

THE WORLD'S #1 A/V MAGAZINE

# StereoReview

## Year of the MiniDisc?

The Latest Gear Put to the Test

## TITANIC TOWERS

Speakers With Big Bass On Board

## Home Theater SETUP SECRETS

### REVIEWS:

**YAMAHA'S SURROUND-SOUND SENSATION**

**WINNING DVD PLAYERS FROM PANASONIC AND SONY**

**VELODYNE'S \$600 SUBWOOFER**



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IT'S NOT SURPRISING  
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**CINEMA DSP**  
TRI-FIELD

**DOLBY**  
DIGITAL

**DIGITAL**  
**dts**  
SUBROUND

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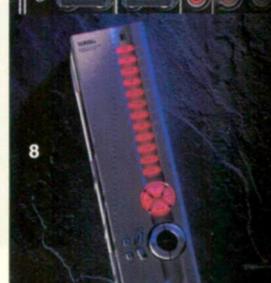
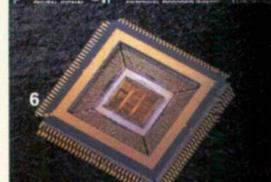
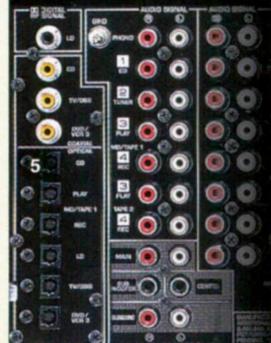
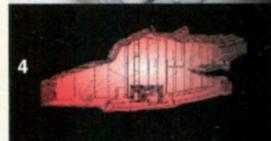
A century may seem like a lot to put into one home theater component. But after experiencing the DSP-A1, enduring anything less will seem like an eternity.

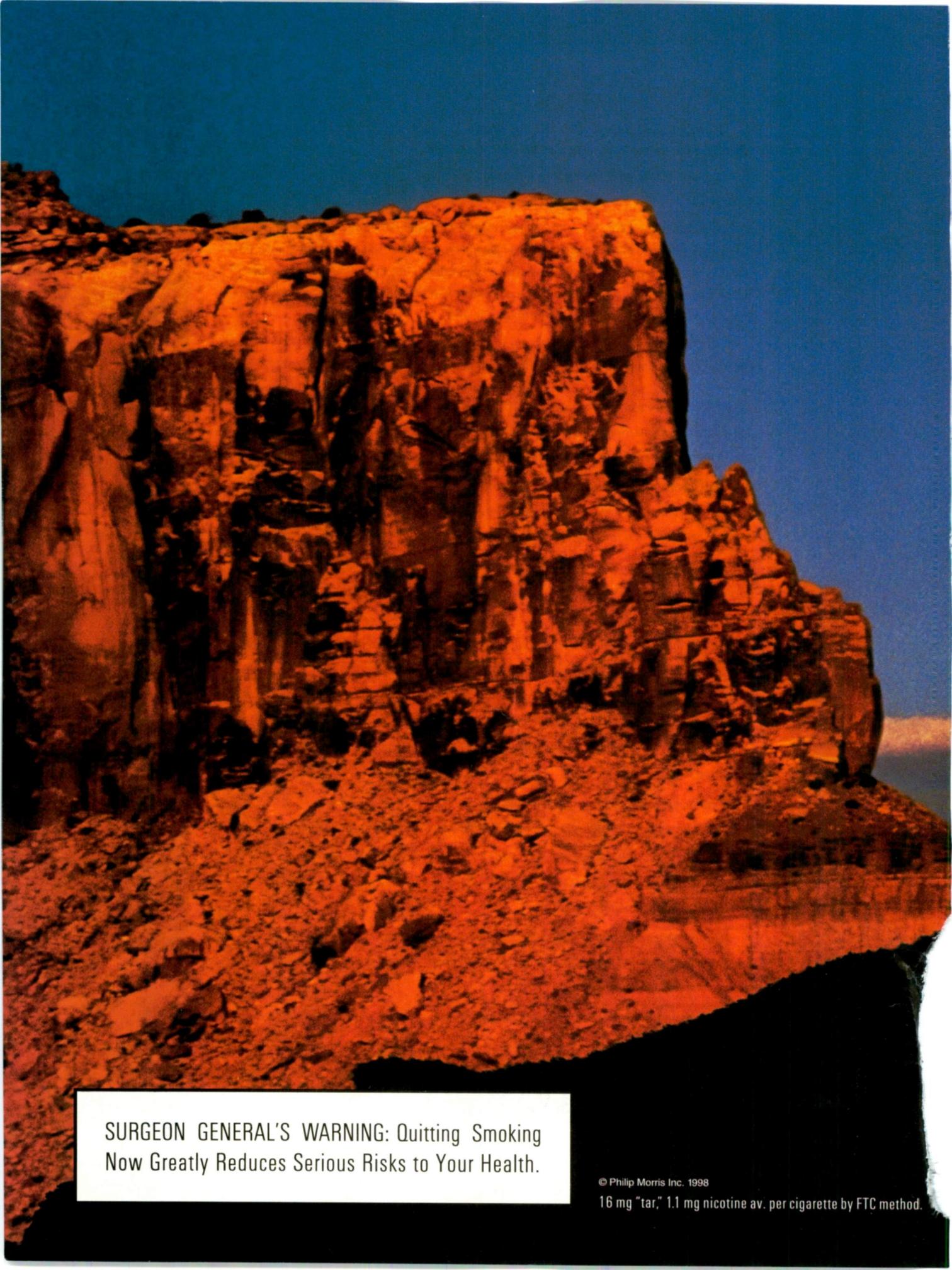
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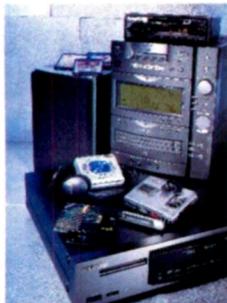
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# Stereo Review



ON THE COVER

See page 66 for details and test data on (from top) Sony's MDX-C7900 car MD tuner, Sharp's MD-X7 MD/CD system and MD-S301 portable player, Sony's MZ-R50 portable recorder, and Kenwood's 1050MD home MiniDisc deck.

Photograph by Dave Slagle

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# bulletin

BY BRIAN FENTON & WILLIAM LIVINGSTONE

## divx digest

Divx players from Zenith should be selling in two test markets (Richmond, Virginia, and San Francisco) by the time you read this. Circuit City and Good Guys have signed on to sell the machines, which play regular DVDs as well as the new pay-per-play Divx discs (see "Pay-Per-View DVD," December 1997). . . . Harman Kardon announced plans to produce DVD players that "include the Divx feature" in its second-generation DVD product line. Look for them sometime in 1999 — assuming Divx is still around then. . . . The latest studio to endorse Divx is MGM, joining Disney, DreamWorks, Universal, Paramount, and Fox. According to Digital Video Express, more than 150 movie titles will be available by summer's end.

## radio's new payola

Who creates the playlist for your favorite radio station? Increasingly, record labels are playing a part. Unlike the payola scandal that began in the late 1950s — where disc jockeys took money for playing songs — it's all legal today.

The payola laws passed after the original scandal were intended to protect broadcasters. They prohibit station employees from receiving payments in exchange for playing certain music. Today's payola works more like a commercial, or radio infomercial. A record company will pay a station to play a song or to program a block of music from its releases. The only requirement? Stations must disclose that the programming has been paid for. The penalty for nondisclosure can be a fine of up to \$10,000 and a year in the slammer.

## all that jazz

Jazz is bustin' out all over New York City this month. The



## STAY TUNED

So, you think that the transition to digital television (DTV) is going to be easy? If the earliest tests are any indication, you should expect the unexpected. When Dallas station WFAA began testing its DTV equipment, nearby hospitals found that their telemetry monitoring systems, which transmit data on patients' vital signs to doctors and nurses, stopped working. Fortunately, no one was hurt, and WFAA ceased testing as soon as it was made aware of the problem. How did it happen? Medical telemetry devices are "secondary users" of the TV band and have been free to use unoccupied portions of the spectrum. However, all TV stations have been assigned new digital channels in those same "unoccupied" portions. In a joint statement, the FCC and FDA pledged to explore the long-term spectrum needs of medical devices to avoid future interference problems.

second annual Texaco New York Jazz Festival, produced by the Knitting Factory, runs from June 1 to 14, followed by the JVC Jazz Festival from June 15 to 27. On June 15 the first annual Jazz Awards will be given at Alice Tully Hall at Lincoln Center.

## and the buyers are . . .

Yo, guys! Women record buyers now outnumber men. They bought 51.4% of records sold in 1997, according to statistics just released by the Recording Industry Association of America (RIAA). The 1997 figures show that buyers 10 to 14 years old accounted for 8.9% of sales and the over-45 age group accounted for 16.5%. Rock still dominates the scene with a 32.5% market share, followed by country

(14.4%), R&B (11.2%), rap (10.1%), and pop (9.4%). Always minority tastes, classical and jazz had shares of only 2.8% each. Total sales in 1997 reached \$12.2 billion. Full-length CDs racked up 70.2% of that total, followed by full-length cassettes with 18.2% (down from 60.4% in 1988).

## 100 years

The 100th anniversary of the birth of the African-American operatic basso and civil rights activist Paul Robeson (1898-1976) will be observed around the world with more than 150 events. Also being widely celebrated this year is the centennial of George Gershwin (1898-1937). Since he bridged the popular and classical fields,

celebrants range from the cabaret singer Michael Feinstein to Carnegie Hall and even the New York Historical Society.

## where's DTS?

DTS (Digital Theater Systems) has been creating a buzz in the audio industry for a couple of years now, and hardware that supports the alternative 5.1-channel format is coming on line from major manufacturers. All that's been missing have been the discs! Fewer than fifty DTS-encoded CDs and about the same number of laserdiscs are available. DVDs have been promised but repeatedly delayed. Starting in June, however, DTS-encoded DVDs should at long last start trickling into stores. By the end of the year, about fourteen titles — ranging from *Apollo 13* to *Liar Liar* — are promised. Meanwhile, DTS hardware is going mainstream. Technics has announced that its \$500 SF-DX720 package will be available in July. It combines the SA-AX720 A/V receiver with the SH-AC500D Dolby Digital/DTS processor.

## faster chips

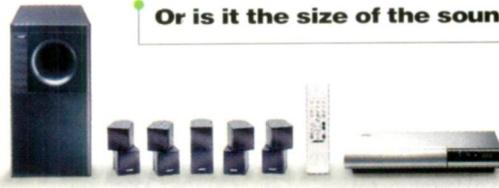
A number of DVD players now being introduced support discs recorded with a 96-kHz sampling rate and 24-bit resolution. However, in all cases so far, the digital bitstream has to be "down-sampled" to 48 kHz because standard SPDIF outputs cannot handle a 96-kHz sampling rate. Now Crystal Semiconductor has announced that it is producing new integrated circuits that can transmit and receive digital audio at the higher rates. Manufacturers should be able to add 96-kHz SPDIF inputs and outputs without any hardware redesign because the new chips are pin-compatible with their predecessors. Stay tuned.

As you begin your search for the ideal home theater audio system, ask yourself what's important:

Is it the size of the equipment?



Or is it the size of the sound?

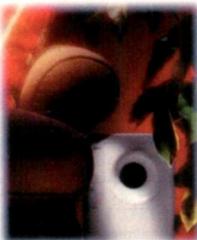


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## Does DTS Have a Shot?

IF YOU ASKED ME that question at the end of 1997 — a full year after Digital Theater Systems (DTS) announced its entry into the consumer market — I would have said “no” without batting an eyelash. With only a few dozen DTS-encoded CDs and laserdiscs under its belt and hardware support mostly from a dozen or so high-end companies offering overpriced preamps and add-on decoders, the fledgling digital surround-sound format appeared to be waging an impossible uphill battle against the mighty Dolby Digital.

Considering the runaway momentum Dolby Digital is currently enjoying with DVD, which will be at least 1,100 titles strong by the time you read this, DTS is still squarely behind the eight-ball as the summer of 1998 approaches. But a few things have changed in recent months that will give the alternate surround format its first real shot at making some headway.

1) Several big-name companies — Kenwood, Sherwood, Sony, Technics, and Yamaha (see page 43 for a review of the DSP-A1) — are either already selling or will soon release components that include DTS decoding alongside the industry-standard Dolby Digital. Particularly noteworthy is a Technics home-theater package due out in July that pairs a 500-watt A/V receiver with an outboard Dolby Digital/DTS decoder for just \$500. Such mainstream support makes DTS decoding an accessible option for the first time.

2) “DTS-friendly” DVD players are also now available from Denon, Pioneer, and Panasonic (see page 48 for a review of the DVD-A310). Since DTS audio is listed only as an option in the DVD-Video format spec — Dolby Digital is mandatory — players must be specially equipped to handle a DTS signal.

3) After two or three embarrassing false starts, DTS has finally produced a list of fifteen DTS-encoded DVD movies from Universal Studios plus two music videos. The movies are slated for release beginning in June (it’s mid-April as I write this), with a higher-than-regular-DVD list price of \$34.95, and the music videos were promised for May.

Assuming Hollywood actually comes through with the DVD goods this time, the question becomes: will there be enough DTS-encoded CDs, laserdiscs, and DVDs to propel DTS beyond the tiny niche it presently occupies? According to the DTS Web site ([www.dtstech.com](http://www.dtstech.com)), 206 DTS titles will be available by the end of 1998 — that’s 79 laserdiscs, 110 CDs, and 17 DVDs, although additional Phase 2 and Phase 3 DVD announcements are planned.

Speaking as someone who has experienced DTS 5.1-channel surround sound both in movie theaters and at home (on laserdisc), I have no question that the format is every bit as capable as Dolby Digital of delivering superb sound quality. Some would even argue that its higher bit rate (four times that of Dolby Digital) translates into superior sound, although there have been no scientifically valid listening tests to verify that claim. Even if DTS is slightly better, that’s not really the issue here. The issue is, can DTS get its act together and facilitate a steady flow of surround-encoded music CDs and movie discs that people want to buy? We’ll be watching.



Bob Ankosko, Editor in Chief

## Stereo Review

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## minidisc vs. recordable CD

First, I've heard that 30 percent of existing audio CD players can read CD-RW (rewritable) discs. On the other hand, it's impossible for any CD player to read a MiniDisc. Second, I've seen consumer CD-R blanks selling as low as \$7 and consumer CD-RW blanks around \$25. The price is continuing to drop. So all the talk about recordable CD being too expensive is not exactly right.

I hope CD-RW can one day have editing features like MD's, but it might be too difficult. MD will always have the size advantage over CD-RW, but that's about it.

**Howard Chang**  
New York, NY

*In an informal survey of ten CD players at our offices, we were unable to find one that would play a CD-RW disc. Most of the DVD players we tried, however, had no problem. In any case, the CD-RW format can't be given editing capabilities like MiniDisc unless the data on the disc are laid out in a more computerlike fashion, as on a CD-ROM, but then compatibility with standard CD players would be impossible. If you need to do extensive editing using this format, it's best to do it on a computer and transfer to CD when you're satisfied.*

## greenberg on hirsch

I second Corey Greenberg's tribute to Julian Hirsch in April's "The High End." As an early subscriber to *Stereo Review*, I had read enough of Mr. Hirsch's clear and cogent equipment analyses that when he reviewed the Rectilinear III loudspeakers in December 1967, I ordered a pair immediately. Other elements in my audio system have been replaced more than once, but after thirty years the Rectilinears continue to justify his judgment — with which my daughter, a professional violinist, concurs.

**A. Elgin Heinz**  
San Rafael, CA

I really liked Corey Greenberg's piece about Julian Hirsch, especially coming from a "high-end" guy. It is a great loss for us readers that Julian will no longer be doing regular equipment reviews. Through the storms of controversy and the overblown "claim game," we could always trust his judgments — based on the combination of his technical expertise, listening acuity, and fine-tuned common sense — and be sure that buying the components he recommended would not be a mistake. He was a master at translating complex technology into concise explanations. I look forward to reading whatever he chooses to write about in the future.

**Dan Shanefield**  
Piscataway, NJ

I started subscribing to *Stereo Review* when I was 16 years old (I'm now 34), and I came to rely on Julian Hirsch's expertise. I still have the first pair of speakers I ever bought, in large part because of his review (Boston Acoustics T830s). I was shocked to read in Corey Greenberg's column of Mr. Hirsch's retirement. Mr. Hirsch, you are the Shakespeare of your genre, and you will be sorely missed in the audio/video world. Kudos for your five-star career!

**Karl Huddleston**  
Orem, UT

## hot DVDs

Congratulations for including Rad Bennett's reviews of DVD releases. I have long been a subscriber to his newsletter, *The Laserdisc Gazette*, and find his reviews of laserdiscs, CDs, and now DVDs on target and quite enjoyable to read. I certainly hope this is the start of a long-term relationship between Rad and *Stereo Review*.

**Larry H. Bevil**  
Kingsport, TN

"Hot DVDs" by Rad Bennett is now a regular feature.

## decoder vs. decoder

In his April review of the JVC XV-D2000 DVD player, Ken Pohlmann states that when switching between the player's Dolby Digital (DD) decoder and his receiver's decoder, he "... could not detect any notable differences in sound quality, suggesting that the two DD chips and respective D/A converters were similar in performance and that the analog interconnection did not pose any significant problems."

This brought to mind David Ranada's "How to Buy a DVD Player" last August, in which he said that it is difficult to over-emphasize the superiority of using a DD-capable receiver's decoder over either the DVD player's decoder or an outboard decoder. He used such words as "rudimentary" and "chaotic" to describe the bass management, multichannel speaker balancing, and time alignment provided by the decoders built into DVD players. Can we assume that the second generation of players has progressed to the point that their decoders are largely comparable to those in receivers?

**Joseph Potts**  
Pittsburgh, PA

*David Ranada replies: While the bass-management systems of DVD players with "full" Dolby Digital decoding have improved somewhat, as has the quality of the decoded signals they supply, I still recommend using an amplifier or receiver with built-in DD decoding because of the*



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greater versatility with different types of speakers and the far higher likelihood of getting bass management correct when you switch among different inputs and types of discs.

#### your right to EQ

Ian Masters's vision of a tone-shapeless Utopia (see "Audio Q&A" in April) is both naïve and insulting. Equalizers don't ruin sound, people do!

As I sit here cleaning my Yamaha stereo ten-band, I am reminded of the satisfaction of defending my family from the dangerous audio effects of overstuffed furniture and glass blocks in my own listening room. A push of a fader or two, and those unruly frequencies were history! Proper training and restraint are mandatory around such dangerous tools, but the thrill of getting the drop on heavy drapes, hardwood floors, and other fidelity thieves outweighs the risk of accidents. (And I don't need to tell you parents out there to never let children play with these things!) In short, you'll get my EQ when you pry it out of my cold dead hands!

Now, if you'll excuse me, I'm on my way to cuzzin Zeke's farm. He's got a Furman semi-parametric equalizer, but we got plans off the Internet to convert it to fully parametric . . .

John Talbott  
Olathe, KS

#### who needs DVD-audio?

Ken Pohlmann's April "Signals" column, "DVD-Audio Will Set You Free," reveals the disquieting fact that the DVD-Audio working group has accomplished precisely nothing. He should have titled it, "DVD-Audio Will Cast You Loose."

The existing CD standard is the strongest link in the audio chain, vastly superior to the transducers at either end. Increased digital word length or sampling rate will be undetectable to 99.99 percent of the listening public. I can see only three things that DVD-Audio technology might bring to the table: 1) pictures, 2) surround sound, 3) much longer playing time.

The first two are already here in DVD-Video. Longer playing time — say, all nine Beethoven symphonies on one disc — must seem about as appetizing to the recording industry as a case of botulism. They can be counted on to fight it with every weapon at their disposal.

Face it: DVD-Audio, as a new, incompatible protocol, is dead, dead, dead. Get over it.

Norm Strong  
Seattle, WA

*Just a wee bit cynical, eh? We're not about to write off DVD-Audio just yet. That the working group was able to bring many important audio/video companies together*

*to explore a new music format is in and of itself a positive step. The real question is, how will the hardware and artistic (software) communities respond to the DVD-Audio working group's "one-size-fits-all" proposal? We'll wait and see. One thing is clear: For a new audio format to succeed, it will have to capture the imagination of the audio buying public. Subtle refinements in sound quality won't do it. The key to success lies in the creative use of multiple channels to deliver a captivating listening experience.*

#### weak reception

Daniel Kumin says in "Receiver Rally" (April) that the Marantz SR-880 provided "only limited reception of . . . weaker or more distant [FM] signals that good separate tuners can bring in with relative ease," that the Harman Kardon AVR 85's "AM reception was miserable," and that the Sony STR-DA90ESG's "AM and FM tuners were a bit disappointing," with the AM tuner being "little short of abysmal even by today's low standards."

But he winds up the article by saying, "at the end of the day, any one of these three receivers should bring a smile to the ears of just about any audio/videophile." Have standards dropped so dramatically in the audiophile world? I would certainly not have a smile (on either my ears or my mouth) if I paid from \$1,400 to \$1,600 for a receiver whose radio reception was no better than Mr. Kumin described for these units.

Ken Massey  
Indianapolis, IN

*Daniel Kumin replies: Mediocre to poor radio reception is, depressingly, the norm rather than the exception among receivers, hence my (deliberately) synesthetic statement about smiling ears despite the tuner showings. I can only assume that most buyers simply don't care much about radio anymore — otherwise market economics would make the manufacturers do better. The technology certainly exists, and it's not even terribly expensive.*

#### correction

For the first of three "Dealer's Choice" systems in April, "A Bachelor's A/V Starter Set," the dealer selected a Sony DVP-S3000 DVD player, but the photo illustrating the system showed a Marantz DVD-810. We regret this error. □

We welcome your letters. Please write to Editor, Stereo Review, 1633 Broadway, New York, NY 10019; or e-mail to [StereoEdit@aol.com](mailto:StereoEdit@aol.com). You should include your street address and telephone number for verification. Letters may be edited for clarity and length.



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5

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	Inputs:	• balanced and standard

# NEW PRODUCTS



**Yamaha** You won't need an outboard Dolby Digital (DD) decoder with Yamaha's second-generation DVD player, the DVD-S700, which has a built-in full DD decoder. It is also said to be compatible with DTS CDs (and DTS DVDs when they become available), passing DTS data to an external decoder without altering it. The player, which plays regular CDs and even video CDs, has one optical and one coaxial digital audio output, as well as composite-video, S-video, and component-video outputs. Price: \$799. Yamaha, Dept. SR, 6660 Orangethorpe Ave., Buena Park, CA 90650; phone, 800-492-6242; Web, [www.yamaha.com](http://www.yamaha.com).

