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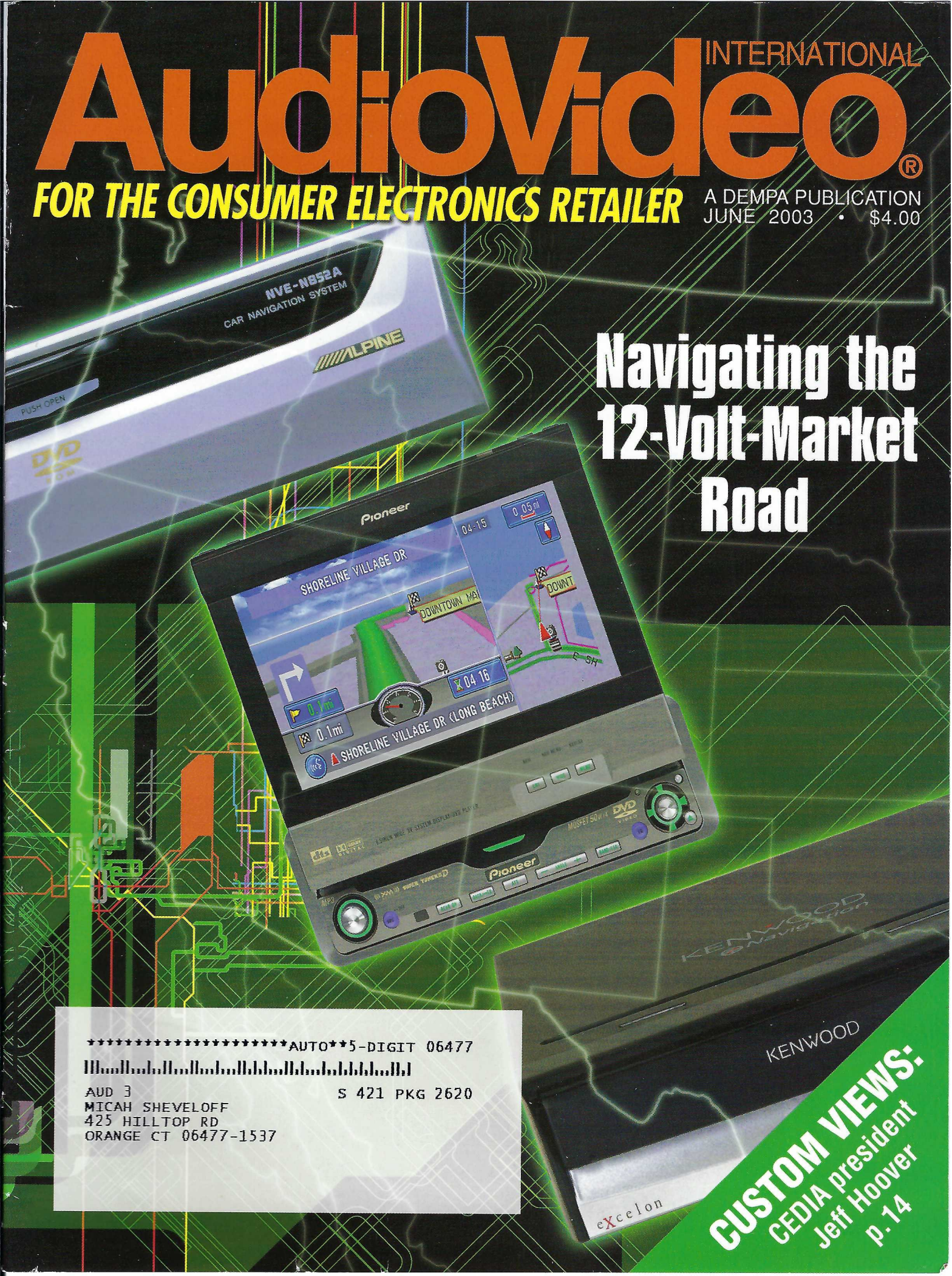

Navigating the 12-Volt-Market Road

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12-VOLT

IN CONTROL

FLEXIBLE 12V AMPS WITH ON-BOARD CONTROLS LEAD INSTALLERS & CONSUMERS TO THE LAND OF BETTER SOUND

BY MICAH SHEVELOFF

It wasn't so long ago that car audio amplifiers were two-channel devices with inputs and outputs.

End of story.

Today, companies looking to establish a place for themselves in the mobile-sound marketplace have added innovative circuitry to the 12-volt amplifier category that has enabled those with a skilled hand and a perceptive ear to tailor the finished system to both the acoustic environment of the automobile and the personal preferences of individual consumers. During a time when once-profitable head-unit prices have plummeted endlessly downward, the added value and potential profit stream of the amplifier category has become critically important to retailers. On-board electronics processing is the increased functionality that has justified higher price-points while providing legitimate value and improving system performance.

