

TOTAL FLEXIBILITY FOR THE GUITARIST

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The Music Trades

Reprinted From The June 1997 Issue

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FROM THE VERY INCEPTION of DOD Electronics more than 20 years ago, company co-founder John Johnson has been on a constant pursuit of tone for the guitarist. "For years now, keyboard players have had the advantage of pushing a button to get the exact sound they required," said Johnson, president of Harman Music Group. "Finally, technology has advanced to a point where we can offer the same concept to guitarists." The result? The new Johnson "Millennium" amplifier, a unique guitar amplifier that utilizes physical modeling and advanced signal processing to duplicate the sound of classic amplifiers. After four years of development, Johnson Amplification, a division of Harman Music, is about to commence shipment of this new amplifier.

The idea behind the Johnson Millennium amplifier was to allow guitar players the ability to create any tone characteristic or emulate any amplifier available, whether it be the modern amplifiers currently on the market or the vintage classics of the past. The company's unique integrated sound modeling allows players to duplicate the inherent sounds of all the great guitar amps from the vintage Vox AC-30, Fender Twin, and Marshall Super Leads to the latest Boogie Rectifiers. Another critical element in the design effort was to allow the

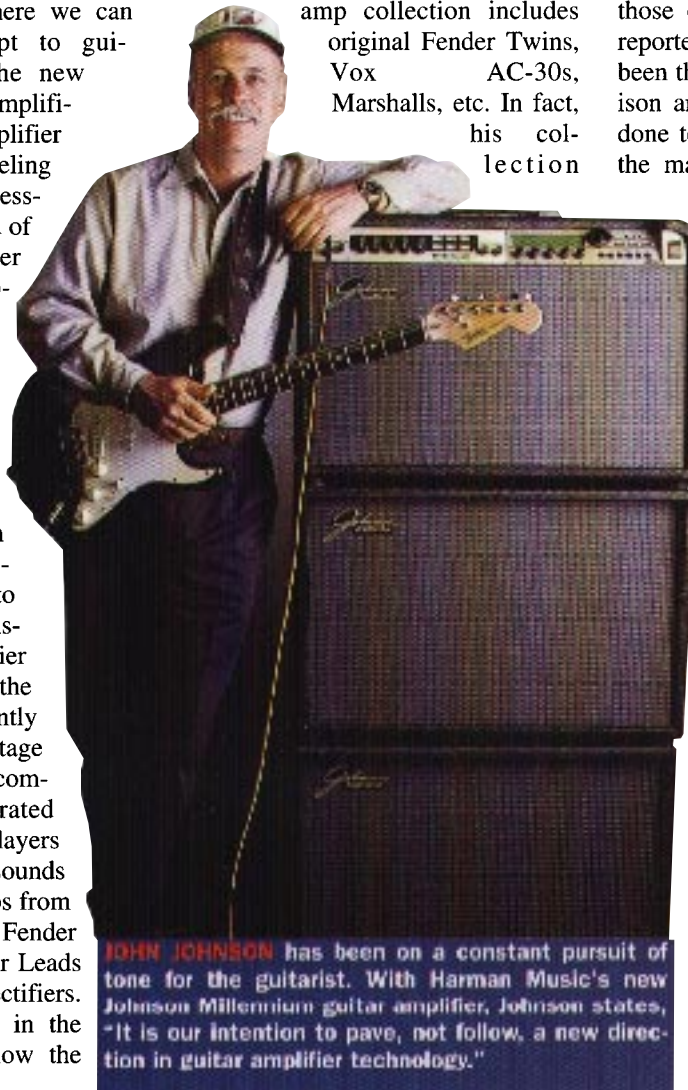
guitar player the ability to select the appropriate sound with the touch of a button. The Johnson Millennium 150 accomplishes just that, is easy to use, works like a regular guitar amp, and is totally flexible.