**Linn** The Linn Classik might seem to be somewhat misnamed, as its nonclassic configuration combines a CD player and integrated amplifier in a single box measuring 12½ x 3½ x 12¾ inches. It is rated to deliver 75 watts per channel into 4 ohms. Alarm and timer functions allow the Classik to power up automatically to play a CD at a specified time and then shut itself down. Two signal-sensing standby modes save energy, reducing power consumption to below 3 watts. The preamplifier section includes four line-level inputs, a record output, and an external preamplifier output. An infrared remote control is included. Price: \$1,700. Linn, Dept. SR, 4540 Southside Blvd., Suite 402, Jacksonville, FL 32216; phone, 88E-671-5466; Web, [www.linninc.com](http://www.linninc.com).



**Earthquake** Designed to provide enough rumble to make seismographers sit up and take notice, the Earthquake Supernova powered subwoofer is said to put out a 115-dB sound-pressure level at 30 Hz, exceeding THX requirements by 10 dB. In addition, the bass-boost mode sends the rated output up to 128 dB at 30 Hz, 108 dB at 15 Hz, and 100 dB at 10 Hz. The crossover filter has a slope of 24 dB per octave, and the crossover frequency is adjustable from 30 to 500 Hz. The system automatically powers up when a signal is detected. A remote control is included. Price: \$1,190. Earthquake, Dept. SR, 1215 O'Brien Dr., Menlo Park, CA 94025; phone, 650-327-3003; Web, [www.earthquakesound.com](http://www.earthquakesound.com).



**Soundstream** Soundstream has crossed the Rubicon with its new line of multichannel car power amplifiers. The Rubicon404 is rated to deliver 100 watts each to four channels into 2 ohms. It features a proprietary RUBI (Rapid-Use Branched-Impulse) power supply that is said to eliminate power-supply sag and improve the amp's ability to pump out bass frequencies into impedances as low as 1 ohm. Protection circuitry detects thermal, short-circuit, and voltage problems. Drive Delay Muting is said to eliminate noise when the amp is powered up or shut down. The Rubicon 404 is bridgeable for one 400-watt mono channel or one mono and two stereo channels. It measures 14½ x 11¾ x 2¼ inches and has a removable front "spoiler" that hides the RCA, balanced-line, and speaker-wire connectors. Price: \$659. Soundstream Technologies, 120 Blue Ravine Rd., Folsom, CA 95630; phone, 916-351-1288; Web, [www.soundstream.com](http://www.soundstream.com).

# NEW PRODUCTS



**Adcom** The long-awaited GTP-740 preamp/tuner/surround processor from Adcom provides both Dolby Digital and Pro Logic decoding. It incorporates a digital bass-management system said to improve phase coherence and transient response at low frequencies. Other features include six video inputs, each with both S-video and composite-video connectors, and four digital inputs — two coaxial, one Toslink optical, and one switchable RF/coaxial. The GTP-740 also has switchable audio and video outputs for a remote room. Price: \$1,750. Adcom, Dept. SR, 11 Elkins Rd., East Brunswick, NJ 08816; phone, 732-390-1130; Web, [www.adcom.com](http://www.adcom.com).

**Audes** The Cold War is over, and Audes speakers, made in Estonia using formerly top-secret Soviet military technology, have come to the U.S. The Model 190AC-034 tower speaker, 44<sup>7</sup>/<sub>8</sub> inches tall, is a three-way bass-reflex design with an 8<sup>1</sup>/<sub>2</sub>-inch woofer, an equal-size passive radiator, a 1<sup>5</sup>/<sub>8</sub>-inch midrange, and a <sup>7</sup>/<sub>8</sub>-inch tweeter. Sensitivity is rated as 87 dB, impedance as 8 ohms, and power handling as 200 watts. Price: \$1,000 a pair. Audes, distributed by Savva Group, Dept. SR, 1 World Trade Center, Suite 2223, New York, NY 10048; phone, 212-938-9283; Web, [www.audes.com](http://www.audes.com).



## Lexicon

Perfect for control freaks, Lexicon's Model 700t is a programmable touch-screen remote that provides wireless control for an entire home-theater system. The graphical user interface can be custom-designed to match the components of any setup. Each screen icon can be programmed to transmit a macro combining up to twenty-four individual commands. The Model 700t measures 9 x 3<sup>1</sup>/<sub>2</sub> x 5<sup>3</sup>/<sub>8</sub> inches and has a back-lit display. Price: \$4,000. Lexicon, Dept. SR, 3 Oak Park, Bedford, MA 01730; phone, 781-280-0300; Web, [www.lexicon.ccm](http://www.lexicon.ccm).



## Avance

Avance of Denmark is making its U.S. debut with a line of speakers including the ported Epsilon 910 AV, featuring a 7-inch Kevlar-cone woofer with a 1<sup>3</sup>/<sub>4</sub>-inch voice coil and a <sup>3</sup>/<sub>4</sub>-inch textile-dome tweeter. Its terminals are gold-plated and biampable. Sensitivity is given as 86 dB and nominal impedance as 4 ohms. Available finished in black ash or rosewood vinyl, the speaker measures 13 x 7<sup>1</sup>/<sub>2</sub> x 10<sup>7</sup>/<sub>8</sub> inches and weighs 8 pounds. Price: \$1,000 a pair. Avance USA, Dept. SR, P.O. Box 215, Oradell, NJ 07649; phone, 888-245-7693.



**Paradigm** The PW-2500 (left) and PW-2200 (right) powered subwoofers from Paradigm are designed to deliver floor-shaking performance to below 20 Hz. The 19<sup>3</sup>/<sub>4</sub> x 16<sup>1</sup>/<sub>2</sub> x 21<sup>5</sup>/<sub>8</sub>-inch PW-2200 has a 12-inch driver, and the 21<sup>1</sup>/<sub>4</sub> x 19 x 24-inch PW-2500 features a 15-inch driver with a Kevlar fiber-reinforced cone. Low-frequency extension is given as 18 Hz for the PW-2200 and 16 Hz for the PW-2500, with the cross-over frequency for both continuously variable from 50 to 150 Hz. Both speakers feature a 250-watt amplifier and flared ports, and they are available finished in light or dark cherry or black ash. Prices: PW-2200, \$799; PW-2500, \$949. Audio-Stream, Dept. SR, M.P.O. Box 2410, Niagara Falls, NY 14302; phone, 905-632-0180; Web, [www.paradigm.ca](http://www.paradigm.ca).



## NEW PRODUCTS



**MB Quart** Smaller than a regulation softball, the Octa QL-A40 speaker is a one-eighth-sphere that measures just over 5 inches in every direction. Housing a single 4-inch driver, it is designed for wall- or corner-mounting; hardware is included. Two Octa speakers can be mounted back to back to create a dipole effect, and larger arrays are possible. Frequency response is specified as 100 Hz to 18 kHz  $\pm 3$  dB. Available in black or paintable white. Price: \$99 a pair. MB Quart, Dept. SR, 25 Walpole Park S., Walpole, MA 02081; phone, 800-962-7757; Web, [www.mbquart.com](http://www.mbquart.com).



### JBL

New from Tomorrowland is JBL's Harmony system, featuring a CD player, an AM/FM tuner, built-in speakers, and a clock with dual alarms. The amp is rated to deliver 10 watts each to the main speakers and 20 watts to a woofer. Frequency response is given as 60 Hz to 20 kHz  $\pm 0$ ,  $-6$  dB. Dimensions are  $12\frac{3}{8}$  x  $10\frac{1}{4}$  x  $9\frac{1}{2}$  inches. Remote control supplied. Price: \$430. JBL, Dept. SR, 250 Crossways Park Dr., Woodbury, NY 11797; phone, 800-336-4525.

### Russound

Designed with self-contained mounting clips that are said to make installation a breeze, Russound's SP-523.1 two-way in-wall/ceiling speaker has a  $5\frac{1}{4}$ -inch woofer and a swiveling  $\frac{1}{2}$ -inch tweeter. The plastic frame has an outside diameter of 8 inches, and the steel grille is 6 inches; both are paintable. Mounting depth is 3 inches. Price: \$200 a pair. Russound, Dept. SR, 5 Forbes Rd., Newmarket, NH 03857; phone, 800-638-8055; Web, [www.russound.com](http://www.russound.com).



### Tune Belt

For anyone who's tried squeezing CDs into a back pocket, the Tune Belt CD Player Carrier Plus and Cassette Player Carrier Plus (not shown) provide a convenient way to enjoy a portable music source on the go. Three pockets are provided to carry accessories, spare batteries, keys, ID, change, and so on. The lightweight neoprene carriers, which feature a reflective strip, are hand-washable. Prices: \$25 (CD) and \$23 (cassette). Tune Belt, Dept. SR, 2601 Arbor Pl., Cincinnati, OH 45209; phone, 800-860-1175.



### Jensen

Built for rock-and-roll and styled after pro speakers, the Jensen M1 features a 15-inch woofer, a  $3\frac{1}{2}$ -inch semi-horn-loaded midrange, and a 1-inch horn tweeter. Its sensitivity is rated as a high 98 dB, power handling as 250 watts, and nominal impedance as 8 ohms. Price: \$499 each. Jensen, Dept. SR, 527 Stone Rd., Benicia, CA 94510; phone, 707-748-5935; Web, [www.jensenaudio.com](http://www.jensenaudio.com).

**Cambridge SoundWorks** The New Ensemble sub/sat speaker system from Cambridge SoundWorks features 3-inch drivers in the dual acoustic-suspension bass modules. The  $1\frac{3}{4}$ -inch tweeters in the satellites are said to provide enough midbass output for a uniform dispersion. The  $8\frac{1}{4}$  x  $5\frac{1}{4}$  x  $4\frac{1}{2}$ -inch satellites have mesh grilles finished in charcoal gray Nextel or white, while the 12 x 21 x  $4\frac{1}{2}$ -inch subs are finished in black or white vinyl. Price: \$599. Cambridge SoundWorks, Dept. SR, 311 Needham St., Newton MA 02164; phone, 800-367-4434 Web, [www.hifi.com](http://www.hifi.com).

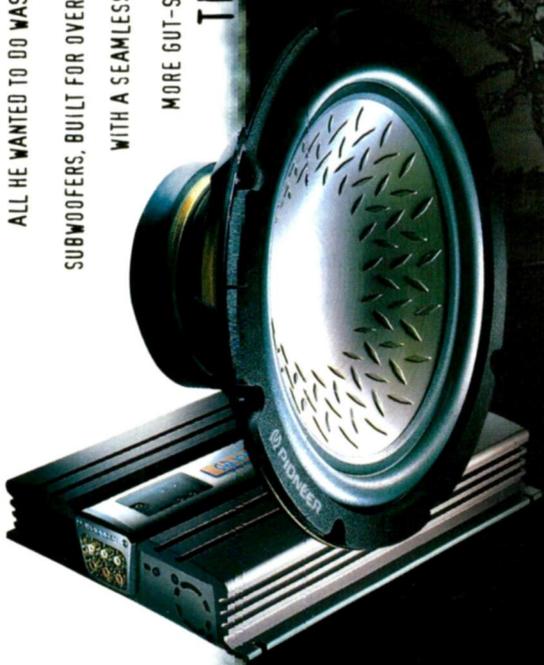


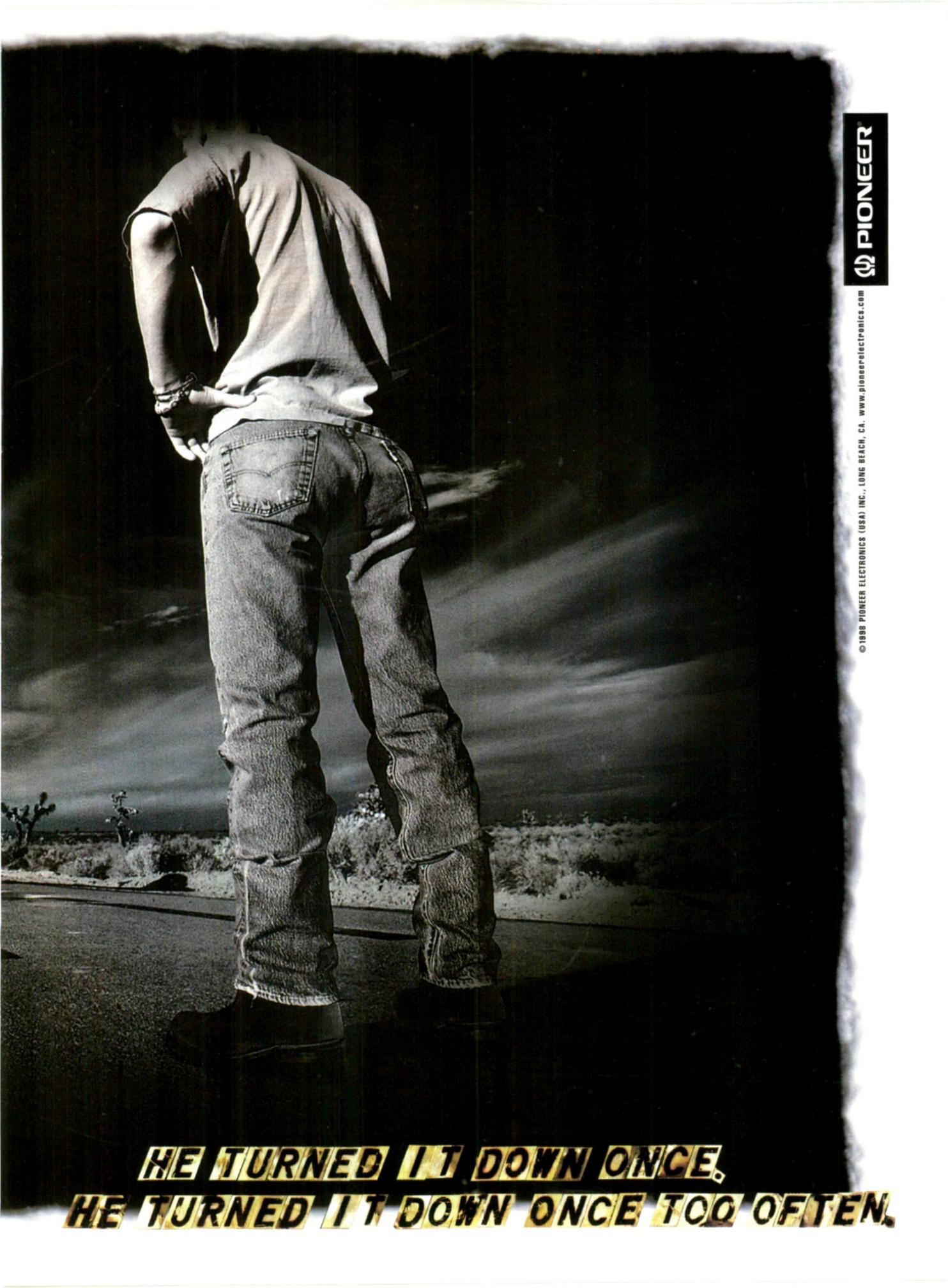
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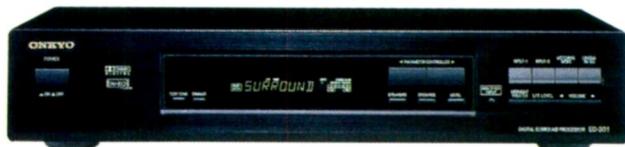
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**HE TURNED IT DOWN ONCE,  
HE TURNED IT DOWN ONCE TOO OFTEN.**

# NEW PRODUCTS



**JVC** Aimed to please the most avid CD collector, JVC's XL-MC334BK 200-disc CD changer allows you to replace up to twenty-five discs without stopping playback. It is CD Text-compatible, and discs can be labeled and searched for by title, performer, or genre with a multipurpose jog dial. Eight user files, each holding data on up to thirty-two discs, can be created to customize playback for multiple users. The files are permanent until changed by the user. A Text Compu-Link feature can transfer titling information to select JVC receivers, which can then display it on screen. The changer also has a powered disc door with auto eject and uses a 1-bit D/A converter. A full-function remote control is included. Price: \$330. JVC, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407; phone, 800-252-5722; Web, [www.jvc.com](http://www.jvc.com).



**Onkyo** Designed with flexibility in mind, the ED-301 Dolby Digital processor from Onkyo features 20-bit digital-to-analog conversion. It has six RCA output jacks as well as a multipin DB-25 jack for connection with any 5.1-channel amplifier or receiver. Discrete six-channel input jacks are also provided for connection with a DTS or other 5.1-channel decoder. The ED-301 has one optical and one coaxial digital input for DD source components as well as two A/V inputs that can both accept either S-video or composite-video signals. Onkyo's Re-EQ circuitry is said to accurately match the tonal balance of movie soundtracks with the acoustics of smaller home-theater setups. A Midnight Theater mode offers defeatable dynamic-range limiting for late-night viewing or other applications needing lower volume. Price: \$400. Onkyo, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446; phone, 201-825-7950; Web, [www.onkyo.co.jp](http://www.onkyo.co.jp).

## Autotek

Hide your amp away! Autotek's Stealth Series 300.S stereo car amplifier is designed to be quickly and simply flush-mounted on panels from 1/4 to 1 inch thick, with all wiring located out of sight below the panel. The heat sink, a low-profile plate extending beyond its chassis, also serves as a wide mounting flange. The 10 1/2 x 2 1/4 x 12 1/2-inch amp is rated to deliver 50 watts per channel into 4 ohms with less than 0.018 percent distortion, or 150 watts into 1 ohm at less than 1.8 percent distortion. Price: \$300. Autotek, Dept. SR, 855 Cowan Rd., P.O. Box 4391, Burlingame, CA 94011; phone, 800-767-2444; Web, [www.autotek.net](http://www.autotek.net).

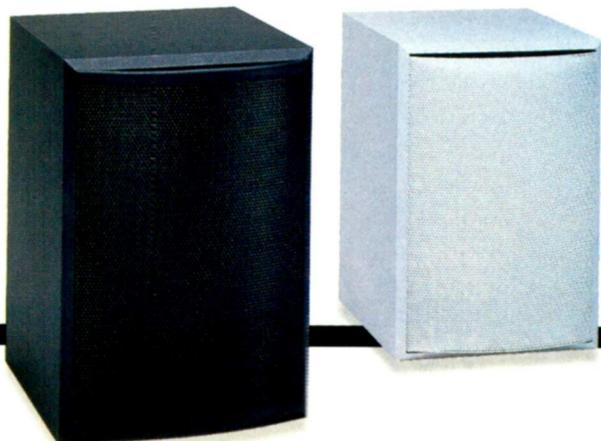


## NHT

A scaled-down version of NHT's flagship Model 3.3, the Model 2.9 speaker has an angled baffle to minimize room reflections and improve tonal balance. The drivers are a 1-inch aluminum-dome tweeter, a 10-inch woofer, and 6 1/2- and 4-inch midranges. The 39 1/2-inch-tall, laminate-finished speaker is available in black (\$2,500 a pair) or in mahogany or sycamore (\$2,675 a pair). NHT, Dept. SR, 535 Getty Court, Benicia, CA 94510; phone, 800-648-9993; Web, [www.nhthifi.com](http://www.nhthifi.com).

## M&K

The LCR-55 bookshelf speaker from M&K is the company's lowest-price satellite speaker. It has a 5 1/4-inch woofer and a 1-inch dome tweeter, and it is recommended for use with amplifiers that deliver between 10 and 150 watts. The speaker's response is said to be smooth over a wide horizontal and vertical "listening window" thanks to its Phase-Focused crossover. Dimensions of the magnetically shielded enclosure are 10 1/2 x 7 x 8 1/2 inches. It is available in black or white with a curved metal-mesh grille. Price: \$225 each. Miller & Kreisel Sound, Dept. SR, 10391 Jefferson Blvd., Culver City, CA 90232; phone, 310-204-2854; Web, [www.mksound.com](http://www.mksound.com).



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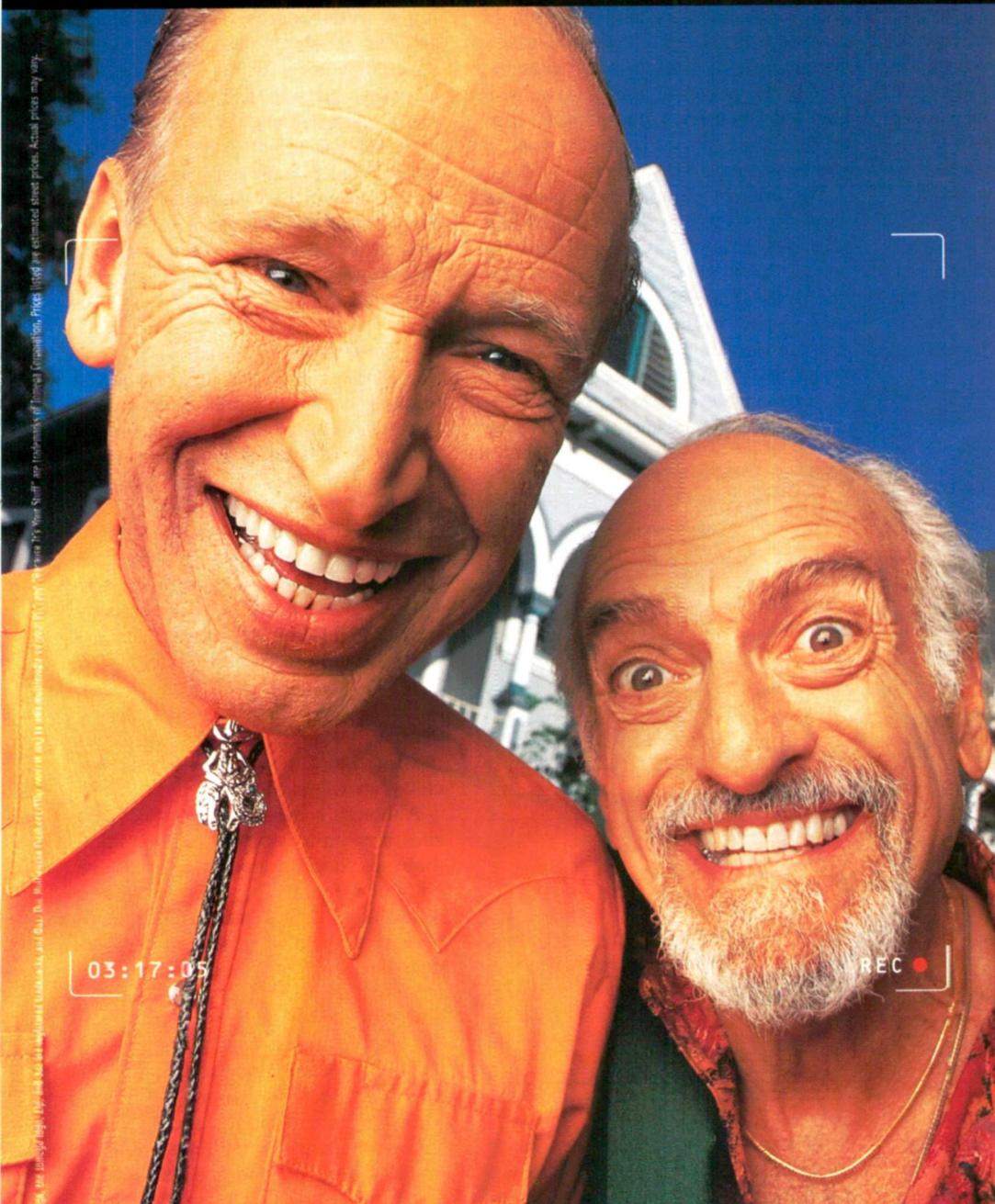


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# Net Profit

BY KEN C. POHLMANN

FOR THOUSANDS of years, music was an ethereal thing that could only be experienced live. Each performance was a unique, one-time event. Because there was a limit to reasonable ticket prices and to how many times a musician could perform, revenue was low and the music "business" seemed destined to be a barely profitable one.