Steve Jacobsen is the install manager at The Soundroom in St. Louis, and a 13-year veteran of the 12-volt business. "Amplifiers with built-in crossovers provide quick and easy adjustments that save wear and tear on the midrange and high-frequency speakers in any audio system," he stated. "The quality of the features does vary from brand to brand, but the good ones are quite effective,"

'ON-BOARD PROCESSORS ARE AN EFFICIENT MEANS TO MAKING TUNING CAPABILITIES AFFORDABLE. THEY HAVE ALSO ALL BUT ELIMINATED ENGINE-NOISE PROBLEMS CAUSED BY GROUND LOOPS AND THE ADDED CABLE RUNS REQUIRED FOR OUTBOARD DEVICES.' — RICH INFERRERA, CAR TUNES

Jacobsen added. Jacobsen and The Soundroom do well with the JL Audio class-D mono blocks that come with a quite sophisticated bass EQ circuitry. "Our objective was to be able to offer flexible, professional-grade filters that enable installers to stagger high- and low-pass cutoff points in order to eliminate the annoying peaks that can occur when cutoff points overlap," explained JL Audio's vice president of marketing, Manville Smith. JL offers a varied menu of processing features depending on the amplifier model, including such equalization capabilities as variable Q (bandwidth), center frequency selector, defeatable infrasonic filter, and a remote EQ boost control. "On the subwoofer amplifiers, the concept was to be able to enhance the upper or lower portion of the bass region depending on the woofer's reaction to the acoustics in a specific automobile," Smith explained. On the 500/5 (five-channel amplifier), there is an ambience circuit that can be activated to remove information from the rear speakers that could adversely affect the front-stage imaging characteristics. "The utilization of good-quality filters and equalization circuitry is critical to ensure a really good transition between the mid-bass and subwoofer regions," Smith added. "It is critical to achieving realistic sound through more precise system tuning," he said. JL Audio has set up its Web site (www.jlaudio.com) to provide technical data that clearly explains how to use all of the on-board controls in JL amplifiers. It is constantly updated with the latest information so that both installers and savvy end-users can take advantage of the site. The Soundroom's Steve Jacobsen agrees that on-board processors have significantly

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THE PROCESSING CONTROLS ON THIS JL AUDIO AMPLIFIER INCLUDE A SEPARATE FILTER FOR THE PREAMP OUTPUT, PROVIDING CRITICAL TUNING FLEXIBILITY

improved the performance of car audio systems, especially those built with an eye on budget. "The tuning capabilities are a hundred times better than what it once was," he opined. "We have customers using the same woofers and the same total wattage as their friends have, who come in wondering why their buddy's car sounds so much better than theirs does," related Jacobsen. "Without the tuning power of the on-board processor, there is a big difference in overall performance," he concluded. Although selling an outboard processor leads to increased profits for the retailer, the amplifiers that include basic EQ and crossover functions bring a reasonable level of fine-tuning to customers with budget restraints. Having the circuitry built in to the amplifier makes the installation less time consuming than having to locate and wire a discrete processor.

GREATER CONSUMER VALUE

Bill Acevedo is the owner of Sounds Incredible, located in Highland, NJ. His company typically sells and installs Zapco and Eclipse amplifiers — both manufacturers that offer varying degrees of on-board processing. "It gives customers more value, providing them with an important flexibility while saving them money over outboard devices because the installation is less complex," explained Acevedo, who pointed out that the space benefit in today's smaller, more crowded cars is another consideration. "Sure, the very high-end audiophile or competition systems we deliver use outboard processors, such as those made by Zapco (analog equalization) or Pioneer (the DEX-P9/DEQ-P9 digital processing), however for the budget-minded enthusiast client, the on-board devices work exceptionally well," said Acevedo, who tunes each and every system that leaves his shop.

Rich Inferrera has been building car audio systems for over 30 years, and fondly remembers how it used to be: "All of those 'project boxes' we used to build, with little correction devices inside," he mused nostalgically. "On-board processors are an efficient means to making tuning capabilities affordable," stated Inferrera. "They have also all but eliminated engine-noise problems caused by ground loops and the added cable runs required for outboard devices," he said. "Most good head units these days have oodles of EQ and crossover features as well, which is important because as you tune between satellite radio stations or change tracks on homemade CD mixes, the equalization characteristics of the music change drastically. The listener needs to be able to affect the subwoofer zone, not the bass region, as they are driving. Alpine offers one-touch access to its subwoofer level, rather than leaving it buried within some complex menu. The level control attenuates the signal going into the subwoofer amplifier. Hats off to them for that," said Inferrera, who recently demonstrated the importance of a sub level control for a customer by switching from Eminem to The Steve Miller Band, to The Beach Boys. "You just twist the knob, and dial the subwoofer right in," said Inferrera, who said he was quite satisfied with the results. Another area of Inferrera's business that has benefited from on-board amplifier processing has been the OEM system upgrades sales. "We typically install a high-grade amplifier with crossovers and equalization downstream from the factory radio," he explained. "You then have all of the adjustments necessary to make the system sound really good," he added. Inferrera also operates an installer training facility near Boston called The RITOP School for Mobile Electronics, and individualized system tuning has become an important part of the curriculum that is taught to the students there. "A good system design and proper tuning are critical steps in the sale and installation of any car audio system," Inferrera concluded.