The Millennium design process started when DOD engineers hooked up with a local instrument collector, Mike Murray, whose impressive amp collection includes original Fender Twins, Vox AC-30s, Marshalls, etc. In fact, his collection

is so extensive that its value exceeds a reported one million dollars. Sounds in the new Millennium amps were modeled after these classic designs. "Not only have we used many of the greatest guitar amps, but we also made sure that we played them with every guitar possible to ensure that the sounds produced by the Johnson Millennium would indeed duplicate those of the classic amps," Johnson reported. "This project has probably been the most extensive amp comparison and analysis that has ever been done to date. And after four years in the making, this project has clearly been the most satisfying that I have done to date."

Millennium's four-year design process is backed by an equally impressive manufacturing effort. A 20,000-square-foot manufacturing facility in Salt Lake City, Utah, houses the latest in automated manufacturing equipment. Unlike most amplifiers, which have bulky discrete components mounted on traditional circuit boards, the new Millennium amps feature miniaturized surface-mounted components. The advantage of surface mount to the consumer is three-fold, according to Johnson. "Surface mount is the way of the future. Customers will see better value, more durability, and higher quality."

The first model in this new line is a 150-watt stereo amp (75 watts per side) with two 12" speakers and an on-board programmable multi-effects



JOHN JOHNSON has been on a constant pursuit of tone for the guitarist. With Harman Music's new Johnson Millennium guitar amplifier, Johnson states, "It is our intention to pave, not follow, a new direction in guitar amplifier technology."

processor. Featuring dual inputs for normal and bright, the Johnson Millennium combo amp's front end has two 12AX7 tubes to provide the warmth and clarity that only tubes can offer. With six different possible amp voicings (American Stack, British Stack, America Combo, British Combo, "Johnson," and Custom Distortion), this amp can simulate virtually any amp on the market as well as create tones of its own.

Tube and solid-state distortions are parallel and can be used simultaneously if desired, for an incredible array of tones. Based on the DSP operations system of DigiTech's new 2112 Studio