Thomas Edison changed all that with the invention of the phonograph. For the first time, a performance could be recorded and replayed at a later time. Moreover, copies of the recording

ings. There probably isn't a household in America that doesn't have at least a dozen music recordings on LP, cassette, or CD. If you're a music lover, you may own thousands, and periodic trips to the record store may be as vital to you as shopping for groceries.

The Internet is rapidly changing the way information is disseminated and accessed. E-mail has made overnight delivery seem slow and faxing too limited in its applications. Countless Web sites contain millions of pages of text and multimedia content. Whether for profit or not, there seems to be an unstoppable urge to post every important announcement — and every



could be manufactured and sold to countless listeners. The lucrative record industry was born, along with its intricate distribution chain. Today, although concerts can be independently profitable, most musicians perform only to promote sales of their recordings. Many people have never heard their favorite performers live; they know them only through record-

bits of trivia — on some Web page. It would be a very tame prediction to say that within our lifetimes, every bit of human knowledge and information will be accessible on the Internet.

In the same way the Internet is changing everything else, it is also changing

the music industry and the distribution of music. Every self-respecting record label has a Web page. In the case of big labels, these pages respect the traditional distribution chain. They merely advertise the products and leave the selling to retail stores. However, many smaller labels bypass retail stores, which may not stock the labels' records anyway, and sell their recordings directly to consumers, delivering CDs by mail. As you might expect, traditional music retailers have not been oblivious to the growth of e-commerce on the Web. Tower Records, for example, has created an impressive online presence ([www.towerrecords.com](http://www.towerrecords.com)) that is a perfect extension of its stores.

## the new record store

Some new companies have eschewed bricks-and-mortar establishments altogether, creating virtual music stores similar to the virtual bookstore [www.amazon.com](http://www.amazon.com). Twin brothers Matthew and Jason Olim, fresh out of college, founded CDnow ([www.cdnw.com](http://www.cdnw.com)). The fledgling company posted revenues of \$387 in its first month of operation, August 1994. For 1996 the company posted \$6 million in revenue, and expects to show \$18 million for 1997. Even musicians are getting into the act. Artists who do not have a label can sell their wares directly on pages such as the Internet Underground Music Archive ([www.iuma.com](http://www.iuma.com)).

Although some music-oriented Web sites are limited to text and graphics, these are about as appealing as perfume without a scent. The strongest music pages have *music*. Music can be encoded and transmitted in various file formats, such as .au, .wav, and .aiff, but the most expedient formats employ powerful data-reduction to shrink the file size so that it can be transmitted quickly. Depending on the reduction ratio, music can be efficiently downloaded or streamed in real time.

Given enough waiting time, any kind of file can be downloaded, but only a few formats satisfy the need for both speed and fidelity. For example, Liquid Audio, MP3, and Shockwave are all widely used for downloading music. Liquid Audio ([www.liquidaudio.com](http://www.liquidaudio.com))

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## PERIPHERALS

in particular has developed a package that allows full-featured downloads. It employs a version of Dolby Digital that provides very good fidelity at a variety of bit rates, and it even allows lyrics, credits, and artwork to be included in the file. Liquid Audio also addresses such all-important considerations as electronic transaction, digital watermarking, and multilevel encryption. For example, anti-copy protection can be embedded in every Liquid Audio file.

An impressive late entry to the audio-downloading market is AT&T's a2b technology ([www.a2bmusic.com](http://www.a2bmusic.com)). Like Liquid Audio, a2b provides efficient downloading as well as watermarking and encryption.

The MPEG-2 Audio Layer-3 standard, generally known as MP3, was specifically designed to provide a high degree of data reduction and is thus perfect for Internet downloading. As used in the popular XingMPEG encod-

the Internet — would cause interruptions in the playback signal.)

The most popular type of streaming format is RealNetworks' RealAudio ([www.realaudio.com](http://www.realaudio.com)). RealAudio files are ubiquitous across the Web, streaming everything from garage bands to symphony orchestras, from hockey games to poetry readings. Although the fidelity is quite limited, RealAudio is nevertheless wildly popular. Copies of the new RealPlayer 5.0 software are being downloaded at a rate of 500,000 per week, and it is estimated that over 30 million RealAudio players now exist.

Microsoft has partnered with RealNetworks and announced that its NetShow software will play RealAudio and RealVideo files as well as files that use the open-standards Advanced Streaming Format (ASF) on which NetShow is based. Macromedia's Shockwave ([www.macromedia.com](http://www.macromedia.com)), another popular audio-streaming package, conveniently integrates with Macromedia's Director multimedia authoring program.

All kinds of Web sites are using music samples, both downloaded and

could hold 300 albums — all online and cataloged.

E\_mod (encoded music, online delivery) is the Music Boulevard's term for music that can be directly purchased over the Web as Liquid Audio files. Currently, a number of e\_mod singles are for sale. Stewart Copeland's "Central Park Thrash" is a 4 MB file selling for 99¢. Alternatively, how about Max Levinson's "Six Little Piano Pieces by Schoenberg" — again, only 99¢.

### multicasting

The Internet is extremely efficient at sending data, like e-mail, from one point to another; this is called *unicasting*. Likewise, direct e-music transactions can be accommodated. But for some applications, point-to-point communication just doesn't work. For example, it would be inefficient or impossible to use current methods to send the same music to millions of users simultaneously. Enter data broadcasting, sometimes called *multicasting*. Using terrestrial-broadcast, satellite-downlink, cable, or even traditional Internet connections, this new technology will provide efficient data distribution to millions of users simultaneously.

When such efficient multicasting becomes available, traditional music carriers, such as the CD, might seem too expensive or too much of a hassle. Real Networks has teamed up with MCI to implement multicasting, and NetShow also supports multicasting. To test the waters, America Online has developed its AOL Radio service, capable of multicasting audio to 100,000 simultaneous users. The player will be incorporated in future versions of AOL's client software. Data broadcasting, according to its proponents, will one day become the dominant form of music delivery.

It would be premature to forecast the death of the retail record store. Rather, it seems likely that such stores will always remain a viable part of the music-distribution system. However, there is also no denying that the distribution experiments pioneered by dozens of established and new companies will eventually lead to more convenient ways for us to acquire music. Now, if only we could download our groceries. □

*Contributing editor Ken Pohlmann is coauthor of the new book Writing for New Media: The Essential Guide to Writing for Interactive Media, CD-ROMs and the Web (John Wiley & Sons).*

## N2K is aggressively pursuing its vision of the future, in which physical media are supplanted by electronic online delivery.

er ([www.xingtech.com](http://www.xingtech.com)), for instance, MP3 can compress a typical pop/rock song to about 5 megabytes so that it can be downloaded in a reasonable amount of time. Plus, it provides very good audio quality. Unfortunately, MP3 has become the format of choice for music piracy, unfairly getting a bad rap because some individuals have illegally posted copyrighted music on their Web sites, where it can be downloaded by anyone. To stem the flow, the Recording Industry Association of America (RIAA) has secured temporary restraining orders and preliminary injunctions against some of these sites.

### streaming along

When the size of a file is reduced so much that it can be received as fast as it can be played, the file can be *streamed*. With audio streaming, the music begins to play as soon as a buffer memory receiving the signal is filled. (The buffer is needed because without it interruptions in the flow of data — common on

streamed, to tickle the ears of potential buyers, tempting them to purchase the CD. But whether they promote in-store or mail-order sales, they do not challenge traditional distribution.

Companies such as N2K ([www.n2k.com](http://www.n2k.com)) do challenge it. N2K runs the Music Boulevard online superstore ([www.musicblvd.com](http://www.musicblvd.com)), with more than 200,000 music titles, as well as numerous music-genre sites such as [www.rocktropolis.com](http://www.rocktropolis.com) and artist sites such as [www.davidbowie.com](http://www.davidbowie.com). Moreover, N2K has inked deals with America Online, Netscape, and MTV that make Music Boulevard the key music retailer within those Web sites. N2K is also aggressively pursuing its vision of the future, in which physical media are supplanted by electronic delivery. Customers would log on, go shopping — perhaps while listening to a live concert — and then purchase and download their selections, burning them to CD-R or storing the data on their hard drives. Using data reduction, a modest 20-gigabyte drive

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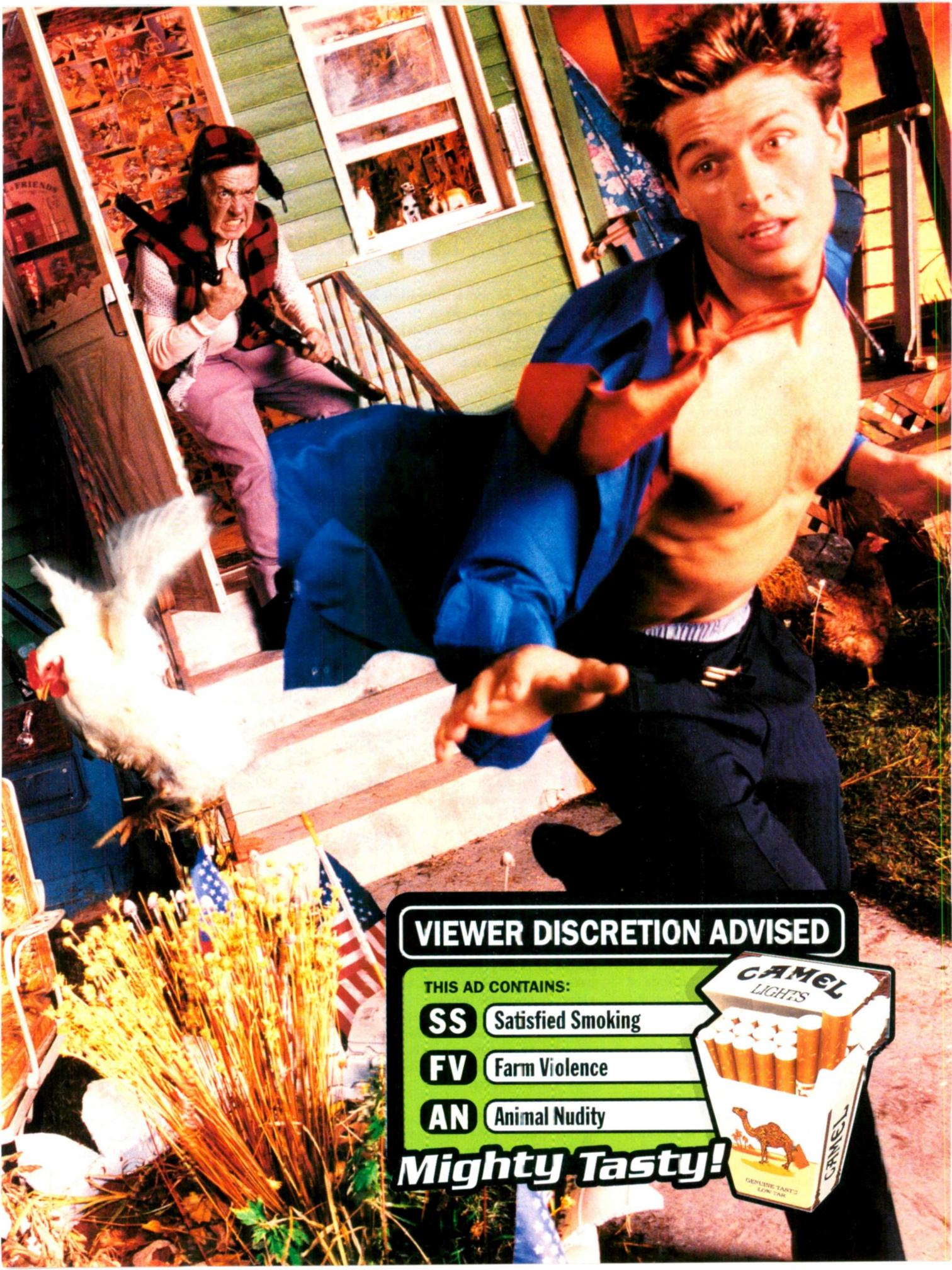
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THIS AD CONTAINS:

**SS** Satisfied Smoking

**FV** Farm Violence

**AN** Animal Nudity

**Mighty Tasty!**

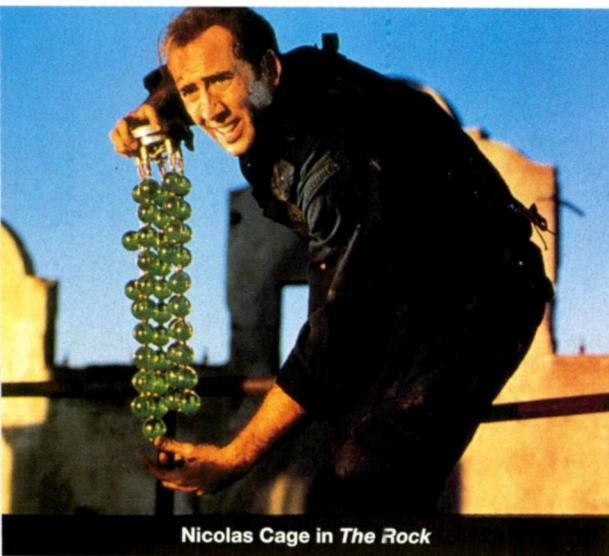


# Hot DVDs

RECOMMENDED NEW TITLES AND CLASSIC REISSUES BY RAD BENNETT

## THE ROCK

The transfer of this 1996 thriller — in which Sean Connery, playing the only man ever to escape from Alcatraz, breaks back in with Nicolas Cage's FBI chemical-weapons expert to free hostages — is a perfect DVD demo for a newly purchased player. The picture is loaded with detail, whether it's showing a long pan of San Francisco's skyscrapers, the electronic gadgetry in the command post, explosions and fireballs in the sewers beneath Alcatraz, or the cable car careening off its tracks in the spectacular chase scene — not to mention the close-ups of Connery's scraggly gray beard and deranged military commander Ed Harris's intense eyes. Images have a sheen



Nicolas Cage in *The Rock*

and a freedom from grain and noise. The Dolby Digital 5.1-channel sound is state of the art, too. I wouldn't want to go on record as saying *The Rock* is one of the greatest action-adventure movies ever made, even though the performances by Connery, Cage, and Harris sometimes raise its level above mere macho violence. But as a DVD viewing experience, it is one of the biggest out-and-out thrills the new format has provided so far. Note: In a special feature shared with other Disney-related titles, selecting the French option gives you not only French-language dialogue but also totally translated

credits, and the movie title itself blazes across the screen as *Le Rocher*.

One-sided; English and French, Dolby Digital 5.1; Spanish subtitles; letterbox (2.35:1); feature, 136 min. Hollywood, \$29.99.

## APOLLO 13

Arguably director Ron Howard's best work to date, the 1995 film *Apollo 13* keeps the viewer absorbed throughout. Tom Hanks does a brilliant turn as mission leader Jim Lovell, supported by earnest, three-dimensional characterizations from the cast as well as by singularly natural-looking special effects. The handsome transfer is part of MCA Universal's Collector's Edition series, the DVD counterpart to the company's Signature Collection laserdiscs. This DVD doesn't offer a full shooting script or still-frame archives the way *Dante's Peak* does and some soon-to-be-released titles will do, but it does have a trailer, production notes, cast bios, a lengthy documentary called *Lost Moon: The Triumph of Apollo 13* (which, among other things, shows how the realistic scenes of weightlessness were not faked but actually shot far above earth in a NASA training craft), and two interesting full-length commentary tracks, one by Howard, the other by Jim and Marilyn Lovell. The picture throughout is crisp and clear, and the Dolby Digital 5.1-channel mix is effective and well distributed, if a bit lacking in bass compared with the laserdisc version.

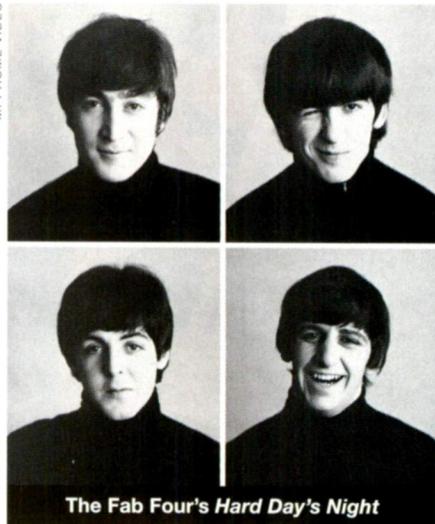
The menu is easy to use, and a PG rating makes *Apollo 13* a high-tech, high-quality release for the whole family.

One-sided dual-layer; English, French, and Spanish, Dolby Digital 5.1; subtitles in French (documentary) and Spanish (feature and documentary); letterbox (2.35:1); feature, 140 min; documentary, 58 min. Universal, \$34.98.

## A HARD DAY'S NIGHT

This classic 1964 movie starring the Beatles was made just after they took America by storm with an appearance on the *Ed Sullivan Show*. Directed by Richard

MPI HOME VIDEO



The Fab Four's *Hard Day's Night*

Lester — who had impressed the band with the zany antics in *Running, Jumping, and Standing Still*, his early collaboration with Peter Sellers — *A Hard Day's Night* fictitiously chronicles 48 hours in the lives of the Fab Four. Besides the title tune, the movie includes such great songs as "I Should Have Known Better," "If I Fell," "And I Love Her," and "Can't Buy Me Love." It's a delightful excursion into early rock innocence that still entertains thirty-four years later. For the DVD transfer, MPI used a completely restored print done in 1996 by Paul Rutan, Jr., for the Fourth Annual Movie Preservation Festival on cable's AMC channel. It is so good that it sets new standards for black-and-white on DVD. There's not a trace of the graininess that so often makes classic b-&-w films look "old." High-contrast images have a focus more like that in a local cinema than in a home theater. The sound is the stereo remix heard in the 1982 reissue of the movie. Topping things off are the 1982 trailer, several newsreels, an interview with Lester, full notes on the restoration process, and a print of *Running, Jumping, and Standing Still* (unfortunately, not at all restored).

One-sided; English, Dolby Digital 2-channel stereo; French and Spanish, Dolby Digital 1-channel mono; English, French, and Spanish subtitles; feature, 90 min. MPI Home Video, \$24.98.

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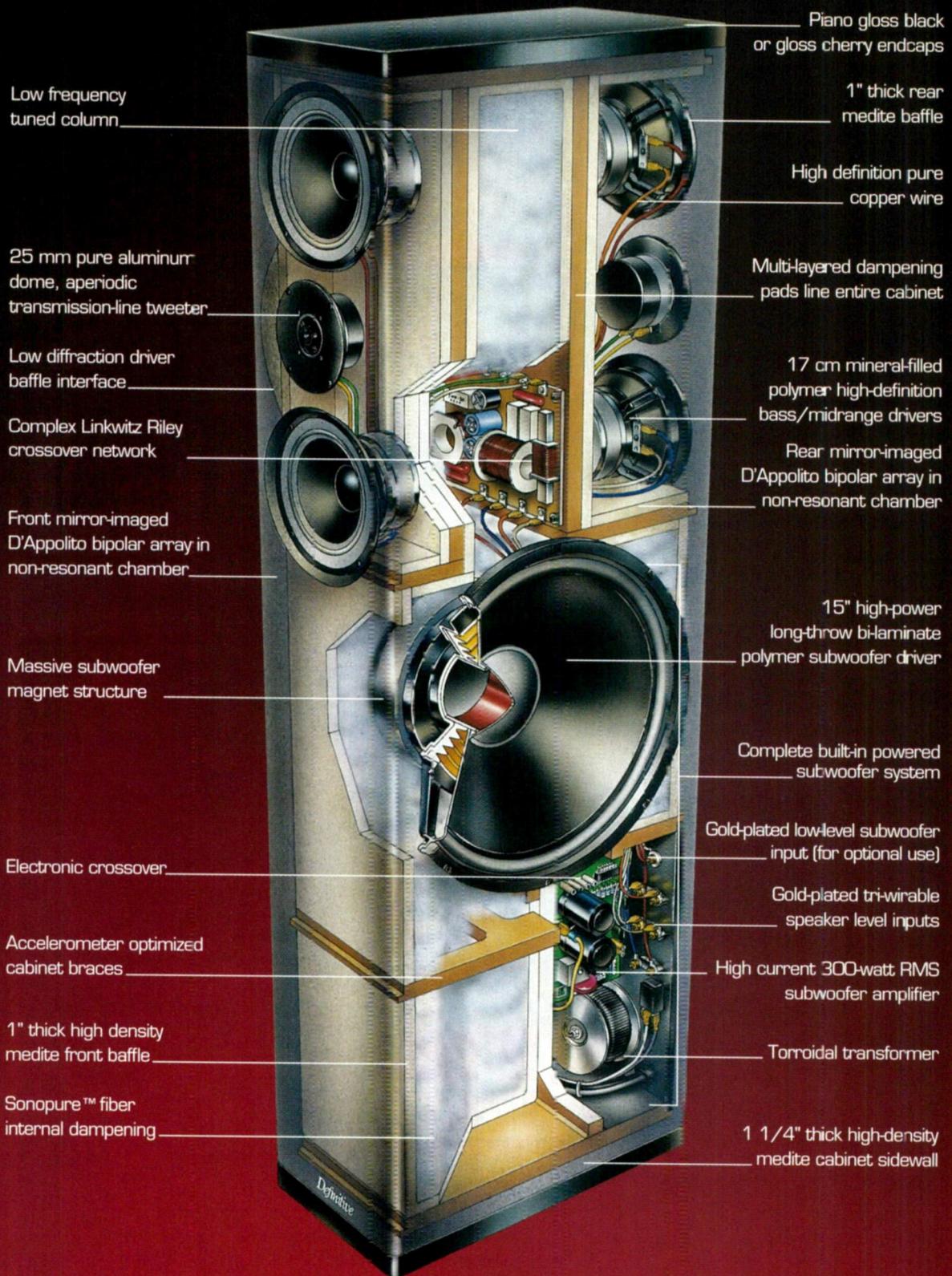
"DTS just adds more clarity and depth to the music and effects in a movie.  
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Jeff Cherun - Home Theater (August 1997)

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**-Julian Hirsch, *Stereo Review***

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—Julian Hirsch, *Stereo Review*, USA

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—*Prestige HiFi, France*

Our unprecedented Grand Prix triumph confirms what the world's top reviewers all know: that our amazing BP2000, BP2002 and BP2004 combine highly advanced technology and superior build quality to achieve truly unsurpassed sonic performance plus unequalled value.