Larry Penn, director of sales and marketing for Focal America, refers to the system-building capabilities of the Audison VR-X Open Deck Construction. "It is a one-box-does-everything concept," Penn explained. Audison, an Italian-made amplifier now imported to the United States, Mexico and Canada by Focal America, offers plug-in modules that handle various crossover, equalization, even analog time delay and SPL tuning chores. "The Open Deck Construction architecture limits the need for external processors and enables retailers to deliver an elegant, high-end installation," Penn added, although he was quick to point out that the modules do not provide the equivalent flexibility of a good outboard processor. "The Audison concept allows for

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that extra tuning capacity that can make a system sound tailored to the needs of the consumer. The modules are a new to many installers, so there will be a learning curve involved as they get used to working with them," Penn said.

"There are two fundamentals at work here," said Alpine's vice president of brand marketing, Steve Witt. "The first is the manufacturer's desire to differentiate products in a fiercely competitive arena. Amplifiers are essentially low-tech devices — innovation is being driven by the sound-processing capabilities built into these products. The second point is based on acoustic principles, and the rationale that the tuning capabilities should be as close to the loudspeakers as possible," Witt explained. "There is simply less chance for signal degradation," he added. "It is both business and technology driving the direction that these amplifiers are headed in. Specialty retailers should reap the primary benefits of these trends because they can better optimize the performance of the mobile audio systems for their consumers," Witt added. "They will have the opportunity to personalize the tuning to satisfy the desires of each individual customer."

THE PLUSES OF DSP

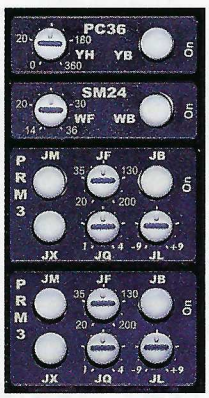
Witt added that DSP (digital signal processing), especially for the bass region, can dramatically improve both the sound quality and the SPL (sound pressure level) capabilities of any subwoofer system. "DSP has enabled us to use an intelligent approach to driving a woofer as opposed to simply brute force, and it results in lower equipment costs to consumers because the use of power is more efficient," Witt explained.

Although signal-processing capabilities have brought numerous advantages to car audio enthusiasts, Witt points out that the installers must be trained to use the technology properly. "In many ways, product advancement is outpacing the installer's capabilities — installation is evolving to become a highly sophisticated skill," Witt stated. "Today's installers can no longer just be taught the key points of craftsmanship and fabrication; the industry now requires them to have a strong knowledge of vehicle acoustics and a working, real-world understanding of digital technologies," he added. Witt and many other industry veterans believe that the rapid changes in technology highlight the importance of MECP training and certification for installers.

Looking ahead, Witt assesses that the use of DSP technology for personalized sound-system tuning will become increasingly important as a key component of the value proposition consumers recognize in the aftermarket segment of the industry. "The precise tuning capabilities of the aftermarket will be a critical advantage motivating enthusiasts to continue to upgrade from their OEM systems," Witt commented. "This becomes mission-critical as we evolve from traditional two-channel audio into a world of multi-channel systems. Sound tuning through DSP should be paramount to specialty retailers, helping them to define the value of their services to consumers," concluded Witt.

Amplifiers designed for automotive use have come along way in the three-plus decades since the industry first began. Active crossover and equalization circuits were not even a vague consideration in early models; however, digital technology and the miniaturization of surface-mount devices have brought flexibility and individualized tuning capabilities to the world of aftermarket car audio. Retailers who endeavor to learn about the technology and provide training to both their sales and installation employees will be poised to profit from the category, as they define themselves and their services in an increasingly competitive marketplace.

'TODAY'S INSTALLERS CAN NO LONGER JUST BE TAUGHT THE KEY POINTS OF CRAFTSMANSHIP & FABRICATION.' — STEVE WITT, ALPINE



AUDISON'S PLUG-IN MODULES (LEFT) ARE ACCESSIBLE THROUGH A CONTROL PANEL BUILT INTO ITS VR-X OPEN DECK CONSTRUCTION ARCHITECTURE