

# “OHM-MAZING” DISCOVERIES

## SECRETS OF THE GROOVE TUBES VIPRE PREAMP

**E**ARLY IN THE ANNALS OF PRO AUDIO, mics and mic preamps were often made by the same company, and the output and input impedance between the mic and preamp were matched to provide the best possible audio quality.

Those days are long gone now, and most condenser mics send a 200-250 ohm load into an input about 10 times the impedance – roughly 2000-3000 ohms.

Altering the load against which the mic has to push fundamentally alters the tone and character of the output signal.

At the core of the Groove Tubes Vipre is a multi-tap high-performance input transformer, with four distinct positions: 300, 600, 1200 and 2400 ohms. This changes the working impedance or loading of a given microphone and can strongly influence the sound qualities by the cumulative effects of small differences.

These differences vary from microphone to microphone, but all mics respond quite audibly when the preamp input impedance is altered. This control feature opens a much larger sonic window to each mic, and provides the ability to magnify certain attractive tonal shifts in the way it responds to impedance changes.

Vintage microphones are especially sensitive to load terminations, as impedance matching was the norm in early broadcast and recording facilities.

Ribbon mics, for example, are sought after for their smooth tonal properties. When properly terminated or loaded with 300 ohms, the tonal characteristics change, and the sound seems to “bloom” in a way most people have never heard.

The equalization changes slightly as well, with the entire spectrum from about 100Hz to 15kHz taking on a very slight tilt, typically around -1dB at the low end, and around +1dB at the upper registers. Very slight when looking at individual frequencies, but the cumulative effect over the whole spectrum is unmistakable.

This kind of variation would be almost impossible to recreate with any kind of EQ, unless the principle of a simple, uncluttered signal path is abandoned altogether.

Moreover, a balanced-bridged or transformerless input is provided, bypassing the variable-impedance input transformer altogether for a completely different sonic character.

An instrument input is also provided on the front panel of the Vipre for easy access, and can be padded by -20dB to accommodate the stronger output signals from active instrument electronics.

### VARIABLE IMPEDANCE INPUTS

Altering the input impedance changes the load against which the mic has to push. This dramatically alters the performance of any mic – from classic ribbons to vintage and modern condensers – even dynamics. All mics will respond similarly in that the apparent proximity gets ‘closer’ when the impedance is lowered, but since you’re changing the load on the mic, you’re altering the performance of the mic – not the preamp.

Some vintage mic preamps (like Neve modules) can be internally hard-wired to one of two different impedances. Avalon’s 2022 and Joe Meek’s VC-1 both have an “impedance matching circuit” – consisting of a resistor network placed AFTER the load is already terminated. But, this isn’t the same as what the Groove Tubes Vipre offers.

This is the only preamp we know of with a front-panel-selectable, truly variable impedance transformer.

In short: You haven’t heard your mics until you’ve heard them loaded at different impedances. With all the control functions available on this unit, anyone with even a modest selection of mics can dramatically increase their tonal options by using a Vipre.

### VARIABLE RISE TIMES

Rise-time is very much the same as “slew-rate” – the rate of speed at which the amplification circuit can amplify the signal.

You can’t go from zero to five volts in no time – and how fast a circuit can amplify is part of what imparts its sound. Vintage circuits were much slower than are today’s, and – in theory – faster is better.

Faster amplification circuits retain the leading edge of the transient signal, especially apparent on the higher frequencies. But slowing the rise time down can mellow or smooth out the signal, often rounding-out harsh sibilants from vocals or edgy tones of instruments.

In a way, you can think of rise-times as a “time machine” for preamps – the slower the rate, the more vintage the sound. No other preamp but the Vipre has this special feature.



The Groove Tubes Vipre is a mono-block, fully-differential Class A all-tube preamp with variable input impedance and adjustable rise time. It can be set for over 20 different tonal variations – all without ever requiring EQ or other signal-degrading devices to achieve them.

### ALL-TUBE, FULLY-DIFFERENTIAL CLASS A DESIGN

Class A means that the same amplification device (in this case, tubes) are doing the entire waveform, both the maxima and minima of the wave.

Class AB and Class B use separate amp devices to do the maxima (or top side) and minima (low side) of the wave. Those are more efficient, but not nearly as accurate or true.

Fully-differential means that the signal remains balanced throughout, never becoming unbalanced or single-ended.

Almost all amp circuits break the balance. (In a console, the signal is single ended from the time it comes into the preamp, until bridged at the output.) This is accomplished by using identical, mirror-image signal paths throughout – and why we use ceramic deck attenuators instead of potentiometers for gain adjustments.

Common mode-rejection ratios are significantly improved, as are signal-to-noise ratios.

### PRECISION GAIN AND GENUINE VU

In order to maintain a fully floated and balanced signal path throughout the entire circuit, there are no potentiometers on the front panel. Instead, gain controls consist of ceramic deck rotary switch assemblies arranged for discrete step attenuation, providing repeatability, ultra-wide control range and superior accuracy.

To watch over all this signal manipulation capability, the Vipre is fitted with a genuine VU meter for signal observation – complete with five separate types of VU response through an amplified VU meter driver circuit that allows for an “expanded view” of -20dB to +4dB – up to a -60dB to +9dB response.

### BOTTOM LINE: ONLY VIPRE DOES WHAT NO OTHER PREAMP CAN

Hear the Vipre – along with our full line of mics at your Groove Tubes audio dealer – or visit us at the New York City AES, booth 1087.

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