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Definitive's revolutionary BP2000, BP2002 and BP2004 combine our incredible bipolar technology with dual built-in high-powered subwoofers (BP2000: 15"/300 watts/\$1499 ea., BP2002: 12"/125 watts/\$999 ea., BP2004: 10"/125 watts/\$749) for extraordinary sound quality beyond anything you've ever heard.

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Both music and movies are reproduced with outstanding purity, transparency and life-like realism. And the astounding high resolution imaging, magnificent soundstaging, awesome bass and explosive dynamic impact will totally envelop you in sonic ecstasy. Yes, these speakers are simply amazing!



Definitive's award-winning BP2000, BP2002 and BP2004 Home Theater Systems all combine our revolutionary bipolar technology with two awesome built-in powered subwoofers for unsurpassed performance.

See our dealer list on page 34

## **"Most Spectacular Speakers Ever... Amazing Music and Home Theater"**

—*HiFi Review, Hong Kong*

In addition to being an audiophile's dream, the BP2000, BP2002 and BP2004 are also the main speakers in Definitive's Ultimate Home Theater Systems. These astonishing systems are absolutely the finest sounding available. They recreate a "you are there" virtual reality that actually puts you into the sound-space of the original cinematic action.

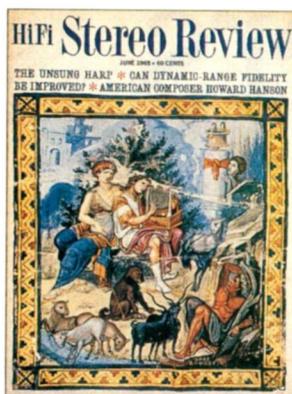
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—*Home Cinema Choice, England*

Experts agree that these complete Dolby Digital AC-3\* and DTS\* ready home theater systems will deliver the ultimate listening experience in your home. They combine BP2000s, BP2002s and BP2004s with our perfectly timbre-matched center and rear surround speakers. Awesome dual powered subwoofers are already built into the sleek towers. Experience these Grand Prix award-winning superspeakers today!

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## 30 years ago

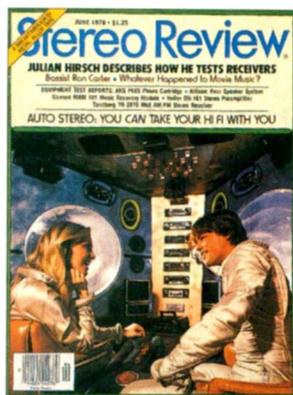
"It has been my dubious privilege," wrote William Anderson in his June 1968 editorial, "to plow through at least a dozen versions of what I have come to call 'The Bandwagon Article,' a literary exercise which seeks to prove that rock-and-roll is the music of the future, that the whole 'classical' genre is moribund, that Beatles songs are equal if not superior to the best of Schubert's. . . . I have tried hard to understand the rationale of these arguments, but it still looks to me like surrender, loss of perspective, and failure of nerve." Meanwhile, in Best of the Month, Rex Reed swooned over Liza Minnelli's *Liza Minnelli!* "On all of these cuts she seems to know exactly what she's after," he confessed. "I think it's my heart."



Liza Minnelli, 1968

Hirsch-Houck Laboratories tested the Marantz Model 18 receiver (\$695), deemed to be "fascinatingly complex. . . . Its appeal will probably be limited to the well-heeled connoisseur of fine audio equipment, who will not begrudge the considerable investment in this fine and unusual instrument."

In "I Remember Mono," music editor James Goodfriend said, "Stereo's total dominance may mark, in a musical rather than a technical way, the end of [an era]. It is a reminder that technological advancement is achieved at a cost, and that cost is frequently the loss of something aesthetic and human."



## 20 years ago

Etsuro Nakamichi, at a press conference for his company's new products, surprised journalists by pulling out of his pocket, as Craig Stark called it, "a totally new *kind* of metal-alloy tape that is quite possibly destined to revolutionize the recording industry," a Type IV cassette. "Looking down the road a bit," Stark wrote in the June 1978 issue, "I suggest that the metal-particle tapes . . . may be the realistic home alternative to digital recording. My computer-wise friends say that analog recording is obsolete and can never be improved enough to compete with their 'bit streams.' But when I look at the phonograph as a method



AR tower speakers, 1978

of home music reproduction, it seems no less 'outdated' and yet it's still going strong. Time alone will tell."

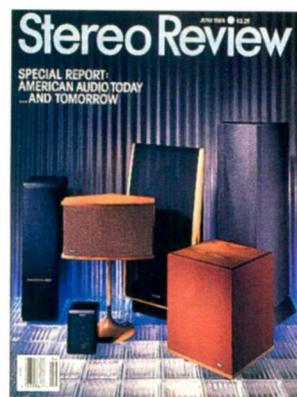
Among new products was Acoustic Research's Model 9 tower speaker system (\$650) with two side-mounted 12-inch woofers, an 8-inch lower midrange, a 1½-inch upper midrange, and a ¾-inch tweeter. Also shown was Van Alstine's first preamplifier, the Model 1 (\$600). And Hirsch-Houck Labs reviewed the Hafler DH-101 preamp (\$300), the first product from Dynaco founder David Hafler's new company. The verdict: "It looks to us as though the Hafler touch has, if anything, become even more refined with the passage of time."

"For several years now I've put up with Steve Simels's narrow-minded and perverted opinions about music," charged William Sniger of Raynham, Massachusetts, in the Letters column, "but his March review of Bob Welch's *French Kiss* was the last straw. It is beyond comprehension how he can eulogize a *Gong Show* reject like Elvis Costello and then call a superb talent like Welch 'insipid, watery, and undistinguished.'"

## 10 years ago

Our June 1988 special report on "American Audio Today . . . and Tomorrow" included interviews with Altec Lansing's Edward Anchel, Audio-Technica's Jon R. Kelly, Bose's Amar Bose, Canton's Steven Teachout, Carver's Bob Carver,

Harman Kardon and JBL's Thomas Jacoby, Koss's Michael Koss, Marantz's James Twerdahl, Polk's Sandy Gross, Radio Shack's Bernard Appel, Shure's Jim Kogen, Soundcraftsmen's Ralph Yeomans, and Sumo's Randy Patton. "Which companies prosper," wrote editor-at-large William Livingstone, "will depend on how they react to economic, technological, and demographic changes and how we consumers respond to their products."



Citizen introduced its CBM 777 portable CD player (\$169) — weighing 3 pounds. And from Sound Pipes came speakers that looked like, you bet, pipes, priced at \$400 to \$1,500 a pair.



Citizen CD portable, 1988

Recalling her early days in Austin, Texas, where as a teenager she had a five-year stint at a tough bar called the Hole in the Wall, folk/country singer Nanci Griffith told critic Alanna Nash in an interview, "The only time I ever stopped playing was the night somebody smashed some guy's head against the cigarette machine in the middle of my set."

— Ken Richardson

# “Definitive’s Subwoofers Win Grand Prix Award for the 4th Straight Year!”

*You must hear our new \$699 PF 15TL subwoofer with a 325-watt amp and 15" woofer for earth-shaking 17 Hz response that will supercharge your system!*

## “Subwoofer of the Year”

— *AudioVideo International*

Year after year our Grand Prix triumphs prove Definitive builds the world’s finest sounding subwoofers, with the perfect synergy of powerful, earth-shaking bass and a refined, expressive musicality.

## “Shook the Concrete Floor”

— *Stereo Review*

Advanced technology, superior engineering and better build quality are the reasons why Definitive subwoofers sound the best. First, we developed PowerField Technology for superior high-power coupling and unexcelled transient detail. Next, we engineered beautiful rock solid monocoque cabinets which house our high-power, high-current amplifiers, fully adjustable electronic crossovers and massive 10", 12", 15" or 18" drivers.

The result is the ultimate in subwoofer performance: awesome bass which thunders to below 15 Hz with complete musical accuracy for your total enjoyment.



*Definitive’s 4 time Grand Prix Award winning subwoofers all combine explosive power with refined musicality to achieve the ultimate in bass performance for your own home theater.*

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## Audition Them If You Dare!

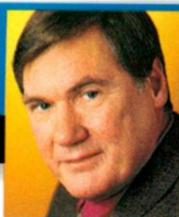
Discover the unmatched musical performance and explosive power of Definitive’s PowerField subwoofers for yourself. Brent Butterworth of Home Theater called them “Godzilla-esque,” and England’s *Home Cinema Choice* raved, “...full and effortless with an astounding low extension; so tight, controlled and room-shaking was this bass!”

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Six extraordinary new Definitive AC-3+ and DTS+ ready powered subs are now available: the PF 1800 (500 watts, 18" at \$1599), PF 18TL (325 watts, 18" at \$999), PF 1500TL (325 watts, 15" at \$899), PF 15TL (325 watts, 15" at \$699), PF 12TL (125 watts RMS, 12" at \$549) and ProSub100 (125 watts, 10" at \$449). They are all superb. You must hear them today!

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# AUDIO Q&A

IAN G. MASTERS

## wasting THX

**Q.** I'm considering buying a THX-certified receiver that has amplifier inputs for use with an external Dolby Digital decoder. I understand, however, that if an external decoder is used, the various sorts of THX processing can't be employed. Does that mean the external DD decoder does these things better, or would I simply lose some of the THX technology I've paid for?

Glenn W. Brunje  
Roseland, NJ

**A.** The THX standard is only partly concerned with signal processing. The other factors — amplifier power, speaker type, and so forth — could still be in effect even with an external surround processor. The THX processing in your receiver is partly designed to optimize Dolby Pro Logic decoding, such as "decorrelation" of the outputs to the two surround speakers so they don't sound alike, and your receiver would continue to do that when you play matrix Dolby Surround-encoded material. The rest of the THX processing is designed to cope with deficiencies in the source material (re-equalization) or to match the surround and front speakers more closely (timbre matching). Dolby Digital or DTS programs, assuming they have five discrete full-range channels, don't require decorrelation, but they can often benefit from re-equalization and timbre matching.

## disappearing equalizers

**Q.** I've noticed that very few A/V receiver manufacturers include once-popular graphic equalizers in their products. Instead, they provide bass and treble controls, often along with a spectrum analyzer. What is the advantage of this arrangement?

Randy M. Johnson  
Gadsden, AL

**A.** Ordinary bass and treble controls are probably adequate for most systems. If yours requires more drastic measures, an external equalizer or perhaps some acoustic treatment of the room might be more appropriate. Not only are built-in equalizers usually inadequate for proper system tuning, but they provide a golden opportunity for inexperienced listeners to ruin their sound. Given all those controls, it's very hard not to adjust them too far or in self-defeating ways. Simple tone controls aren't as flexible, but you can't misuse them as easily.

As for the spectrum analyzers included

in some receivers, their displays are pretty to look at, but they serve no practical function since their accuracy and resolution generally leave a great deal to be desired.

## coaxial vs. optical

**Q.** My DVD player and my outboard surround decoder have both coaxial and optical digital outputs. Which should I use?

Matt Glosson  
McHenry, IL

**A.** You won't be able to hear any difference between the two, so you can make your choice on other considerations. One advantage of optical cables is that they isolate the components electrically, lessening the possibility of hum caused by ground loops. On the other hand, optical connectors are fragile and usually fairly short, so if the cable has to stretch some distance or go around sharp corners, I'd use the coaxial. If the run is really long, use 75-ohm coaxial cable (RG-59) terminated with RCA connectors at each end.

## speaker pops

**Q.** My system contains five satellite speakers and a powered subwoofer. About 10 minutes after we turn everything off, the left front speaker pops. It's not loud, and otherwise the speaker plays perfectly. My dealer can't explain it, and he says that in his sound room he often hears popping after the equipment is turned off at night. Is this normal? If not, where do I begin troubleshooting?

Kevin C. Gates  
Long Beach, CA

**A.** It's almost certainly caused by the automatic power switching in your subwoofer. Many subs have a signal sensor that turns on their power when an audio signal is detected. It's a handy feature if the speaker is in a location that's hard to get at. When the music ceases, the speaker waits several minutes (in case it's just a pause between discs, for example), and then shuts itself off. This is probably causing the popping, although it's hard to say exactly how the noise gets from your sub to the other speaker. If the main speakers are fed from terminals on the subwoofer, that may provide a path. And if both the satellites and the speaker-level inputs on the sub are connected in parallel to the receiver's speaker outputs, that might do it.

In any event, if it only happens under the

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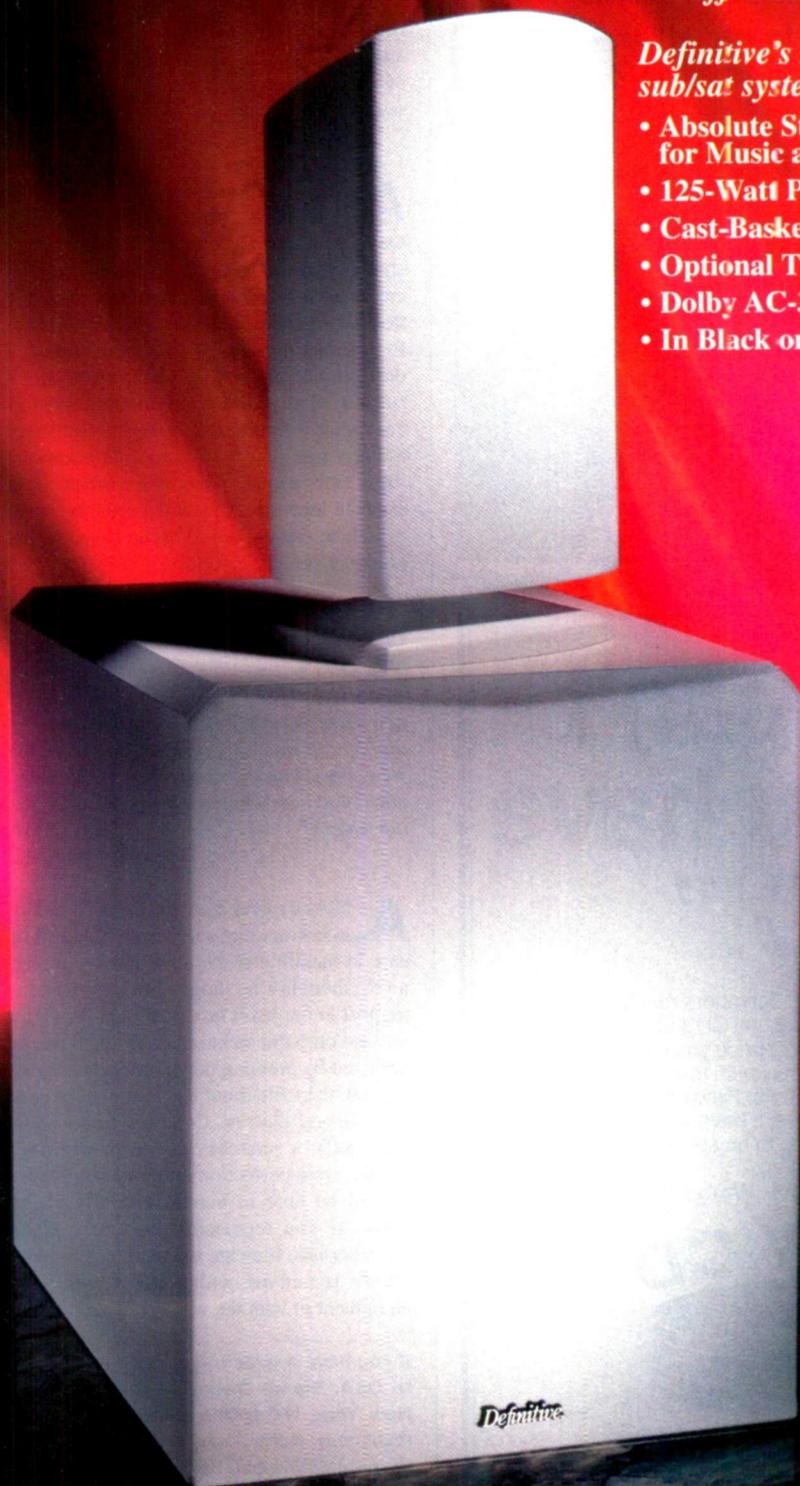
AK-Alaska Audio: Juneau• Pyramid: Anchorage.  
AL-Cohen's Electronics: Montgomery• Kincaid's TV: Tuscaloosa•  
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Sound Insights: Ft. Pierce• Stereotypes: Daytona Beach.  
GA-Laser Disc Enterprises: Atlanta• Merit TV: Columbus.  
Stereo Connections: Valdosta• Stereo Festival: Atlanta.  
HI-Honolulu Home Theater: Honolulu.  
IA-Ultimate Electronics: Cedar Rapids: Des Moines•  
Archer Audio Video: Ft. Dodge• Audio Video Logic: Des Moines•  
Audio Visions: Sioux City• Hawkeye Audio: Iowa City, Cedar Falls•  
Renier's: Dubuque.  
ID-Ultimate Electronics: Boise• Wise Buy: Idaho Falls.  
IL-Absolute Audio: Rockford• United Audio Centers: Chicago &  
Suburbs• Good Vibes: Champaign• Jon's Home Ctr.: Quincy•  
Sound Forum: Crystal Lake.  
IN-Classic Stereo: Ft. Wayne, Mishawaka• Kings Great Buys:  
Evansville• Ovalton Audio: Clarksville, Indianapolis, Lafayette.  
KS-Accent Sound: Overland Park• Advance Audio: Wichita•  
Audio Junction: Junction City, Manhattan.  
KY-Ovation Audio: Lexington, Louisville.  
LA-Altman Audio: Metairie• Mike's Audio: Baton Rouge•  
Wright's Sound Gallery: Shreveport.  
MA-Goodwins Audio: Boston, Shrewsbury• Nantucket Sound:  
Hyanis• Northampton Audio: Northampton• Pittsfield Radio:  
Pittsfield.  
MD-Gramophone: Baltimore, Ellicott City• Myer-Emco: Gaithersburg,  
Beltsville, Rockville• Sight & Sounds: Easton• Soundscape: Baltimore.  
ME-Cookin': Portland.  
MI-Pecar's: Troy• Classical Jazz: Holland• Sound North: Iron Mtn. •  
Stereo Center FRAV: Flint• Court St. Listening Room: Saginaw.  
MN-Audio King: Minneapolis & Suburbs, Rochester, St. Cloud•  
Audio Designs: Winona.  
MO-Independence A/V: Independence• Sound Central: St. Louis.  
MS-Ideal Acoustics: Starkville• McLelland TV: Hattiesburg•  
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MT-Rocky Mt. Hi-Fi: Great Falls.  
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Rochester• Speaker Shop: Amherst.  
OH-Audio Craft: Akron, Cleveland, Mayfield Hts., Westlake• Audio Etc.:  
Dayton• Classic Stereo: Lima• Ohio Valley Audio: Cincinnati•  
Paragon Sound: Toledo• Stereo Visions: Columbus•  
Threshold Audio: Heath• Unique Home System: Cincinnati.  
OK-Audio Dimensions: Oklahoma City• Photo World: Stillwater,  
Shawnee• Ultimate Electronics: Tulsa.  
OR-Bradford's HiFi: Eugene• Chelsea A/V: Portland, Beaverton•  
Kelly's Home Ctr.: Salem• Magnolia HiFi: (Portland), Beaverton,  
Clackamas• Stereo Plant: Bend.  
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circumstances you describe, and if the noise is subtle, it's unlikely to cause damage, so I wouldn't waste too much time trying to track it down.

### floor treatment for bass

**Q.** *The floor in the listening room in my new house is concrete covered with carpet, and it doesn't react like the wood floor in my old listening room, especially at the low end. I think I might be able to fix things by raising the floor to make an air space underneath. Would building a floor of 3/4-inch plywood laid over 2 x 4s help my sound?*

**Nick Omalia**  
Dallas, PA

**A.** The extra floor might, in fact, make your room's bass response worse. One technique for taming excess bass in studios and the like is to install panels that create such an air space behind a relatively flexible membrane. While that is effective for absorbing unruly low frequencies, I don't think that's what you want to do. I suspect what you're really missing is floor-conducted vibrations. You might want to try a flimsy listening chair to recapture some of those vibrations. Also experiment with speaker location. You will probably never be able to match your old sound exactly, but you may come fairly close.

### CD durability

**Q.** *I'm getting tired of replacing recordings three or four times. It seems that new CDs get scuffed or scratched just by dragging them across the center post in the jewel box. Whatever happened to the durability that was claimed when the CD was introduced?*

**Jon Elliott**  
Dolan Springs, AZ

**A.** Nobody ever said the CD was totally indestructible; some minimal level of care in handling is required. For one thing, a CD shouldn't be dragged across the center post in the jewel box! It should be gently pressed onto the locking hub from above, or removed by pressing down on the hub to release it, then lifted out by grasping the center hole and the rim. Certainly small, shallow scuffs or scratches can occur with use, but the error-correction circuitry in a player should be able to handle virtually all of these. If you repeatedly have to replace discs because they are too damaged to play, there's something wrong either with your equipment or with the way you handle discs.

**If you have a question about audio, write to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019; e-mail, StereoEdit@aol.com. Sorry, only questions chosen for publication can be answered.**



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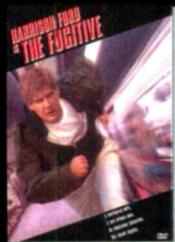
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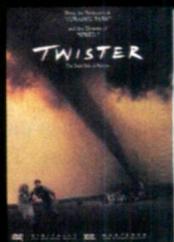
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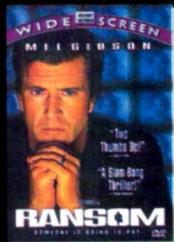
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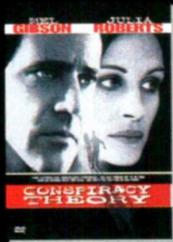
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## The Great Emancipator

LINCOLN'S GETTYSBURG Address ranks among the most celebrated pieces of oratory ever presented. When the President visited the battlefield to dedicate the new military cemetery, he instinctively knew that words could not describe the sorrow he felt for the soldiers buried there, nor could he express his devotion to the cause for which they had given their young lives. It was perhaps his own feelings of inadequacy that caused him to write such a short speech, but, in fact, he said in only a few words almost everything there is to say about our republic and its democratic principles.