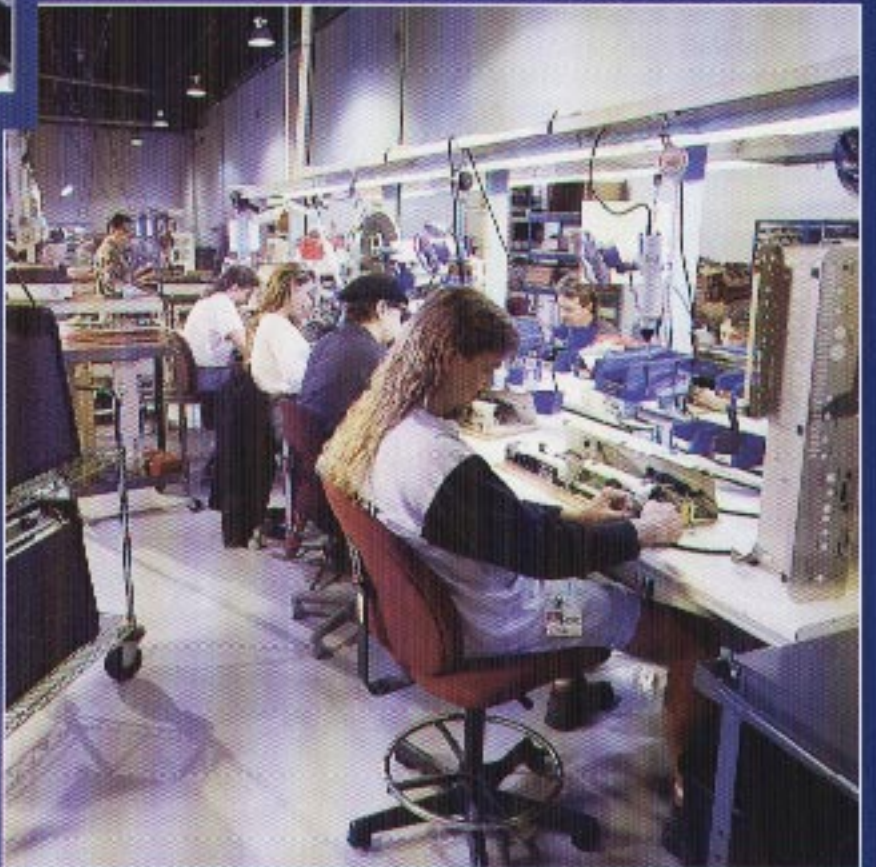


A 20,000 SQ. FT. manufacturing facility in Salt Lake City, Utah, houses the latest in automated manufacturing equipment. Millennium amps feature a patent pending cabinet design, advanced surface mount design technology, and a combination of hybrid analog and digital technology.

Guitar System, the preamp's parameter controls are located on the front panel, giving users instant control over the principal aspects of their sound. A large customer LCD display and backlit buttons also add to the user-friendliness of the system.

Breaking With Tradition

The Millennium amp is far from your traditional box-shaped guitar amps covered in Tolex. "We wanted to have a look that set us apart from the rest of the crowd," Johnson said. "Although having an LCD display in the front panel may have done this alone, we wanted the enclosure itself to be unique. We wanted something retro, yet still contemporary, and came up with the rounded corner idea. When our artist drew up a concept amp with the rounded corners design, we knew right away this was the Johnson look.



The next task was to find a way to take this look and make it a reality.”

Over a period of several months, the Millennium project engineers, John Hanson and Paul Howard, worked with several cabinet manufacturers to get the rounded corner cabinet design to work. Several obstacles had to be overcome, from being able to mass-produce it efficiently to making sure that the cost was kept under control. The result of their effort is a sturdy all-wood design that is now patent pending. Multi-density fiber board (MDF) comprises the majority of the enclosure; however, 13-ply Baltic birch is used for the speaker sounding board, due to its strength characteristics. The cabinet's distinctive rounded corners are milled from a single block of hardwood to also ensure strength at the stress points of the cabinet. Due to the cabinet's unique corner design, standard vinyl could not be used. Project engineers adopted a new Space-Age finish called "Univinyl." "Not only does it go on smoothly for appearance sake," Johnson noted, "but it also seals the wood from moisture and actually strengthens the enclosure itself as it cures. Univinyl is not a rock-hard coating but actually has the texture and pliability of vinyl. This is by far the toughest material ever used on a guitar amp. Its resistance to scuffs, tears, moisture, and even the dreaded lit cigarette, is by far superior to any



DEVELOPING THE MILLENNIUM AMP has probably been one of the most extensive amp comparison and analysis that has ever been done to date. The new amp features one-button ease of use and can duplicate the sound of classic amplifiers.

vinyl or carpet cover available on the market.”

Paul Howard, an engineer with 30 years of experience in the musical amplifier and electronics repair industry, was tapped to design a bulletproof, maintenance-free power amp section. "The final amp stage was designed as a stand-alone block with relatively low gain," said Howard. "The high-current, bi-polar output section is a proven design for both reliability and stability. This allowed me to use a global feedback path and a high-gain input stage to control the overall level, which prevents the output transistors

form saturating uncontrollably (the main cause of harsh 'solid-state sound'). This also allows the output devices to approach their clip point more gracefully, much like an output tube would." And at a conservatively rated 75 watts per stereo side, there is more than enough power for any performance situation.

Just Like A Real Amp

At the heart of the Millennium are proprietary DSP algorithms that duplicate the sounds of the world's most popular guitar amplifiers. Extensive computer and listening tests were performed to achieve the convincing models that the Millennium now contains. "Not only will the Millennium emulate several different amp types," said Johnson, "but a full-function SDISC II-based signal processing section also allows the player to chain up to four effects at one time in any order."

He continued, "However remarkable the competition claims complete DSP modeling of distortion and amps may be, we believe using our hybrid analog and digital technology results in a superior sound. It just sounds more like a real amp." Looking over a large supply of Millenniums prepped for dealer shipment, Johnson remarked, "It is our intention to pave, not follow, a new direction in guitar amplifier technology."

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