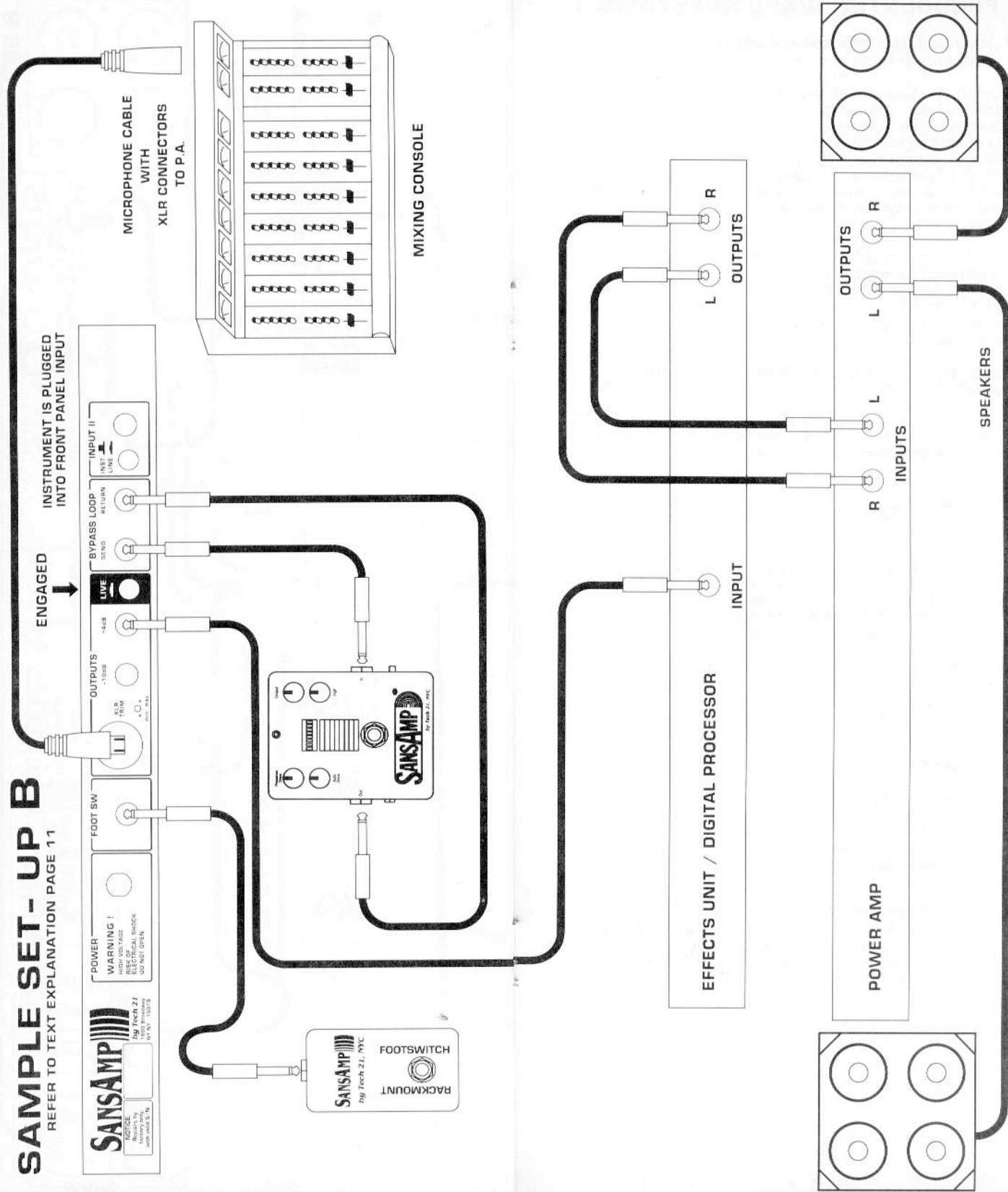
MAIN

INPUT II
INST / LINE

BYPASS LOOP
SEND   RETURN

LIVE   ← ENGAGED

OUTPUTS
-10dB   min. max.
XLR TRIM

FOOT SW

POWER

WARNING !
HIGH VOLTAGE
RISK OF
ELECTRICAL SHOCK
DO NOT OPEN

SANSAMP
by Tech 21
1600 Broadway
NY NY 10019

NOTICE:
Repairs by
factory only,
with valid S/N.

SUB A

INPUT
INST / LINE

BYPASS LOOP
SEND   RETURN

LIVE   DISENGAGED

OUTPUTS
-6dB
XLR TRIM   min. max.