I can't explain exactly why, but the Gettysburg Address has always had a powerful impact on me. I certainly admire its brevity; as a writer I am painfully aware that all the words I'll ever write will never hold a candle to Lincoln's ten sentences. Interestingly, I also admire the address as a technologist. I believe that technology improves people's lives by acting as an agent of change. It empowers individuals and gives them new liberties. Technology narrows the gap between the rich and the poor, and it shatters totalitarianism. I view technology as a vital force for freedom and equality in our society.

As a staunch believer in egalitarianism, I have always been uncomfortable with so-called high-end audio. Do not misunderstand me — I have nothing but admiration for beautifully engineered, and perhaps costly, audio components. But I do not appreciate those who make high-end audio an elitist technology reserved for the few who claim to hear a difference, or at least have the money to pretend to hear it. I've never aspired to be a member of the high-end class, because I don't like its elitist pretensions and the tendency to heap contempt on nonmembers.

I've been happy to see that the high-enders' influence in audio has begun to wane. Fewer and fewer people are willing to spend large sums for pseudo high performance. From a historical standpoint, high-enders will probably be remembered as throwbacks to the earliest years of high fidelity, when the most expensive equipment really did sound significantly better. However, as the nature of high fidelity changed, the *raison d'être* of audio elitism became increasingly untenable. The

force that changed high fidelity was technology itself, and its relentless flow toward democratization.

With today's technology, even low-cost equipment can provide extremely accurate music reproduction. The so-called purists still embrace vinyl records and vacuum tubes, but their condemnations of the newest technology merely reveals their prejudices, and verifies that they are more concerned with preserving their elitism than musical fidelity. Anyone who actually *listens* instantly understands that their prejudices are false and that today's technologies far surpass the old. Most important, whereas in the past only the well-heeled few could afford good music reproduction, today almost everyone can afford it. History will show that the real impact of digital audio is not merely its high performance but the democratization of

neers to admit that their high-priced equipment might not be significantly better. It was difficult not to fall back on the argument, "Even though most people can't hear any difference, I can hear it, and that's why I'm a professional and they're not." Instead, they became intrigued by lower-cost equipment and the new opportunities it provided.

One engineer who took that leap was Frank Filipetti, who engineered James Taylor's latest CD. Frank was highly critical of early digital equipment, but he never stopped listening. Over time, he became satisfied that even low-cost digital equipment had reached professional standards of sound quality. Taylor feels that recording studios are not conducive to creativity. When he began work on his new album, he proposed using portable digital gear so that he could record in an old house near his home. So Filipetti set to work, using a commonly available Yamaha 02R digital mixer and Tascam DA-88 modular digital multitrack recorder. The resulting CD, *Hourglass*, is a sonic

**History will show** that the real impact of digital audio is not merely high performance but the democratization of music.

recorded music, so that anyone with any musical taste can experience the full emotional effect of any kind of music. That is anathema to the purists — the purity they seek is based on exclusion of people and products other than the select few.

Today, almost everyone who loves music is embracing the new technology, including even those who have a vested interest in resisting the change. For example, in the past many professional recording engineers distinguished themselves from nonprofessionals by the quality of their equipment. When low-cost digital equipment appeared, many pros condemned it as unprofessional and inherently unsuitable.

However, a few engineers were able to hear through their prejudices. They listened intently as digital equipment rapidly evolved. They did not dismiss out of hand the possibility that a \$10,000 digital mixing console might be sonically competitive with an analog console costing \$500,000. It took courage for these engi-

miracle — and it won Filipetti the Grammy for Best Engineered Album of 1997.

With the force of their credentials behind them, no one can dispute professionals such as Frank Filipetti, Phil Ramone, and Roger Nichols, all of whom use low-cost digital equipment because it sounds as good as, or better than, more expensive analog audio equipment. These pros demonstrate that it's not the equipment that makes a great recording but the engineer. Most of us could afford to work with a Yamaha 02R, but few of us could get the sound that you'll hear on *Hourglass*.

Digital audio has democratized music production and reproduction. It still takes great musicians and engineers to create great recordings, but with digital technology they are free to concentrate on what's most important — the music. Moreover, with digital technology, more of us now have the opportunity to enjoy the fidelity of their work. Elitism is dead. From now on, it's audio of the people, by the people, for the people. □

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All show times are Saturday 12 pm - 6pm, Sunday 11 am - 4 pm unless otherwise noted  
\* Friday and Saturday

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Los Angeles, California • Hi-Fi '98 • The Westin-LAX • June 10th - 14th, Rooms 550/551  
New Orleans, Louisiana • CEDIA, Ernest N. Morial Convention Center • September 9th - 13th, Booth #423  
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# Yamaha DSP-A1 Dolby Digital/DTS Integrated Amp

DAVID RANADA, TECHNICAL EDITOR

**J**ust hefting the Yamaha DSP-A1's considerable mass will tell you that this is one amplifier to be reckoned with, and it's confirmed by skimming the 106-page instruction manual. As the flagship of Yamaha's line of home-theater products, the DSP-A1 seemingly has every useful feature imaginable in a topflight integrated amplifier, not the least of which are the most advanced versions of Yamaha's Digital Sound Field and Cinema DSP processing as well as full Dolby Digital, Dolby Pro Logic, and DTS multichannel decoding. I found the DSP-A1 a worthy successor to the groundbreaking Yamaha DSP-1, which introduced Digital Sound Field processing back in 1986.

If you can't find the feature you want in the DSP-A1, you probably don't really need it to begin with (a tuner section doesn't count, as this is an integrated amplifier, not a receiver). In fact, the DSP-A1 has way too many features to mention here, much less discuss thoroughly. By far the most important fea-

tures are the amplifier's digital signal processing (DSP) facilities.

Using the power of digital computation, the DSP-A1 is able to generate artificial sonic "reflections" and to feed them through a multiple loudspeaker array to recreate, in terms of direction, timing, and level, the reflection patterns of a real-world acoustical environment. I'll call this processing ambience enhancement. The DSP-A1 has thirty-one such processing modes, which Yamaha calls Sound Field modes when they are intended for music and Cinema DSP

modes when they are meant for movie soundtracks. For music, there are six Concert Hall modes, three Church modes, three Jazz Clubs, three Rock venues, and three miscellaneous modes (Disco, Game/Amusement, and Entertainment/Party). For video-oriented programming there are four Concert Video modes, two TV Theater modes, and four Movie Theater modes. All these are in addition to both ambience-enhanced and standard (here called "normal") versions of Dolby Digital, Dolby Pro Logic, and DTS decoding.

Do not think a mode's name limits its applicability to a certain kind of music or soundtrack. Feel free to experiment. If you don't find a mode you like immediately, all of them have adjustable parameters (reverberation time, apparent room size, and the like). With tinkering you can pretty well optimize at least one mode for every piece of program material.

The DSP-A1 can feed an array of as many as seven speakers, not counting subwoofers: the left/center/right front and left/right surround speakers found in a normal home-theater system as well as a left/right pair of "front effect" speakers. Ideally, the effect speakers are placed, in order of importance, further apart, higher up, and farther away from the listener than the main front stereo pair. Although the DSP-A1 can be switched to feed the front-effect sig-

## FAST FACTS

**DIMENSIONS** 17 $\frac{1}{8}$  inches wide, 7 $\frac{1}{2}$

inches high, 18 $\frac{3}{4}$  inches deep

**PRICE** \$2,599 in black finish; \$2,799 in

gold with wood side panels

**WEIGHT** 55 pounds

**MANUFACTURER** Yamaha, Dep.: SR, 6660 Orangethorpe Ave., Buena Park, CA 90620-1345; phone, 714-522-9105; Web, www.yamaha.com

nals through the main front speakers in systems without the extra two speakers, the quality of the ambience in seven-speaker operation is greatly superior. The front-effect speakers don't have to be large, or even very good, so every effort should be made to include them in any system based on the DSP-A1.

Other processing includes a five-band graphic equalizer for the center channel as well as a Cinema EQ function, which consists of a single-band parametric equalizer and a treble tone control with adjustable turnover frequency. Cinema EQ adjustments can be made separately on three groupings of speakers: the main front speakers (left/center/right), the front-effect speakers, and the surround speakers. Yamaha intends the equalizers for matching speaker sound quality, a laudable goal. But without a lot of tiresome experimentation it would be difficult for most users to do speaker matching, which really needs test instruments and test signals, and it's easy to totally screw up the sound in the process. I'd use these facilities, sparingly, only as glorified tone controls.

The rear-panel facilities include a full set of line-level preamp outputs incorporating both mono and stereo subwoofer connectors, the latter decidedly

a luxury. Another set of jacks is provided as an External Decoder input, in case another 5.1-channel system beyond Dolby Digital and DTS is developed (heaven forbid). There's an RF AC-3 input for receiving Dolby Digital signals from a suitably equipped laser-disc player, three coaxial digital inputs and five optical digital inputs. Yet another deluxe item, an optical digital output, can feed a digital recorder (DAT or MiniDisc).

Analog audio-only facilities are provided for two recorders, a tuner, a CD player, and even a phono cartridge. The A/V inputs, all equipped with both composite- and S-video connectors, comprise three VCR connections (VCR3 is also labeled for DVD), a satellite/cable decoder box, and a laserdisc player. All of the speaker connectors are multiway binding posts spaced to accept dual banana plugs. There are provisions neither for second-room operation nor for connecting a second pair of stereo speakers. But on the front panel, behind a flip-down door, there is a headphone jack and another A/V input.

A door on the large remote control folds back to reveal quite a few buttons. Many of them are used to control external components (via memorization of the infrared commands of other re-

motes). To me the most important controls are the twelve buttons that directly select DSP modes — no annoying sequential access here — and the absolutely essential but astoundingly rare Effect On/Off button, which permits instant comparisons between normal and ambience-enhanced playback.

There is an amplifier among all the features, connectors, and processing. The DSP-A1 is rated to deliver 110 watts per channel into 8-ohm loads to the five main channels and 35 watts to each of the front-effect channels. There is no mention on the spec sheet as to whether these figures are for maximum output from all channels simultaneously or in some other combination. Not to worry. Our tests showed that the DSP-A1 is capable of delivering all the power a typical home-theater enthusiast might need.

In fact, the DSP-A1's performance on the test bench was altogether exemplary. All the numbers range from very good to superb. Both Dolby Digital and DTS decoding tested essentially the same (the DTS tests were limited by the lack of suitable test signals). Of particular interest to me are the low noise levels. In listening tests at normal to loud volume settings, the amplifier's own noise was never a limiting factor

## MEASUREMENTS

### DOLBY DIGITAL (AC-3) PERFORMANCE

All data obtained from Dolby Labs' AC-3 test DVD using "large" speaker settings. Reference levels are 1 watt output with a -20-dBFS\* input unless otherwise stated. Resulting volume control setting was approximately 20. All ambience-enhancement modes off.

#### Output at clipping

(1 kHz into 8 ohms, one channel driven)  
worst case (right surround).....159 watts

**Output at clipping** (1 kHz into 8 ohms, all channels driven).....116 watts

**Distortion at 1 watt** (THD+N, 1 kHz, 8 ohms)  
worst case (right surround).....0.036%

**Noise** (A-wtd)  
worst case (left surround).....-73 dB

**Excess noise** (worst case, with signal)  
16-bit (EN16).....2.55 dB

**Frequency response** (worst case)  
left surround....20 Hz to 20 kHz +0.16, -0.37 dB

**Channel imbalance** (individual channels set at 0-dB gain).....0.67-dB spread at 1 kHz

**Subwoofer output frequency response**  
24-dB/octave rolloff above -3-dB point at 83 Hz

**High-pass-filter frequency response**  
12-dB/octave rolloff below -3-dB point at 92 Hz

**Max. unclipped subwoofer output**.....see text

**Subwoofer distortion**.....see text

### DTS PERFORMANCE

All test signals from DTS demo/test CD. Volume-control setting the same as for Dolby Digital.

**Frequency response** (worst case)  
right surround ...20 Hz to 20 kHz +0.18, -0.45 dB

**Distortion** (THD+N, 1 kHz, 2.5 watts)  
worst case (center, right surround).....0.028%

### STEREO PERFORMANCE, DIGITAL INPUTS

Reference volume setting for noise the same as for Dolby Digital; subwoofer off.

**Linearity error** (at -90 dBFS\*).....+0.1 dB

**Noise** (A-wtd)  
normal (de-emphasis off).....-74.3 dB

**Excess noise** (without/with signal)  
16-bit (EN16).....1.45/1.46 dB  
quasi 20-bit (EN20).....16.41/16.41 dB

**Tone-control range**  
100 Hz and 10 kHz.....±8 dB

**Frequency response**  
(20 Hz to 20 kHz, tone controls off)  
normal (de-emphasis off).....+0.11, -0.41 dB

\* decibels referred to digital full-scale

### STEREO PERFORMANCE, ANALOG INPUTS

#### Output at clipping

(1 kHz, both channels driven)  
8 ohms.....146 watts  
4 ohms.....214 watts

#### Clipping headroom

(re 110-watt, 8-ohm rating).....+1.2 dB

#### Dynamic power

8 ohms.....171 watts  
4 ohms.....276 watts

#### Dynamic headroom

(re 110-watt, 8-ohm rating)  
8 ohms.....+1.9 dB

#### Noise (A-wtd)

CD.....-80.5 dB  
phono.....-79 dB

#### Distortion (THD+N, 1 kHz)

at rated power (110 watts, 8 ohms).....0.037%  
at 1 watt (8 and 4 ohms).....0.008%

#### Sensitivity (for 1 watt at max volume)

CD.....15 mV  
phono.....0.26 mV

#### RIAA phono-equalization error

(20 to 20 kHz).....+0.18, -0.38 dB

#### Analog-input frequency response

CD.....20 Hz to 20 kHz +0.01, -0.14 dB

NOT SO

# STANDARD EQUIPMENT



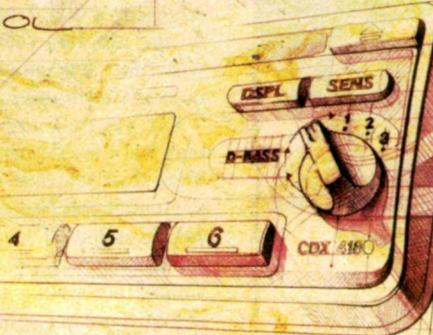
THE KNOB

THE THUMP

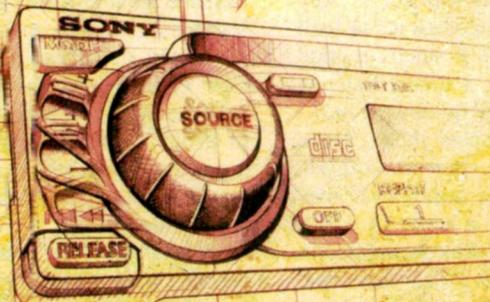
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\* ELIMINATES ALL THOSE UP/DOWN BUTTONS

\* RESULT? KEEP YOUR MIND ON THE MUSIC AND YOUR EYES ON THE ROAD.



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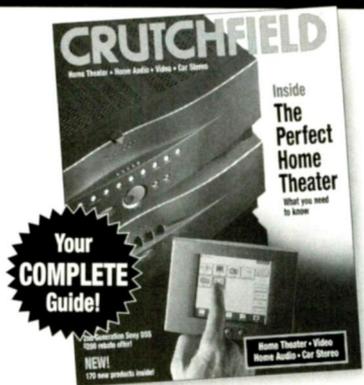
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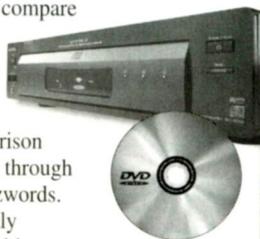
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## testreport

in the dynamic range, which could be startlingly wide with some classical solo-piano and symphonic music.

Bass management was not only done correctly, but the DSP-A1 also managed to produce an undistorted subwoofer output with worst-case setup conditions (all main speakers set to "small," which feeds every channel's deep bass through the subwoofer output) and test signals (maximum-level Dolby Digital signals in all 5.1 channels). Just keep the amplifier's subwoofer level setting at -6 dB or lower (page 44 of the manual), and the subwoofer output should remain free of distortion. Use your subwoofer's own level control to balance the bass output.

Setup of the DSP-A1's principal features was simple, even with the on-screen menu system switched to its minimally informative "short display" mode. That's because the front-panel messages allow both setup and in-use adjustments without turning on a video monitor, a boon in adjusting the DSP features while listening to music.

All of my listening was with the full seven-speaker setup, with the additional front speakers placed according to Yamaha's recommendations and one powered subwoofer connected. Depending on the program material, what I heard was either stupendously realistic or annoyingly gimmicky.

Let me back up. Ever since my review of the Yamaha DSP-1 processor more than a decade ago, I've repeatedly expressed reservations about ambience enhancement of soundtracks (not only by Yamaha components). Even the advanced processing of the DSP-A1 has not changed my opinion, which is based on the fact that multichannel soundtracks already carry the ambience effects *intended by the filmmaker*. Any added ambience, even when it's as well done as the DSP-A1's, stands a good chance of degrading a film's dramatic effect, if not the sound quality per se.

A couple of examples should make my point. In an excerpt from *Dragonheart* contained on a demo DVD promoting DTS, there's a scene in which the dragon, with the unlikely dubbed-in voice of Sean Connery, flies from side to side in the picture while speaking. When I played this scene using any of the DSP-A1's Movie Theater enhancement modes, Connery's voice was "dry" and mostly ambience free, as befits the outdoor setting of the scene, while the dragon was in the center of the screen. But whenever the dragon flew off to

one side of the picture, his voice became much more reverberant — as if the dragon had flown into, well, a movie theater.

This change in ambience for voices panned to the sides of the sonic image creates a very distracting inconsistency with the screen image, something that the filmmakers cannot have intended. In a real movie theater, *all* of the loudspeakers are subjected to the same ambience, and there is no extra reverberation for side-panned voices or sound effects. But Yamaha cannot do that here because, as I've pointed out in reviews of other DSP components, adding ambience reflections to the center channel reduces the intelligibility of speech, whether of people or dragons.

Cinema DSP can work against the filmmaker's dramatic intentions even in a monaural, black-and-white classic. An important aspect of the cinematic style of *Dr. Strangelove* is the variation of sonic environments contained in the soundtrack itself. The acoustically claustrophobic interior of the B-52 bomber contrasts greatly with the echo-chamber ambience of the ironically named War Room. These differences are reduced and smoothed over by the addition of any DSP ambience effect, even the DSP-A1's Mono Movie mode. The vividness of the sonic storytelling suffered, and the same thing occurred in at least one scene of *every* movie I played using a Cinema DSP mode.

Still, the Cinema DSP modes can contribute greatly to the sonic pandemonium in scenes of mayhem, like the tunnel explosion in *Daylight* and the destruction of the cities in *Independence Day*. But who wants to select a different DSP setting for every scene change? With some movies you'd have to make an adjustment every couple of seconds. So while I imagine that a well-conducted showroom demo of Cinema DSP could be an absolute knockout, with the movie excerpts cannily chosen to avoid the reverberant-dragon syndrome, once you get the amplifier home you'll eventually find such processing largely superfluous, as I did. With most films I was perfectly satisfied, and often bowled over, by the unenhanced but nonetheless often spectacular sound quality of DSP-A1's outstandingly clean and accurate Dolby Digital, Pro Logic, and DTS decoding.

While some of my concerns about fidelity to the intent of the program producers also apply to multichannel music productions, such as Dolby Sur-

round and DTS titles on CD, the situation is quite different with the enhancement of *stereo* music, in which consistency of ambience throughout an entire program is far more common and in which the producer is not able to supply ambience effects without detriment to the stereo program. (Ambience signals *must* come from different directions than the main stereo image if that is to remain stable and uncolored.)

When carefully matched with the music, Yamaha's Sound Field processing has the uncanny ability to move you into the same acoustic space as the performers. Depending on the music, either "you are there" or "they are here." All manner of classical programs benefited immensely from the processing, from Gregorian chant in one of the Church modes to chamber music in one of the Jazz Club modes (again, don't feel limited by the mode names) to opera in the Classical Opera mode or even one of the Movie Theater modes. Big-band jazz sounded great in Concert Hall A, as did acoustical folk-rock (Joan Baez) in a Jazz Club.

At first hearing with the default settings, I often felt that pop music was overprocessed, with voices losing much of their intended in-your-face immediacy. But when I tried adjusting their parameters downward (smaller room, less "liveness," shorter reverb time, less reverb, and so on), several modes worked very well, producing increased vividness without too much distancing of the vocals. To take one already overhyped example, Madonna's *Ray of Light*, which has surprising imaging effects even in stereo reproduction, was even more sonically interesting in the Entertainment/Party mode (with turned-down parameters) and in the Enhanced Dolby Pro Logic mode, which I found to be the most general-purpose mode of all those the DSP-A1 provides.

With music, Yamaha's Sound Field processing provided a source of endless fascination and interactive experimentation. It is the glory of the DSP-A1 and the primary reason I would want to buy one. The built-in Dolby Digital and DTS decoders are secondary reasons. And the system's ease of use, despite the many-buttoned remote, is the third reason. The DSP-A1 is an altogether outstanding piece of home-theater equipment. At this point it is my favorite home-theater amplifier. It'll be yours too once you grow out of the Cinema DSP modes, and especially if you don't.

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# Panasonic DVD-A310 DVD Player

DAVID RANADA, TECHNICAL EDITOR

**A**s someone who has been watching audio and video technologies come and go for nearly two decades, I find it fascinating how rapidly DVD has progressed. Most players have been very good to excellent, at least in terms of video performance, right from the start. And as Panasonic's new DVD-A310 shows, it has taken less than two years for overall player performance to pretty much max out.

At the very least, the DVD-A310 is nearly maxed out when it comes to features. For the video connoisseur, it includes a set of component-video outputs on the rear panel along with one S-video jack and two composite-video jacks. For the audiophile, it has full Dolby Digital (DD) decoding and digital-to-analog (D/A) conversion with six line-level outputs (front left/right, center, surround left/right, and subwoofer) to feed a "multichannel-ready" amplifier or receiver. A separate, two-channel analog audio output (Mixed) can be used to feed the stereo inputs of a TV or VCR.

In addition to stereo SPDIF digital audio signals, the coaxial and optical digital outputs can supply not only a Dolby Digital but also a DTS (Digital Theater Systems) bitstream to an external decoder (DTS decoding, of course,

must take place externally). Panasonic says that the player's analog outputs can provide a stereo signal from DVD soundtracks recorded with a 96-kHz sampling rate and 24-bit resolution, though at press time we had no discs to test this. However, the digital bitstream output from such discs has to be "down-sampled" to 48 kHz because standard SPDIF outputs cannot handle a 96-kHz sampling rate.

Of particular interest to home-theater neophytes is the player's Virtual Surround Sound (VSS) mode. Operating only during Dolby Digital multichannel DVD playback, the system is said to produce a surround effect when only a two-channel stereo system is connected. The VSS mode, activated by the remote control, offers two levels of effect. The manual doesn't mention it, but VSS-processed signals appear both

at the player's analog outputs (front left/right) and at the digital outputs.

If you revel in visual special effects, you'll appreciate the five slow-motion speeds, rapid search in both forward and reverse, and frame-advance (forward only). These modes can be selected with either the remote handset or the front-panel controls, which include a shuttle dial. Other playback modes include random track (CD), repeat chapter/track (DVD/CD), A-B repeat (only within a chapter/track), and marker playback (with up to five user-selected cueing points).

The now-obligatory on-screen-menu setup system permits the crucial adjustments of the multichannel audio outputs (speaker "size," level, and distance). Other DVD setup choices are for preferred soundtrack language, movie-rating lockout, menu language (English, French, or Spanish), on/off for on-screen messages, and video-monitor aspect ratio (standard 4:3 or widescreen 16:9).

The more esoteric control options include dimming the front-panel fluorescent display during DVD playback, selecting "frame still" or the more reliably stable "field still" mode, switching off the audio during rapid searches, and turning on dynamic-range compression for Dolby Digital soundtracks supporting that feature (not all do).

Most player functions are controlled only with the hand-contoured remote. The top half contains a thumb-operated joystick for cueing and menu selection, while the bottom half has a slide-down door concealing what Panasonic considers less often needed controls. These include a numerical keypad and the button for the VSS system.

## FAST FACTS

- DIMENSIONS** 17 inches wide, 3½ inches high, 11½ inches deep
- PRICE** \$700
- WEIGHT** 8 pounds
- MANUFACTURER** Panasonic, Dept. SR, One Panasonic Way, Secaucus, NJ 07094; phone, 800-222-4213; Web, www.panasonic.com

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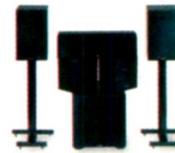
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The lab data tell half the story: nearly all of our tests produced results that are either about as good as can be measured (video), close to theoretical perfection (CD), or very good and better than most (Dolby Digital). In video, the DVD-A310 reproduced test patterns with as much accuracy as our test-signal generator. Only luminance frequency response was slightly below the best performance we've measured in other players, rolling off by about a decibel more at 6 MHz. This had, however, a negligible effect on resolution test patterns and no discernible effect on the sharpness of DVD movies.

The ability to play 96-24 DVDs, as they are starting to be called, seems to have paid dividends for the DVD-A310 in both Dolby Digital and stereo CD playback as well. Its high-resolution D/A converters gave it unusually good excess-noise performance in DD mode, especially in the 18- and 20-bit tests. In CD playback, the figure for 16-bit excess noise was only 0.25 dB away from perfection, as outstanding a result as

I've seen from any CD or DVD player. Linearity performance was also superb.

The only anomalies occurred — no surprise — in bass management. No setting of the subwoofer level yielded a distortion figure in DD playback of less than 4 percent with worst-case conditions (all speakers set to "small," maximum-level signal in all channels). We usually find this in DVD players with full DD decoding like the DVD-A310, and it's one reason you might still want to use the DD decoder in a receiver or amplifier, which *might* do better.

Another important reason to use an external DD decoder is this player's baffling removal of its bass-management filtering when playing a CD. The front left/right channels revert to flat output, instead of rolling off below the 100-Hz high-pass frequency, even if you've selected "small" speakers for DD playback. If you use the DVD-A310 as your sole disc player, you'll experience vast differences in bass output as you change between DVD and CD. There are ways around this, not

covered in the manual: You could run one of the player's digital outputs to a digital input in a receiver or preamp and let that do the D/A conversion for CDs, or you could simply feed its digital output to an external DD decoder and hope that it does bass management correctly.

Having aired those gripes, I must say that this is one of the most enjoyable DVD players I've used. Setup with the on-screen menus was very simple, and disc navigation was equally smooth. It was easy to cue to a precise frame — such as when the trap door opens as the Wicked Witch departs from Munchkinland in *The Wizard of Oz* — thanks to the slow-motion control's ability to slide forward and backward.

In sound and picture quality, I'd put the DVD-A310 up against any other DVD player we've tested: it is equal to the best. My favorite test movies — *Das Boot*, *Contact*, *The Fifth Element* — looked as good as I've ever seen them, which means stunningly gorgeous, with great apparent depth to the images and a visual cleanliness even laserdisc can't approach. Sound quality was equally remarkable both with DD soundtracks, like the one for *Contact* (an Oscar nominee for sound), whether internally or externally decoded, and with a couple of DTS-encoded music CDs I had lying around.

The VSS mode proved to be no substitute for a full surround-speaker system. To get well-balanced sound in the virtual-surround mode, I had to sit fairly accurately equidistant (within a couple of inches) from the speakers. The system "virtually" restricts listening to one person at a time — unless two or more sit in a single column instead of a row! Still, there was a vague presence off to the appropriate sides with some Dolby Digital sound effects, and if you can stand the seating restrictions, you'll probably find the effect with soundtracks far better than simple two-channel stereo playback.

But VSS is for beginners. Once you get into the picture quality of DVD playback you'll want to upgrade the audio portions of your system to full 5.1-channel capability. I can imagine no better DVD player to start with than the Panasonic DVD-A310. Its ease of setup, smooth operation, comfortable remote control (except for that sliding door), nifty on-screen display, and extraordinarily good audio and video performance all mark it as one of the best DVD players you can buy. □

## MEASUREMENTS

### DVD VIDEO PERFORMANCE

Setup level .....	7.5 IRE*
100%-white-level error .....	-2 IRE*
Differential phase .....	<1°
Differential gain .....	<1%
Chrominance nonlinear phase .....	<1°
Chrominance nonlinear gain .....	<1%
Horizontal luminance frequency response	
at 4 MHz .....	-0.72 dB
at 5 MHz .....	-1.41 dB
at 6 MHz .....	-6.9 dB
Equivalent on-screen horizontal resolution .....	>480 lines

### DVD DOLBY DIGITAL PERFORMANCE

All test signals were from the Dolby Labs test DVD, and all were dithered, which limits measured performance for noise level and distortion. All results given are worst-case, except high-pass and subwoofer measurements.

Reference output level (-20-dBFS** input) .....	213 mV
Frequency response (20 Hz to 20 kHz)	
left front .....	+0, -0.19 dB
Noise level (A-wtd, re -20-dBFS** input)	
left surround .....	-75.5 dB
Excess noise (with signal)	
16-bit (left surround) .....	1.95 dB
18-bit (center) .....	8.39 dB
20-bit (center) .....	19.73 dB

### Distortion (THD+N, 1 kHz)

at 0 dBFS** (surrounds) .....	0.028%
at -20 dBFS** (center) .....	0.0057%

Channel balance (channel levels set at 0 dB) .....

High-pass filter frequency response rolls off at 6 dB/octave below 120 Hz

Subwoofer-output frequency response rolls off at 12 dB/octave above 145 Hz

Maximum subwoofer output .....see text

### CD AUDIO PERFORMANCE

Except where noted, all test signals were dithered, which limits measured performance for noise level and distortion, and all were two-channel stereo.

Frequency response (de-emphasis off) 20 Hz to 20 kHz +0, -0.18 dB

Noise level (A-wtd, re -20-dBFS\*\* input, de-emphasis off) .....

Excess noise (without/with signal) 16-bit (EN16) .....

Distortion (THD+N, 1 kHz) at 0 dBFS\*\* .....

Linearity error at -90 dBFS\*\* .....

Defect tracking (Pierre Verany test disc) .....

\* an IRE is a standardized unit of contrast  
\*\* decibels referred to digital full-scale

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# Marantz SR-580 Dolby Digital Receiver

DANIEL KUMIN, START LABORATORIES

**A**s A/V receivers continue to evolve, you can now buy a generously powered all-in-one component that includes Dolby Digital (DD) 5.1-channel decoding, as well as digital-domain Dolby Pro Logic (DPL) decoding, for just a little more than an equivalent Pro Logic-only model might have cost a mere year or so back. Marantz's new SR-580 is an excellent example. Though in some ways this qualifies as a stripped-down model designed to reduce cost by eliminating nonessentials, in many other respects the SR-580 is surprisingly well equipped.

The list begins with amplifier power that, although well below "flagship" levels, is likely to prove perfectly adequate for a solid majority of real-world surround-sound systems — especially where an active subwoofer is part of the equation. The SR-580 is rated to deliver 50 watts into 8 ohms to each of the five main DD channels. There is a generous

complement of analog inputs and outputs: CD and three A/V inputs (VCR2/DVD, laserdisc, and aux), two audio input/output sets for tape recording, and one VCR recording loop (VCR1), plus line-level preamp outputs for all six channels (including subwoofer), which makes a power upgrade with an outboard amp a possibility. And while the SR-580 provides only one optical and one coaxial digital input, as is very common among entry-level Dolby Digital receivers, it also includes an AC-3/

RF input for a compatible laserdisc player, a convenience many others omit.

The sort of simplicity that the Marantz SR-580 so prominently features can often be a virtue in its own right. The faceplate, though blazoned with the same diminutive, read-me-if-you-can gold lettering found on altogether too many A/V components today, is spacious and refreshingly plain. Simple knob controls for volume, balance, bass, and treble join rows of pushbuttons for all other operations. Keys are segregated by function and distinguished at least to a degree by shape and location. The plain, readable blue display is assisted by small red LEDs to indicate such things as whether the subwoofer output is on or off and whether there is an active digital input. There's a front-panel headphone jack, an all-speakers-off pushbutton, and a convenience set of A/V input jacks with a switch — oddly, located on the other side of the panel — that activates either this set *or* the rear-panel VCR2 set.

Turn the SR-580 around and you find a similarly simple but well-equipped back panel. All of the aforementioned inputs and outputs are supplied in groupings of two or three RCA jacks, as the receiver does not provide any S-video facilities, a sensible sacrifice where cost is a cardinal factor. There

## FAST FACTS

**DIMENSIONS** 17¼ inches wide, 6¼ inches high, 16½ inches deep

**PRICE** \$700

**WEIGHT** 28 pounds

**MANUFACTURER** Marantz America, Dept. SR, 440 Medinah Rd., Roselle, IL 60172; telephone, 800-654-6633; Web, [www.marantzamerica.com](http://www.marantzamerica.com)

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are remote-control in/out jacks for use with RC-5-compatible Marantz components as well as both switched and unswitched AC convenience outlets. Speaker connections for all five channels use heavy, banana-plug-compatible screw terminals, which I much prefer over the spring-loaded push-terminals more common at this price level.

## Sonic effects were well defined in the climactic chase scene of *In the Line of Fire*.

They're even spaced to accept U.S.-standard dual banana plugs. Hallelujah!

All in all, it's quite a respectable physical plant, an impression that carried over when I looked under the rather light-gauge metal cover for the top and sides. I found a discrete-device five-channel output stage, a Dolby Digital board with Motorola DSP (digital signal processing) chips, and a modest but well-segregated power supply. The

assembly, chassis, and circuit components obviously represent cost-sensitive choices, but everything was acceptably tidy and reasonably robust looking.

Setting up the SR-580 required no special effort. Connections are straightforward, and the owner's manual, although succinct to a fault (and in several instances somewhat sketchy), includes big, clear diagrams identifying the controls and connectors and giving connection and speaker-placement options. I hooked up my usual complement of speakers — B&W Model 803/2s for the left/right front, a B&W HTM center, and Citation 7.3 surrounds — along with DVD, CD, and laserdisc players and a DSS receiver. I included my B&W 800ASW powered subwoofer, but I also performed a good deal of listening without it in order to give the SR-580's amp section a full-range workout.

The receiver's bass-management options are simple but effective. With the front-panel subwoofer button set to on,

which lights the adjacent LED, the subwoofer output consists of bass that's summed from all five main channels and added to the LFE (low-frequency-effects), or ".1," channel. In addition, the outputs to all five main speakers are high-pass filtered at 100 Hz (unless the center speaker is set to "wide," in which case it runs full-range). But set the subwoofer button to off, and the sub output is muted while everything else runs full-range — unless the center speaker is set to "small," in which case its bass goes to the front left/right speakers. In fact, though I found no documentation of this, in Dolby Digital mode the center and surround channels function *only* as "small" speakers, crossing over at 100 Hz; thus the sub button controls the destination of *all* bass — left/right, center, and sub. Put another way, there is no full-range "large" option for the center or surround speakers *with* a subwoofer in the DD mode.

The SR-580 maintained channel balance quite accurately over a wide master-volume range, a virtue that cost-conscious receivers don't always deliver. Even better, it was unexpectedly quiet in all modes, including Dolby Pro

## YO-YO UNWINDS.



Cellist nonpareil Yo-Yo Ma loves listening to beautiful music of all kinds. Here, he enjoys the warm, lush sounds coming from his Harman Kardon componentry and Infinity speakers. Once again, the great brands of Harman International provide the world's finest audio equipment.

Living room Home theater Computer Concert hall Movie theater Car

Logic. Although it had good but un-spectacular noise measurements, during my listening tests the background-noise levels with quiet recordings were well below anything that might prove audible from the listening position. Perhaps the noise had a limited spectrum, or maybe it was because this receiver has slightly lower gain than I'm used to; either way, it was also impressively free from hum and buzz.

Surround performance was also outstanding. The SR-580's digital DPL decoding was smooth and quite stable. There was a hint of surround-channel "pumping," but a good deal less than in many receivers I've heard, and it was not really a factor in normal, full-system listening. I did not discover any obvious surround anomalies. In particular, I heard no hint of overload or "digital clipping" even from the kind of extremely high-level, complex-waveform surround-channel signals that have proved troublesome to several other-wise excellent digital DPL decoders. Pro Logic channel separation was quite good, and the slight leakages I did hear all sounded very regular and steady, which is preferable to dynamic or "spit-

ty." Dolby Digital decoding quality was every bit as good — which is to say, the resulting sound was considerably better. This receiver delivered the digital surround experience with admirable precision and impact. In the climactic chase scene from *In the Line of Fire*, for example, the fast-cut, busy sonic effects were well defined and lifelike.

In both the DD and DPL surround modes I judged the overall tonal balance to be just on the warm side, though rather pleasantly so. Subsequent measurement bore this observation out, since the frequency response exhibited both a bass hump and a top-octave droop, each a decibel or so. As often as not, when a soundtrack derives from a film or video production, this effect can be more of an advantage than a liability, since movie mixes so often sound bright at home.

The receiver's additional surround modes — Theater, Hall, Stadium, and Church — are, alas, largely irrelevant, since they feature a collection of dripping reverberations and in-your-face slap-echoes (in the front channels, too, no less) that render them effectively useless to sensitive listeners. For exam-

ple, the Church mode features a decay time that's well over 5 seconds . . . seconds . . . seconds . . .

In terms of audio power, while the SR-580 probably won't break too many leases, it had plenty of reserves for a more than satisfying full-range surround experience with my average-sensitivity speakers. With a powered subwoofer in the mix, its relatively modest output should be ample for most rooms and most speakers. That said, I must note that it did not match the dynamic ease or (especially) the bottom-octave grunt of the better 100-watt-plus A/V receivers I've sampled recently.

The same was true in stereo playback, where the SR-580 produced respectably clean and loud sound while falling just short of realistic concert-hall dynamics with full-orchestra recordings. But it reached its limits with more grace than many other price-conscious receivers or amps, its sound becoming more dull-and-heavy than harsh-and-scary as it drained its reserves.

The thirty-preset AM/FM tuner performed about the same as most of today's receivers, with decent strong-signal FM sound and fair to poor weak-

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signal reception. Adjacent-channel selectivity was difficult to measure because it was so low. This is a wideband tuner — note the excellent capture ratio — but you'll likely be frustrated trying to tune a weak station in a crowded FM band. Its AM reception, while just a tick better than average, can nevertheless objectively be rated as only fair.

The only other features of note are the SR-580's "Mid Night" mode, a one-level implementation of Dolby Digital dynamic compression, which worked well, and a sleep timer. I also observed an unusually gradual taper to the volume control, which gives plenty of travel before the sound begins getting loud. That is atypical of "budget" receivers, which too often are deliberately engineered to get loud fast (it makes them feel more "powerful" to the casual user); I consider it a genuine benefit.

The receiver's digital inputs are selectable only by the relevant input positions — you cannot, for example, choose the optical digital input when the tuner is the active source — and the Dolby Digital surround mode is available only for the VCR-2/DVD, laser-disc, and auxiliary video inputs (that is, not VCR1). Each source recalls the last-used selection for digital input and surround mode (if any).

The supplied remote control is a learning-type handset with dozens of small, closely spaced, identically sized and shaped keys aligned in neat rows with dim, tiny, gold or gray labels on a black background — arrghh! Though the lack of attention to ergonomics makes it a challenge to learn and use by touch, in its favor this cost-cutter does offer a generous degree of control. Each key can invoke several different

codes, depending on your source-component selection and whether the control-mode slide switch is set in the "native" Marantz position or the "user" setting (for codes you "teach" the remote). As the SR-580 lacks any on-screen displays, the front-panel window is your sole source of information.

As I see it, the Marantz SR-580 is the result of some tough but savvy decisions by its designers, who chose to throw out a good deal of bath water while diligently protecting the baby. The infant in question is excellent performance in the Dolby Digital and Pro Logic surround modes, a functional set of Dolby Digital options and connections, and eminently respectable power and sound quality. And while all this comes in a package that is relatively "basic," the price is more than just "relatively" attractive. □

## MEASUREMENTS

### DOLBY DIGITAL (AC-3) PERFORMANCE

All data obtained from Dolby Labs' AC-3 test DVD using "small" speaker settings. Reference levels are 1 watt output with a -20-dBFS\* input unless otherwise stated.

#### Output at clipping

(1 kHz into 8/4 ohms, one channel driven)  
front.....72/114 watts  
surround.....72/114 watts

#### Distortion at 1 watt (THD+N, 1 kHz)

8 and 4 ohms.....0.13%

#### Noise (A-wtd)

worst case (left front).....-69.8 dB

#### Excess noise (worst case, with signal)

16-bit (EN16).....6.7 dB

#### Frequency response (worst cases)

right front.....20 Hz to 20 kHz +1, -2.5 dB  
surrounds.....100 Hz to 20 kHz +0.3, -3 dB

#### Channel imbalance (individual channels set at 0-dB gain)

.....0.6-dB spread at 1 kHz

#### Subwoofer output frequency response

12-dB/octave rolloff above -3-dB point at 100 Hz

#### High-pass-filter frequency response

12-dB/octave rolloff below -3-dB point at 100 Hz (80 Hz for center channel)

#### Maximum unclipped subwoofer output

(either master volume or subwoofer at -2-dB settings).....6.3 volts

#### Subwoofer distortion (worst case, master volume and subwoofer at 0-dB settings)

.....0.22%

### DOLBY PRO LOGIC PERFORMANCE, ANALOG INPUTS

Reference input signal levels for noise and distortion measurements are 141.4 mV for center and surround channels, 200 mV for remaining speakers; subwoofer off.

#### Frequency response

front.....20 Hz to 20 kHz +0, -4 dB

center.....20 Hz to 20 kHz +0, -4 dB  
surround.....20 Hz to 7 kHz +0, -3.2 dB

#### Noise (A-wtd)

worst case (center).....-68.3 dB

#### Distortion (THD+N, 1 kHz, 1 watt)

worst case (left front).....0.1%

#### Surround-decoder input-overload margins

(analog inputs, at 1 kHz)

front (re 2-volt input).....+1.2 dB

center (re 1.4-volt input).....+4.2 dB

surround (re 1.4-volt input).....+4.2 dB

#### Channel separation (worst case)

surround out, right front driven.....40 dB

### STEREO PERFORMANCE, DIGITAL INPUTS

Reference volume setting for noise is the same as for Dolby Digital; subwoofer off.

#### Linearity error

(at -90 dBFS\*).....+0.75 dB

Noise (A-wtd).....-68.7 dB

#### Excess noise (with signal)

16-bit (EN16).....7 dB

#### Tone-control range

100 Hz and 10 kHz.....±10 dB

#### Frequency response (tone controls off)

20 Hz to 20 kHz +1.1, -2.1 dB

\* decibels referred to digital full-scale

### STEREO PERFORMANCE, ANALOG INPUTS

#### Output at clipping (1 kHz; both channels driven)

8 ohms.....70 watts

4 ohms.....106 watts

#### Clipping headroom

(re 50-watt, 8-ohm rating).....+1.5 dB

#### Dynamic power

8 ohms.....81 watts

4 ohms.....136 watts

#### Dynamic headroom (re 50-watt, 8-ohm rating)

8 ohms.....+2 dB

#### Distortion (THD+N, 1 kHz)

at rated power (50 watts, 8 ohms).....0.008%

at 1 watt (8 and 4 ohms).....0.03%

#### Sensitivity (for 1 watt at max volume)

CD.....27 mV

Noise (A-wtd, re 1 watt output).....-80 dB

#### Input-overload level (re 2-volt input, surround off, CD input)

.....13 dB

#### Analog-input frequency response

20 Hz to 20 kHz +0.8, -0.5 dB

### TUNER SECTION

All figures for FM except frequency response.

#### Sensitivity (50-dB quieting)

mono.....22.0 dBf

stereo.....44.8 dBf

#### Noise (at 65 dBf)

mono.....-73.9 dB

stereo.....-67.7 dB

#### Distortion (THD+N at 65 dBf)

mono.....0.14%

stereo.....0.13%

Capture ratio (at 65 dBf).....0.9 dB

AM rejection.....67 dB

#### Selectivity

alternate-channel.....54.5 dB

adjacent-channel (see text).....<1 dB

#### Pilot-carrier leakage

19 kHz.....-71.6 dB

38 kHz.....-62.4 dB

#### Channel separation

1 kHz.....48.9 dB

#### Frequency response

FM.....30 Hz to 15 kHz +0, -1.9 dB

AM.....78 Hz to 2.82 kHz +0.2, -6.0 dB

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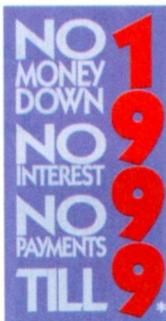
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Dual-Woofer Bipolar Speakers  
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an uncommon value." -**Audio**

**NEW!**  
**10**  
**YEAR**  
**WARRANTY**

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Surround Speakers For Dipole Or  
Bipole Operation

CenterStage  
Wide-Range High-Output  
Center Speaker

Powerful Dolby Digital 5.1  
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## Sony DVP-S300 DVD Player

KEN C. POHLMANN, HAMMER LABORATORIES

**T**here are two learning-curve strategies for product planning: 1) Build a simple product, then use the knowledge you gain to build more sophisticated models. 2) Build the sophisticated model first, then let the knowledge trickle down to simpler models. The second approach is attractive because your knowledge base allows you to make the subsequent models very price-competitive, but it clearly demands that you have the considerable up-front expertise to build the first model.