FOOT SW

POWER

WARNING !
HIGH VOLTAGE
RISK OF
ELECTRICAL SHOCK
DO NOT OPEN

SANSAMP
by Tech 21
1600 Broadway
NY NY 10019

NOTICE:
Repairs by
factory only,
with valid S/N.

SUB B

INPUT
INST / LINE

BYPASS LOOP
SEND   RETURN

LIVE   DISENGAGED

OUTPUTS
-3dB
XLR TRIM   min. max.

FOOT SW

POWER

WARNING !
HIGH VOLTAGE
RISK OF
ELECTRICAL SHOCK
DO NOT OPEN

SANSAMP
by Tech 21
1600 Broadway
NY NY 10019

NOTICE:
Repairs by
factory only,
with valid S/N.

SUB A & B

SANSAMP
by Tech 21, NYC

FOOTSWITCH

RACKMOUNT

MAIN

SANSAMP
by Tech 21, NYC

FOOTSWITCH

RACKMOUNT

SAMPLE SET-UP B

REFER TO TEXT EXPLANATION PAGE 11

MICROPHONE CABLE
WITH
XLR CONNECTORS
TO P.A.

MIXING CONSOLE

INSTRUMENT IS PLUGGED
INTO FRONT PANEL INPUT

ENGAGED

INPUT II

INST / LINE

BYPASS LOOP

RETURN

SEND

LIVE

-4dB

-10dB

OUTPUTS

XLR TRIM

FOOT SW

POWER

WARNING !

HIGH VOLTAGE
RISK OF
ELECTRICAL SHOCK
DO NOT OPEN

SansAmp
by Tech 21
1600 Broadway
NY NY 10019

NOTICE
Repairs by
factory only
with valid S/N.

SansAmp
by Tech 21, NYC

SansAmp
by Tech 21, NYC

FOOTSWITCH

RACKMOUNT

EFFECTS UNIT / DIGITAL PROCESSOR

INPUT

OUTPUTS

L   R

SPEAKERS

OUTPUTS

L   R

INPUTS

R   L

POWER AMP

FREQUENTLY ASKED QUESTIONS

1. How do I get the most out of my SansAmp Rackmount?

-SansAmp Rackmount reacts the same as tube amplifiers do, and responds to the dynamics of the player and the instrument. The instrument signal being sent to the *Input* should be the same level as that of a standard electric guitar (approx. -10dB / 250mV). If you are using an effects loop, rack switching system, wireless system or long cables, be sure that you do not drastically cut or boost your signal.

-The front panel output *Level* control works in conjunction with the rear *+4dB, -10dB* and *XLR Outputs*, and should generally be between 9 o'clock and 12 o'clock. If more extreme output levels are desired, we suggest you try changing the output jacks first.

-SansAmp Rackmount performs best when the instrument is plugged directly into it. (See question #2.)

2. How do I use SansAmp Rackmount with other effects processors?

For the majority of applications, it is best to have the instrument plugged directly into SansAmp Rackmount. Otherwise, we recommend the following order:

EFFECTS TO BE PLACED BEFORE:
Compression, Wah-Wah, Envelope Follower

EFFECTS TO BE PLACED AFTER:
EQ, Reverb, Delay, Chorus, Harmonizer

NOTE: Effects placed before SansAmp Rackmount will perform best when the output of the effect does not alter the level of the instrument. In other words, the effect should not boost or cut, it should be at unity gain.

3. Is SansAmp Rackmount stereo?

SansAmp Rackmount was engineered specifically to be a tube amplifier emulator. It was intentionally designed to not have any built-in ambient effects (reverb, delay, etc.) so that you can use the outboard gear of your own, highly personal, preference.

You can achieve stereo imaging by placing a mono output of SansAmp Rackmount into a mono input of a stereo effects processor. The left & right outputs of the processor then go to a recording console, power amp, etc. (See Sample Set-Up B on Pages 14-15.)

4. I'm getting too much noise. What's wrong?

-As with the use of any tube amplifier or electronic device, particularly in high gain settings, you may be getting outside interference caused by lights, transformers, etc.

-Check for pick-up interference by moving guitar or turning the guitar volume off. NOTE: Single coil pick-ups are much more likely to generate hum, and EMG-style active pickups may be hissier than humbuckers.

-Check neighboring electronic gear within the rack case. Some rackmount units radiate more interference than others, which SansAmp Rackmount could be picking up. While the Law Of Physics can't be changed, you can certainly rearrange the order of the gear.

-Be conscious of how SansAmp Rackmount's controls interact. For example, setting *Pre-Amp, Drive* and *Punch* on maximum simultaneously will naturally create a higher noise level. The controls are quite sensitive and should not (out of habit) be automatically put on max to achieve high gain.