When it came time to launch its first DVD player, Sony used the second approach. Its DVP-S7000 was a high-end, flagship model that today, a year later, is still regarded as a tour de force and is used as the reference player by many reviewers. The new DVP-S300 is a trickle-down player with elements from both the DVP-S7000 and the second-generation DVP-S3000. The question is, with its much lower price — \$599 vs. \$1,199 for the S7000 — how much less of a player is the S300?

The front panel follows the styling protocol common to most contemporary CD and DVD players, in which

only the principal buttons are placed on the chassis and the others are moved to the remote. In this case, the front panel sports the usual power, loading-tray, and transport controls plus buttons to choose shuffle (random) play, chapter or disc repeat, and programmed playback. The Title button is used to select different programs stored on a DVD. Another button lets you call up the custom menu contained on most DVDs. There is also a headphone jack with level control.

The DVP-S300 features the jog/shuttle control used on almost all of Sony's A/V products. A front-panel button lets you toggle between the control's shuttle and jog modes. In shuttle mode, it can

quickly select play, pause, or one of two slow speeds or three fast speeds (2X, 10X, and 30X) in forward or reverse. In its jog mode, the control lets you step through individual DVD video frames manually. A four-way cursor button within the jog/shuttle control is used to navigate through the on-screen menus and to select different functions.

Like all DVD players, the DVP-S300 has an on-screen graphical user interface. A setup menu lets you choose the language for the on-screen display, the dialogue track, and the subtitles. You can also select the aspect ratio for your TV screen (4:3 or 16:9), PCM stereo or Dolby Digital audio output, an audio dynamic-range control, or audio mute. You can even change the menu background color, turn off the screen saver, and dim the front-panel display. All of these settings are saved in memory and automatically recalled even if the player is unplugged. I was happy to see that if you choose the "priority" setup mode the player automatically selects Dolby Digital when it is present, along with the priority language track (usually English on Region 1 discs). This is useful because otherwise you might inadvertently leave the player in another mode and miss out on a Dolby Digital soundtrack.

Of course, you can check out information on track and chapter numbers, playing times, playback modes, and even the MPEG-2 video decoder's bit rate. The basics are available on the front panel's fluorescent display, but the

### FAST FACTS

**DIMENSIONS** 17 inches wide, 3¼ inches high, 12⅝ inches deep

**PRICE** \$599

**WEIGHT** 8½ pounds

**MANUFACTURER** Sony, Dept. SR, 1 Sony Dr., Park Ridge, NJ 07656; telephone, 800-222-7669; Web, [www.sony.com/sel](http://www.sony.com/sel)

TV-screen display is more comprehensive. The player will resume playback from the point where you stopped, even if power is turned off, as long as the disc drawer is not opened. The S300 supports parental control on appropriately coded DVDs.

The rear panel contains two pairs of RCA jacks for stereo audio output and one pair for composite-video output, two sets of S-video jacks, optical and coaxial digital outputs, and a pin jack for Sony's S Link system control. The supplied infrared remote has forty-eight buttons, a four-way cursor, and a switch for selecting either TV or DVD control. It duplicates all of the primary functions and adds a few more, including A-B repeat and camera-angle selection for discs supporting that feature.

I auditioned the DVP-S300 with a wide variety of stereo music CDs ranging from A (Aerosmith) to W (Wagner). I could not detect any significant audio artifacts attributable to this player. Certainly, some recordings sounded better than others, but the DVP-S300 merely conveyed those differences with great linearity. A CD player like this one aptly demonstrates that CD player technology is reaching its zenith, as is the CD format overall. The minor deviations introduced by this player's mechanical and electrical components were indistinguishably small compared with the gentle limitations of the CD standard itself. It will take an entirely new format (DVD-Audio) to raise the sonic bar above this high level.

Next I switched the DVP-S300 into my home-theater setup, using a Denon A/V receiver and a suite of Carver speakers. I auditioned a wide range of DVD-Video discs ranging from F (*Fargo*) to T (*Terminator 2*). I was absolutely pleased with the video performance. The picture was crisp, with edges that were sharp but natural-looking and a good sense of realistic depth. The colors were vibrant and clean, with flesh tones that were finger-looking good.

Probably the only way to find fault with the DVP-S300 would be in an A/B comparison with a much more expensive player (such as the DVP-S7000), but I suspect that even then picture-quality differences would be small if the S-video connections are used. A more expensive player might give a better picture when connected via a component-video output, but in my experience that difference is not considerable and is really only noticeable on a well-calibrated, high-end monitor. In

other words, the picture conveyed by the DVP-S300 through its 10-bit video digital-to-analog (D/A) converters will look plenty good to most viewers.

Like most DVD players, the DVP-S300 does not contain a full Dolby Digital decoder (Sony also offers a step-up model, the DVP-S500, that does have a built-in 5.1-channel decoder). Decoding was handled by my receiver, connected to the player by a Toslink optical cable. The receiver's decoder had no problem handling the data provided to it and delivered excellent Dolby Digital sound. The DVP-S300 plays back DVD-Video discs with 96-kHz soundtracks, though I had no suitable 96-kHz DVDs to audition. And I am happy to report that it uses Sony's dual discrete pickups for CD and DVD playback, which allows playback of CD-Rs.

All of the player's various features worked like a charm, including very smooth forward and reverse slow motion. In particular, the reverse function, using Sony's 32-bit microprocessor and its SmoothScan feature, provided accurate frame-by-frame slow motion without skipping frames as some players do. I was also pleased with the player's ergonomics. Although the on-screen menu is somewhat spartan (how much more silicon does a good menu require, I wonder?) and looks low-tech, it is at least functional and easy to use. The other controls — the jog/shuttle dial in particular — are all very intuitive and easy to master. This player should not provoke the slightest panic in even

the most technophobic family member.

The S300 performed impressively on the test bench as well. The CD playback figures were, in fact, close to their theoretical limits. Similarly, the video measurements were excellent. There were no significant measurable errors except for a slight rolloff in high-frequency response. No other defects were visible on video test patterns, even in a split-screen comparison with a test-signal generator. If this picture looks bad to you, call your optician immediately.

A final note: If you are thinking of paying a couple of hundred bucks to buy a single-disc CD player, I suggest that you pause and search long and hard for any reasons not to buy this DVD player instead. After some soul-searching, I think you'll find that its sonic excellence makes single-disc, single-format CD players completely obsolete. Moreover, this player need make no apologies for its video performance, converting DVD video data to the analog domain with great precision.

Whether it's audio, video, or both that interests you, the Sony DVP-S300 is proof that trickle-down technology really works. While this player may lack some of the refinements and features of its higher-price predecessors (component-video output, lavish menus, and in-depth video controls), it has inherited the lion's share of their performance abilities (excellent sound and picture quality). At this price, the Sony DVP-S300 is the best DVD player I have tested. □

## MEASUREMENTS

### DVD VIDEO PERFORMANCE

All measurements made from composite-video output.

Setup level .....	7.5 IRE*
100%-white-level error .....	-1 IRE*
Differential phase .....	<1°
Differential gain .....	<1%
Chrominance nonlinear phase .....	<1°
Chrominance nonlinear gain .....	<1%
Horizontal luminance frequency response	
at 4 MHz .....	-0.44 dB
at 5 MHz .....	-1.41 dB
at 6 MHz .....	-4.43 dB
Equivalent on-screen horizontal resolution .....	>480 lines

\* an IRE is a standardized unit of contrast

\*\* decibels referred to digital full-scale

### CD AUDIO PERFORMANCE

Except where noted, all test signals were dithered, which limits measured performance for noise level and distortion, and all were two-channel stereo.

Maximum output .....	2.05 volts
Frequency response	
20 Hz to 20 kHz +0.01, -0.2 dB	
Noise level	
(A-wtd, re -20-dBFS** input) .....	-75.1 dB
Excess noise (without/with signal)	
16-bit (EN16) .....	0.55/0.55 dB
quasi-20-bit (EN20) .....	11.01/11.01 dB
Distortion (THD+N, 1 kHz)	
at 0 dBFS** .....	0.0026%
at -20 dBFS** .....	0.019%
Linearity error	
at -90 dBFS** .....	-0.01 dB
Defect tracking	
(Pierre Verany test disc) .....	1,000 μm



# Velodyne CT-120 Powered Subwoofer

TOM NOUSAINE, TN COMMUNICATIONS

**V**elodyne subwoofers have a great reputation among audiophiles because they have traditionally featured high-performance amplifiers and large, long-throw drivers with servo feedback, thanks to which they deliver ultra-deep bass and high output with low distortion. Unfortunately, high performance tends to be expensive, and so is most of Velodyne's subwoofer line.

The new CT series, however, is intended to make traditional Velodyne performance available to a larger audience. The CT-120 tested here lists for only \$599, a price that puts it within reach for many home theaters. Naturally, I was curious to see if it lived up to the Velodyne reputation.

The CT-120 is a powered, bass-reflex subwoofer that features an electronic crossover network, a 12-inch forward-firing driver, and a 120-watt Class A/B amplifier (270 watts peak). The contin-

uously variable crossover — 40 to 120 Hz with a slope that ends up at 24 dB per octave — can be bypassed to use the crossover in a preamp or receiver (that is, a low-pass-filtered subwoofer line output). The CT-120 also has a switch-selectable 80- or 100-Hz high-pass filter for both its line-level and speaker-level outputs, a level control, a phase switch, and signal sensing for automatic power on/off.

## FAST FACTS

**DIMENSIONS** 18 x 15 x 20 inches  
(including rear controls and heat sink)

**WEIGHT** 55 pounds

**FINISH** black ash vinyl

**PRICE** \$599

**MANUFACTURER** Velodyne, Dept. SR,  
1070 Commercial St., Suite 101, San  
Jose, CA 95112; phone, 408-436-7270;  
Web, [www.velodyne.com](http://www.velodyne.com)

Dual banana jacks on ¾-inch centers are provided for speaker-level inputs and outputs. They also accept single banana plugs, stripped leads, and spade lugs. At first glance it appears that the jacks, with their center holes closed up, will *not* take banana plugs. Not to worry — you can pop the plastic stoppers out with a small screwdriver. The CT-120's controls, connectors, and feature set are unusually good for a sub in this price range.

The 12-inch driver has a treated-paper cone and a foam surround. It's mounted on the front of the matte-black cabinet, just above a 1¼-inch slotted vent that extends completely across the bottom. A cloth grille stretched on a wood frame covers the driver.

The 55-pound enclosure is 18 inches high, 15 inches wide, and 18¾ inches deep (20 inches when you include the heat sink and operating controls on the rear panel). Accordingly, the enclosure will consume about 2 square feet of your listening room's floor and 3¼ cubic feet of space. That's not tiny, but it's well within reason. The vent slot on the cabinet face can do double-duty as a hand grip, making the CT-120 remarkably easy to move around. The warranty is two years.

Installation was uneventful; I used the line-level connectors. Because most subwoofers, like the CT-120, have their controls on the rear panel, I have developed a little setup trick you may find useful: start with the rear panel of the sub facing out so that it's easy to get at the controls. Deep bass is omnidirectional, so adjustments can be made with the driver pointing in any direction. Once they're made, just spin the box around and dress the wires.

I installed the CT-120 in a home-theater system with Paradigm Active Series speakers for the other five channels, all set to "small" on my Lexicon DC-1 surround processor. Setup was a little on the fussy side. To achieve precisely the right level and crossover settings, I had to spend a lot of time tweaking the volume and crossover controls. If the level was even slightly too high, the CT-120 tended to thump way too loudly. On the other hand, there was never a time when I had to wonder if the subwoofer was connected! When all was done, the level control was set at 2 on a scale of 0 to 10, and the low-pass crossover was set to 60 Hz, the high-pass to 80 Hz.

In my large (13 x 23 x 18-foot) listening room, I measured the sub's half-

power point (where its response was down 3 dB from maximum) as 30 Hz. You can expect 27 Hz in a medium-size room. At a nominal low-pass crossover setting of 80 Hz, the CT-120 had an in-room frequency response of 30 to 80 Hz  $\pm 3.5$  dB with a 24-dB-per-octave slope. At the lowest marked setting, 40 Hz, the crossover point was indeed 40 Hz. But when I turned the control to the full-bandwidth position (120 Hz), the actual crossover point measured 90 Hz.

Interestingly, the CT-120 is one of the few subwoofers I've tested at any price that could produce clean output at 20 Hz at a listening distance of 2 meters. This sub cranked out 87 dB sound-pressure level (SPL) at 20 Hz with less than 10 percent distortion. Maximum output with that distortion limit was 106 dB between 60 and 80 Hz. The CT-120 averaged 101 dB SPL over the bass-rich 25- to 62-Hz range and 102 dB over the 25- to 80-Hz range. Most subwoofer manufacturers focus on maximizing SPL at 40 Hz and above, sacrificing low-frequency extension in the process. That the CT-120 delivers 87 dB at 20 Hz and 106 dB at 60 Hz proves it's a Velodyne sub, all right.

After my test-signal measurements, I fed the CT-120 some of my benchmark program material. It whacked out 109 dB SPL on Bass Erotica's "It's Live" and "976-BASS" (from *Bass Ecstasy* on Neurodisc). Its average output on Telarc's "Jurassic Lunch" and the cannon shots in the *1812 Overture* was 106 dB. With movie sound, the sub blasted out 108 dB in the classic "boom" scene from *Clear & Present Danger*. While that won't knock down any buildings, it was frighteningly loud for a \$599 subwoofer.

Dynamic control was good as well. When I drove the sub past its capacity, its port and suspension sent warnings of impending disaster well before damage would have occurred. That was consistent with other Velodyne subs I've examined, which typically have excellent protection circuitry.

Careful listening to a wide range of bass-rich material showed that although it doesn't do 10 Hz, the CT-120 handles 20 Hz with style and does 60 Hz even better. Organ recordings sounded fantastic on the CT-120, but on electronic music with sine-wave-like tones (such as *Bass Ecstasy*), 22-Hz fundamentals

were somewhat curtailed. Don't get me wrong: There was still plenty of bass and floor-shaking vibration, but the lowest frequencies were not as loud as the higher ones. To put that in perspective, however, I should point out that most subwoofers — let alone those that sell for less than six bills — don't even try to go that low.

With regular program material (electric and acoustic bass, tuba, and so on), the CT-120 did a great job as long as I didn't push its volume too high. Actually, most users will probably do exactly that — set the bass way too high. It may not be accurate, but it *is* fun. In fact, with big-bass recordings, there's enough air movement through the CT-120's slot to propel styrofoam peanuts out into the room (don't worry, the port is quiet below overload). Paper punchings can work too, but they're a lot harder to clean up. Hey, if you have a subwoofer, you might as well use it!

All in all, the CT-120 easily lives up to the Velodyne name. It has excellent extension, produces high sound levels, and features a full set of high-quality input/output facilities at an affordable price. What more could you ask for? □

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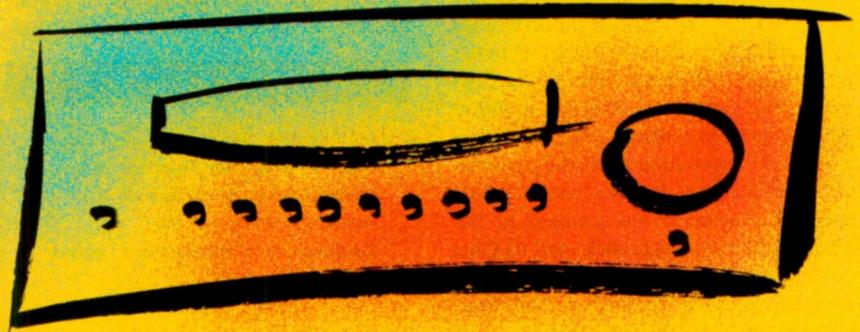
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than greatness.

— Ralph Waldo Emerson



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WE SIMPLY SOUND BETTER.



# Carver Cinema 5.2 Home Theater Speaker System

KEN C. POHLMANN, HAMMER LABORATORIES

**S**urround sound might be the future, but two-channel playback is not ready to go quietly into the basement. Instead, its proponents assert that while 5.1-channel systems can be suitable for movies, they're inadequate for serious music listening. A speaker budget, they say, just can't be spread over six speakers without fatally compromising the quality in the front two. And if the front two are good, the remaining four must suffer. In short, they argue that a 5.1-channel system can't be good for both home theater and stereo music listening.

Carver Corporation takes the opposite stand. While not famous for its loudspeakers, Carver is no stranger to the business of stereo playback, and its Cinema 5.2 home-theater speaker system is designed to serve the needs of both two-channel and multichannel audio.

The perspiration on the brow of the FedEx man immediately told me that the Cinema 5.2 system was more than a bunch of itty-bitty speakers — the total weight approaches 200 pounds. Although weight by itself means little, the Cinema 5.2 speakers have robust cabinets that are designed to propel sound energy from five solid, unmoving plat-

forms. That's right, this system comprises *five* cabinets, instead of the usual six. Moreover, it provides *two* powered subwoofers instead of the usual one (thus the 5.2 in its name).

All five speakers share a similarly simple and attractive styling: front and sides covered by black cloth, and painted black particleboard plates on top and bottom. The front left/right speakers are 42-inch-high towers each hous-

ing a front-firing 5½-inch midrange driver and a 1-inch dome tweeter, plus a rear-firing 2½-inch driver supplying nondirectional, random-phase signals. A 10-inch side-firing subwoofer is also built into each of the towers, which are labeled "left" and "right" so that the subwoofers will fire inward (they can be reversed if your setup requires it).

The rear of each magnetically shielded cabinet sports two pairs of dual binding posts, one for the top section and one for the subwoofer. The terminals are standard banana-plug width, as are all the other binding-post pairs in the system. Nominal impedance for both the top section and the subwoofer is 4 ohms. Sensitivity is given as 89 dB.

When I first hefted the center-channel speaker I was surprised by its 30-pound weight. Then I realized that its cabinet houses the power amplifier that drives the subwoofers in the two towers (the center speaker itself is not powered). This is a logical place to put a mono amplifier. It would be more expensive to put a separate power amp inside each tower, and also more of a hassle to install the system with separate amps. The center speaker is magnetically shielded and has two 5½-inch midrange drivers and a 1-inch dome tweeter. Its nominal impedance is 4 ohms, and its sensitivity is given as 91 dB.

The subwoofer amplifier is a Carver Lightstar monoblock nominally rated to deliver 300 watts. It can accept either line-level or speaker-level input. Signals below 80 Hz are fed to the sub amplifier, those above 80 Hz to the high-pass outputs. Accordingly, two pairs of binding posts provide speaker-level outputs for the subwoofers, and two other pairs provide stereo high-pass output for the top sections of the towers. Line-level high-pass-filtered RCA output jacks are also provided.

Besides a subwoofer level control, there's also a Bass Tilt control, which varies the level of bass output only at frequencies below the crossover point. When the tilt control is turned down, the response below the cutoff is flat. As its level is increased, it "tilts" the response so that the lowest frequencies are given a greater boost. The amplifier has a crossover bypass that can be used if your preamplifier or receiver has its own subwoofer crossover. It also has a toggle switch to invert the phase of the subwoofers' output as well as signal-sensing circuitry for its automatic power on/off mode.

Each dipole surround speaker con-

## FAST FACTS

**DIMENSIONS** Tower speakers: 8 inches

wide, 42 inches high, 15 inches deep

Center speaker: 20 inches wide, 9¼

inches high, 7¾ inches deep

Surrounds: 11½ inches wide, 12 inches

high, 5 inches deep

**WEIGHT** towers, 65 pounds each;

center, 30 pounds; surrounds, 13½

pounds each

**FINISH** painted black finish with front

and sides covered with black grille cloth

**PRICE** \$2,395

**MANUFACTURER** Carver Corporation,

Dept. SR, P.O. Box 137, Woodinville, WA

98072-0137; phone, 425-482-3400; Web,

[www.carver.com](http://www.carver.com)

tains one 5½-inch driver on its front face and two 2½-inch drivers on each of its side faces. Their nominal impedance is given as 4 ohms and their sensitivity as 87 dB. The cabinets have key-hole brackets for wall-mounting.

Installing the Cinema 5.2 system in my home theater, I positioned the main towers about 6 feet apart a little bit out from the front wall, slightly toed-in. I put the center-channel speaker on the floor under the screen and angled it up. Finally, I placed the surround speakers on the side walls, slightly behind the listening position.

Because the Carver Cinema 5.2 system lacks bass-placement flexibility, I was anxious to see how its bass response would compare with that of the corner-located bass modules I have used. I auditioned a number of movies with healthy low-frequency effects (LFE) channels (*Das Boot* has a satisfyingly deep low end), and I was not disappointed. Even though the subs' placement was not optimal in my room, the two Carver 10-inchers delivered at least as much bass as stand-alone subs with single 10-inch drivers, perhaps because of the very peppy 300-watt amplifier powering them — that's double or triple the power of most subs.

Moreover, perhaps also because of the high-quality amplifier, I felt that the Cinema 5.2 system's deep-bass response was more musical than most. That is, the bass was not thumpy; instead, the subwoofers provided good resolution with useful output down to 25 or 30 Hz. Aside from pipe organs, few musical instruments go this low, but movies often use this bottom octave for low-frequency effects; for example, you'll hear engine noise, ocean waves, and explosions rattling around down there. Poor subs merely honk and rattle, whereas good subs like these shake the room without betraying that the energy is coming from speakers.

I also appreciated the Bass Tilt circuit because it let me dial in the right amount of low bass for individual movie soundtracks. Of course, the ordinary bass-level control was also useful in matching the bass output to the overall high-frequency level.

Next I turned my attention from the bass to the entire frequency range, sticking with movie soundtracks and listening for a smooth frequency response, crisp transients, and a realistic sense of ambience. I was very happy with what I heard. The Cinema 5.2 system reminded me how awesome a set

of good speakers can sound. If you want to raise goosebumps on the back of your neck watching a movie, these speakers will do the job. This system proves that well-matched speakers is the most important criterion for a home-theater speaker system.