### 5. How do I use SansAmp Rackmount with headphones?

Plug directly into the *+4dB Output* and adjust the *Level* control to desired volume. To get sound through both sides, insert jack half-way; or you can purchase a standard stereo 1/4" female-to-mono 1/4" male adapter.

6. How do I use SansAmp Rackmount with my existing amplifier?

For best results, use the low gain input on your amp (if available) and set amplifier controls so that when SansAmp Rackmount is in bypass mode, the amp is as clean and flat as possible. HINT: Go easy on the *Drive* and *High* settings of SansAmp Rackmount.

What if I have other questions? We'd be happy to give you personal assistance. Just give us a call any weekday, 10:00 AM to 6:00 PM, Eastern Standard Time, at 212-315-1116.
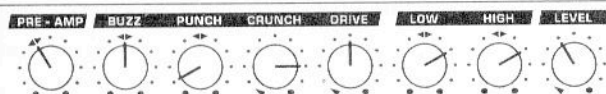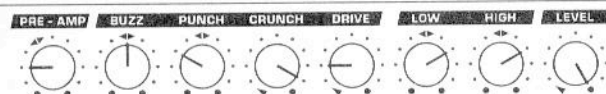
SAMPLE SETTINGS
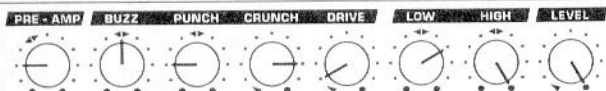
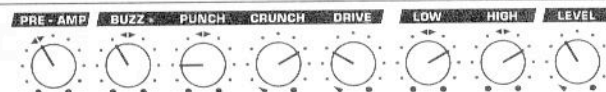| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

ROLAND JC 120- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

FENDER RHYTHM- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

FENDER BLUES- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

SVT BASS- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

SVT BASS HEAVY- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

AC 30 (BEATLES)- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

AC 30 (QUEEN)- Style

| PRE - AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
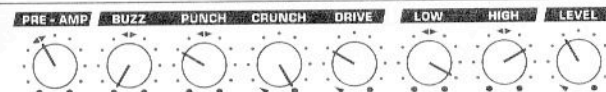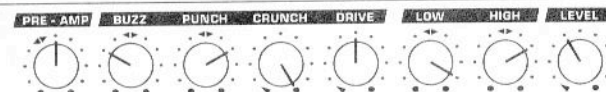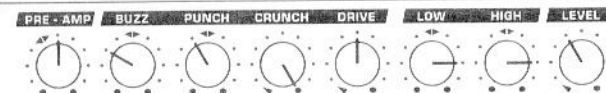
HIWATT- Style

SAMPLE SETTINGS

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
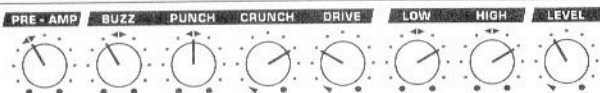
BLUESBREAKER MARSHALL- Style

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
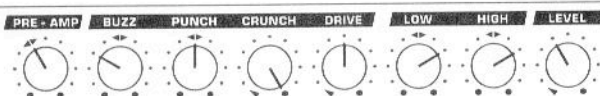
VINTAGE MARSHALL- Style
- also -
WAH MARSHALL- Style
with *Punch* on maximum;
and *Crunch* at 2 o'clock

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
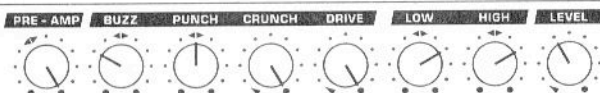
HOT- WIRED MARSHALL- Style

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
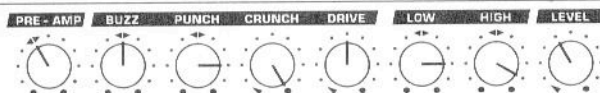
METAL MARSHALL/BOOGIE- Style

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

BOOGIE RHYTHM- Style

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |

BOOGIE LEAD- Style

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
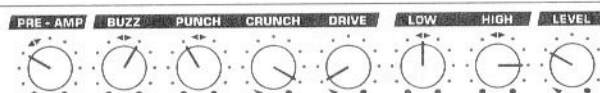
BIG MUFF π - Style

| PRE-AMP | BUZZ | PUNCH | CRUNCH | DRIVE | LOW | HIGH | LEVEL |
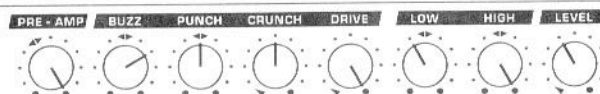
MXR DISTORTION + - Style

CUSTOM SETTINGS
(Keep a record of your own custom settings)

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL

PRE · AMP	BUZZ	PUNCH	CRUNCH	DRIVE	LOW	HIGH	LEVEL