The towers provided clean movie sound with good dynamics, and their rear-firing drivers provided an extra sense of spaciousness. The center speaker achieved the difficult goal of providing highly intelligible dialogue while matching the timbre of the main speakers. The surround speakers sounded great, and they may have changed my thinking about using dipole surrounds vs. direct-radiating surrounds (which I generally favor). The Carver surround speakers seemed to provide the best of both worlds — the spaciousness of dipoles and the correct timbre of matched speakers. I give this system two big thumbs up for movie sound.

Of course, music is the acid test for loudspeakers, so I listened carefully to a

were clearly pinpointed in the stereo panorama, while the woodwinds were more ethereally spread across the stage — exactly the way they were recorded.

My only real concern was the mid-bass response of the tower speakers. Although the response seemed fine when I analyzed it with pink noise, it lacked punch when reproducing music. As a result, the overall sound quality was a little slender. For example, in Jennifer Warnes' *Famous Blue Coat*, one of my favorite recordings, the drum sound should feature both a very solid impact and a huge resonance. With these towers, the drum sound was pretty huge, but I felt the impact was somewhat hollow and soft-sounding, as if the recording microphone had been pulled away. The best speakers have better luck with these very demanding transients.

If only I could have played with the fixed 80-Hz crossover frequency, or relocated the subwoofers, I might have been fully satisfied. One more thought:

## **If you want** to raise goosebumps on the back of your neck watching a movie, **Carver's Cinema 5.2 speakers will do the job.**

variety of music from both DVD surround and CD stereo sources. With surround-encoded recordings the system's strength in reproducing spaciousness was fully apparent and made them sound terrific. For example, on the Delos *DVD Spectacular* (DV 7001), the five-channel recording of Tchaikovsky's *1812 Overture* (by expert engineer John Eargle) gave a perfect sense of stage and hall ambience, the kind of natural surround that only a good recording (and multiple speakers) can convey.

Playing "old-fashioned" two-channel stereo music through the two towers alone, I was moderately impressed — maybe not as impressed as I would have been with a \$2,400 stereo pair, but I felt their sound was quite clean and not excessively forward, with a smooth response and good dispersion. I used the Delos *Surround Spectacular* CD (DE 3179) for a number of tests, including imaging — in which the speakers managed the difficult feat of providing both tight imaging and spaciousness. Case in point was the Prelude to Act III of *Lohengrin*, in which the brass

The sub amplifier is mono, and that's great for movies, but I wondered if the system would sound better if a stereo amp was used for music listening. Maybe, maybe not. Even so, I'll give the system one thumb up for stereo music.

Conventional wisdom says that a home-theater speaker system has an easy job because the picture distracts us; the visual stimulus compensates for sonic deficiencies. That may be true, but 5.1-channel playback does demand that speakers provide an encompassing spaciousness that is often difficult to achieve. The Carver Cinema 5.2 system accomplished this task with great proficiency. The resulting sound field really was impressively enveloping. At the same time, the effect wasn't overdone, which allowed the system to maintain the precise imaging needed for conventional stereo playback. Moreover, the rock-solid cabinets and high-quality drivers delivered neutral sound quality. In short, this system will feel at home in both the two-channel and multichannel environments. And that's no small accomplishment. □

# MiniDisc,

THE OPENING WEEKEND means everything for a big-budget movie. Unless a new film draws big crowds the first few days, it's all over, and it will probably be a flop. Same thing with a new Broadway play or musical — if the critics pan the opening performance, the show could fold within the week. Some consumer products have similar life expectancies. Unless they take hold quickly, their lease on life expires as other products elbow them off the stage.

The MiniDisc (MD) made its debut way back in 1993. It was designed as a highly convenient disc format that would displace the analog tape cassette

while offering features that the CD did not, such as recordability and track labeling, along with the CD's most valued features, terrific sound quality and quick random access.

## **How the new gear performs on the road, in the rack, on the run, and in the lab** *by Ken C. Pohlmann, Hammer Laboratories*

When Sony introduced MD in 1993, it hoped that prerecorded MDs would soon fill American record stores and that the MD Walkman would become as common here as its cassette counterpart. But that didn't happen. Maybe it was because MD was competing with

the Digital Compact Cassette (DCC), a digital tape format (now deceased) that Philips introduced around the same time. Maybe MD was too expensive for the cassette crowd. Maybe people were

simply way too happy with CD to care about the MD's advantages. Whatever the reason, Americans did not buy into the MD format.

Meanwhile, MD became wildly popular in Japan and has caught on reasonably well in Europe. In a last-ditch effort to salvage MD in the U.S. market before its lease really does expire, Sony is vigorously reintroducing the MD to America. Of course, marketing can go only so far. What is really needed are prod-



# Take 2

ucts people want to buy. Thus, several new MD players and recorders have arrived here.

To understand the state of the MD art, and to help ascertain MD's ultimate fate, I played with and bench-tested five new MD devices of different types from Sony, Sharp, and Kenwood. Including both home and portable recorders, an MD tuner for the car, a portable player, and an MD-based minisystem, they show the strengths and weaknesses of the MiniDisc format. Although only those three companies had production models

PHOTO BY DAVE SLAGLE



## SONY MZ-R50



**DIMENSIONS** 4¼ inches wide, ¾ inch high, 3 inches deep

**WEIGHT** 8½ ounces (including rechargeable battery)

**PRICE** \$550

**MANUFACTURER** Sony Electronics, Dept. SR, 1 Sony Drive, Park Ridge, NJ 07656; telephone, 800-222-7669; Web, [www.sony.com/sel](http://www.sony.com/sel)

### MEASUREMENTS

All measurements made from the analog output with all test signals at 44.1-kHz sampling rate and dithered, which limits performance for noise level and distortion.

### PLAYBACK

**Maximum output**  
(1 kHz, 0 dBFS\*).....750 mV

### Frequency response

20 Hz to 20 kHz +0, -0.9 dB

### Noise (A-wtd)

at -20 dBFS\*.....-66.7 dB

### Linearity error

at -90 dBFS\*.....-0.3 dB

### RECORD/PLAYBACK

All measurements made using the analog line-level input.

### Sensitivity (for 0-dBFS\* output level with max. record level).....170 mV

### Frequency response

20 Hz to 20 kHz +0.1, -1.8 dB

### Noise (A-wtd)

at -20 dBFS\*.....-64.3 dB

### Linearity error

at -90 dBFS\*.....+0.6 dB

\* decibels referred to digital full-scale

design in which a mechanical latch releases the top lid to reveal the disc-loading bay. You'll find buttons on top for the standard functions (play, pause, track skip, and so on). A Mode button selects disc repeat, track repeat, or random playback. A Display button shows track titles, artist information, and recording dates if the data are encoded on the MD (all prerecorded MDs carry such information, and it can be added to home-recorded MDs if desired). The extremely clean-looking LCD screen also shows such pertinent information as track and disc timing, signal level, battery level, bass-boost level, volume level, and more. Analog-input record levels can be set either automatically or manually.

The coolest — and most practical — control is a small top-mounted thumbwheel that lets you dial up desired tracks quickly while watching either titles or track numbers on the display. Playback is started by just pressing the thumbwheel, which Sony calls a "vertical jog dial." It's a terrific feature. Used in conjunction with the Title/Enter button, it can select characters to label MDs or tracks. Each label can be up to 200 characters, and one MD can hold about 1,700 characters.

One side of the case has an on/off slide switch for Synchro Record, in which the MZ-R50 automatically starts and pauses recording and marks tracks in sync with a digital source. A sampling-rate converter lets the recorder accept digital inputs at 32, 44.1, and 48 kHz. The buffer memory holds a full 40 seconds of program data, making the MZ-R50 virtually invulnerable to interruption. Another perk: you can do monaural recording, placing up to 148 minutes of audio on a 74-minute disc.

A pushbutton engages a choice of two headphone bass-boost levels (there is also a flat position). One minijack accepts a stereo microphone, another accepts either analog (electrical) or digital (optical) line-level input, and a third provides analog line-level output. A slide switch sets the microphone sensitivity for high or low, and another switch sets the AVLS (automatic volume limiter system) circuit for Normal or Limit. The Limit setting lowers the maximum playback volume over headphones to protect your hearing. A socket accepts 6-volt DC power from the supplied AC adapter, and a sliding door conceals the supplied lithium-ion rechargeable battery. A cloth carrying pouch is provided.

in time for our deadline, the second wave of MD product introductions already includes Denon — and Aiwa, JVC, Pioneer, Sanyo, and Yamaha will soon join in.

In case you're not familiar with the format, a MiniDisc is about 2½ inches in diameter and is housed in a squarish protective cartridge that resembles a computer diskette. Because of its small size, an MD can hold only about one-fifth as much data as a CD. However, it can hold the same amount of *music* as a CD thanks to a data-compression scheme known as ATRAC, or Adaptive Transform Acoustic Coding. Like other "perceptual coders," including Dolby Digital's AC-3 system, ATRAC — now in its third generation — reduces the data needed to store an audio signal by, among other things, dropping parts of the signal that would be inaudible anyway, because the sound is too soft for humans to hear at all or would be masked by other, louder sounds in the recorded program.

While prerecorded MDs are similar to CDs, recordable MDs are significantly different. They contain additional layers, including a magneto-optical layer. To record digital data, a laser in

the recorder heats a spot on this layer so that a magnet can alter its magnetic orientation, or polarity. During playback, the pickup can read the data because the two possible polarizations reflect light differently.

Like a growing number of portable CD players, all MD recorders and players have built-in memory buffers that make them relatively immune to skipping because of shock or vibration. MD recorders offer convenient editing functions that let you split or combine tracks or change their playback order by simply hitting a few buttons. MDs can also store disc and track titles for display, and all MD recorders contain SCMS, the Serial Copy Management System that prevents you from making more than one generation of direct digital copies from an MD.

**Sony MZ-R50** The Sony MZ-R50 exemplifies what the MiniDisc concept is all about. It provides both recording and playback capabilities in a package about the size of the smallest cassette Walkman. It eschews the traditional black plastic for a shiny metallic case that looks quite handsome. Like most portable CD players, it has a clamshell

A remote/headphone jack accepts a remote control that is wired in-line between the player and the headphones. Part of the connector is a standard stereo minijack that can accept a headphone miniplug directly. The barrel-shaped remote duplicates some of the primary controls; for example, it lets you select tracks, adjust volume, and change the play mode. A small LCD on the remote shows track numbers and times, play mode, battery level, and the like. The supplied earbud-style headphones have a folding headband.

The owner's manual says that the rechargeable battery provides about 4 hours of recording time or 7 hours of playback time (I got about 8 hours). Recharging time is about 3 hours. An auxiliary battery case is also provided that holds two AA batteries and attaches to one end of the MZ-R50's chassis — and negates its sleek looks and diminutive size in the process. According to Sony, a pair of AA alkaline batteries will provide about 12 hours of playing time, and using both lithium and AA batteries will provide about 22 hours.

In my real-world use tests, the MZ-R50 proved its mettle. Thanks to its large buffer, it did not skip under athletic conditions that would send most CD portables to the E.R. Its recording and editing capabilities worked like a charm. With a little practice, you can assemble professional-sounding discs complete with in-depth labels. Moreover, the sound quality was quite good, and certainly more than adequate for portable/headphone applications.

I listened to a number of prerecorded MDs, including Bonnie Raitt's *Luck of the Draw* and Eric Clapton's *Unplugged*. The ATRAC coding of these very clean recordings did not reveal any blatant artifacts, and frequency response was good, albeit with a slightly rolled-off high end (it measured flat with sine-wave test tones but was occasionally attenuated when complex music signals passed through the encoder).

The MZ-R50 was also quite proficient on the test bench; it is nothing short of amazing that such impressive figures can come from such a small package. The only enigma was the bass-boost circuit, which provided only a feeble boost through the headphone jacks at both low and high volume.

In sum, the Sony MZ-R50 is a triumph of engineering. It packs an amazing number of features into a small package, and it records and delivers excellent sound for on-the-go listening.

**Kenwood 1050MD** At a quick glance, the Kenwood 1050MD could easily be mistaken for a home CD player. In reality, it's a home MiniDisc recorder/player — and a serious one at that. Its stern black front panel seems a long way from the portable, fun-loving image that MD gear usually projects. A slot near the upper left corner provides power-assisted disc loading and unloading. The faceplate holds standard transport controls and significantly more additional buttons than any portable MD player or recorder.

Many of those buttons work in conjunction with a rotary jog dial. For example, press the Title Search button, and the jog dial can be used to scroll through track numbers and titles — the twelve-character fluorescent display lets you see both at the same time. Press the Record Input button, and you can use the jog dial to select the analog input, the coaxial or optical digital input, or long-play mono recording through the analog input. The jog dial is also used to move and label tracks.

A rotary potentiometer adjusts analog-input recording levels, and a Monitor button lets you listen to either the source or the recording. An Auto/Manual button lets you choose whether track numbers will be marked automatically during recording by detecting silent passages (analog input) or CD

track changes (digital input), or left for you to mark manually during or after recording.

A sampling-rate converter accommodates 32-, 44.1-, and 48-kHz inputs. Besides the MD-standard track-move, track-divide, track-combine, and track-erase functions, the Model 1050MD has quick-move and quick-erase features that allow you to manipulate several tracks simultaneously. The headphone jack has a nearby level control. A timer switch allows you to make unattended recordings in conjunction with an external audio timer (popular abroad but hard to find here).

The supplied infrared remote control sports forty buttons, which duplicate many of the front-panel controls and provide such extra functions as automatic pausing after each track and programmed track playback. Unlike many remotes, which use stylish but illegible labeling schemes such as gray on black, the 1050MD's remote has very legible bright white lettering that's easy to see even in dim ambient light.

The Kenwood 1050MD proved to be a very capable recorder on the test bench. It's true that bench tests can't fully describe the quality of a perceptual coding system such as ATRAC, but the figures suggest that the performance of this recorder audibly rivals that of digital recorders that don't use percep-

KENWOOD 1050 MD

**DIMENSIONS** 17¼ inches wide, 3¾ inches high, 14¾ inches deep

**WEIGHT** 10¾ pounds

**PRICE** \$400

**MANUFACTURER** Kenwood USA, Dept. 3F, P.O. Box 22745, Long Beach, CA 90801; telephone, 800-536-9663; Web, [www.kenwoodusa.com](http://www.kenwoodusa.com)

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**MEASUREMENTS**  
All measurements made from the analog output with all test signals at 44.1-kHz sampling rate and dithered, which limits performance for noise level and distortion.

**PLAYBACK**  
**Maximum output**  
(1 kHz, C dBFS\*) ..... 2.1 volts

**Frequency response**  
20 Hz to 20 kHz +0.18, -0.29 dB

**Noise** (A-wtd)  
at -20 dBFS\* ..... -108 dB

**Linearity error**  
at -90 dBFS\* ..... -0.8 dB

**RECORD/PLAYBACK**  
**Sensitivity** (for 0-dBFS\* output level with max. record level) ..... 480 mV

**Frequency response**  
20 Hz to 20 kHz +0.16, -0.40 dB

**Noise** (A-wtd)  
at -20 dBFS\* ..... -66.9 dB

**Linearity error**  
at -90 dBFS\* ..... -0.3 dB

\* decibels referred to digital full-scale

# Sharp MD-S301

WHEN IT COMES TO MUSIC, some people can take it or leave it. Others must *always* take it with them. Over time, perhaps they will evolve into a new species with flesh and cartilage transducers covering each ear. Until then, they are easily spotted by their black plastic earbuds as well as their jerky, dancing gait. If they buy the Sharp MD-S301, they will become even easier to spot. As if its glittering silver case isn't flashy enough, its designers have seen fit to plant a large, reflective, blue plastic decorative nameplate on its top. It's certainly distinctive, but it has no practical use aside from signaling passing aircraft, which it seems ideal for.

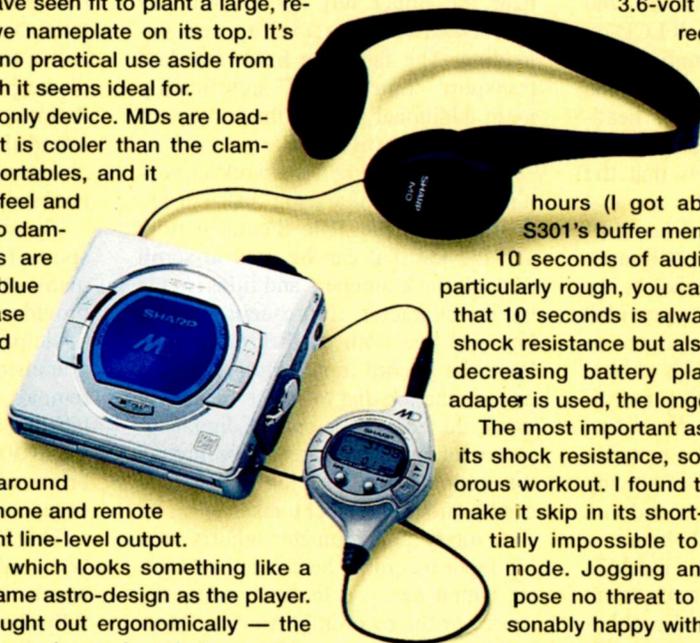
The MD-S301 is a playback-only device. MDs are loaded through a hinged door that is cooler than the clamshell opening used by most portables, and it gives the small unit a sturdier feel and probably makes it less prone to damage. The main user controls are mounted on top, around the blue nameplate. Underneath the case is a slide switch marked Hold that freezes the top controls, preventing accidental operation. One side of the case has a 5-volt DC socket for the supplied AC adapter, and around back is a socket for the headphone and remote control. There is no independent line-level output.

The back-lit remote control, which looks something like a wired digital watch, uses the same astro-design as the player. Unfortunately, it's not well thought out ergonomically — the buttons are too small, and they are located so that operation is an awkward, two-handed affair. The remote's main buttons duplicate the player's primary controls. Another button engages a bass-boost circuit, with a flat position and three levels of boost. The display scrolls track titles along with other vital information such as playing times, track numbers, battery level, bass-boost level, and volume level. (In addition, the

display alertly says "Hello!" and "Bye!" at the beginning and end of listening sessions, and when it has nothing else to do it shows a swimming fish whose bubbles coalesce into musical notes.) The supplied headphones can either connect to the remote control or plug directly into the player, but if you do that you'll have no display.

The owner's manual advises that the supplied 3.6-volt lithium-ion battery can be recharged approximately 300 times; charging time is about 3 hours. The manual also says that playing time with the rechargeable battery is about 6 hours (I got about 6½ hours). The MD-S301's buffer memory stores up to either 5 or 10 seconds of audio data. When your ride is particularly rough, you can change the play mode so that 10 seconds is always stored, which increases shock resistance but also power consumption, thus decreasing battery playing time. When the AC adapter is used, the longer buffer is always engaged.

The most important aspect of a portable player is its shock resistance, so I gave the MD-S301 a vigorous workout. I found that while it was possible to make it skip in its short-buffer mode, it was essentially impossible to disturb in its long-buffer mode. Jogging and similar activities should pose no threat to this player. I was also reasonably happy with its sound quality. The supplied headphones will win no prize, but with high-quality phones I was able to get some decent sound. Moreover, the internal amplifiers are peppy and pump out pretty good levels. The MD-S301 betrayed no serious weakness on the test bench. Aside from the bedazzling silver case and big blue nameplate, which required constant apologies on my part, this is a great little MD player. — K.P.



**DIMENSIONS** 3½ inches wide, 1 inch high, 3⅛ inches deep

**WEIGHT** less than ½ pound (including rechargeable battery)

**PRICE** \$300

**MANUFACTURER** Sharp Electronics, Dept. SR, Sharp Plaza, Mahwah, NJ 07430; telephone, 800-237-4277;

Web, [www.sharp-usa.com](http://www.sharp-usa.com)

#### MEASUREMENTS

All measurements playback only, made from the analog output with all test signals at 44.1-kHz sampling rate and dithered, which limits performance for noise level and distortion.

#### Maximum output

(1 kHz, 0 dBFS) ..... 1 volt

#### Frequency response

20 Hz to 20 kHz +0.18, -0.46 dB

#### Noise (A-wtd)

at -20 dBFS\* ..... -68.8 dB

#### Linearity error

at -90 dBFS\* ..... -1.1 dB

\* decibels referred to digital full-scale

tual coding. Although its operation is not as user-friendly as that of some home MD recorders I have used, it does allow full-featured recording sessions. Like most other MD transports, this one is superbly quick, accessing tracks about as fast as you can dial in your selection. And like other MD players, it was not bothered by mechanical shocks thanks to its buffer memory.

Finally, the sound quality, as you might expect from a home model, was superior to that of some MD portables. Switching between the MD output,

heard over high-quality headphones, and a CD of the same album, I was able to consistently tell the difference, mainly at the high end. Unless they're doing a similar A/B comparison, however, many listeners will consider the MD sound to rival CD quality. In particular, if your program material is relatively shy of frequencies above 16 kHz (or if your hearing is similarly shy), you will probably not be able to tell any difference between a CD and an MD copy recorded or played on the Kenwood Model 1050MD.

**Sharp MD-X7** The Sharp MD-X7 mini-system won't find its way onto the "highly recommended" list of any audiophile magazine, but that shouldn't bother its intended audience of students, apartment dwellers, and others who need a low-cost music system for a small space. It incorporates an MD recorder/player, a three-disc CD changer, an AM/FM tuner, an integrated amplifier, and two speakers in a three-box set no bigger than a microwave oven.

The MD-X7's front panel is cosmetically striking but, in my opinion, unat-

tractive. The enormous LCD screen is big enough to be seen from across the street, and it's back-lit with a sickly yellow glow. It displays all sorts of alphanumeric, signal levels, and icons. Even when the system is turned off, the display continues to show the date and time (albeit without back-lighting). As if that's not enough, a fish swims across it, saying, "Let's Enjoy Music." I'm sorry: I don't need that from my audio gear. Fortunately, the message can be reprogrammed (we can't print what I was tempted to enter), but it can't be defeated entirely — and there's no getting rid of the fish!

The MD recorder occupies the top of the stack, with a power-assisted loading slot covered by a hinged flap. You'll find the expected eject, play/pause, stop, and record buttons along with a rotary volume control. A somewhat awkward four-way rocker button selects MD tracks, CD tracks, radio presets, and more. The right combination of buttons allows you to enter album and track titles for MDs.

Three prominent buttons, labeled MD-to-MD, Track, and CD-to-MD, let you record from an auxiliary source, individual CD tracks, or an entire CD. You can also record from the tuner to MD. (A sister minisystem, the \$900 MD-X8, even lets you record music from the World Wide Web.) The MD recorder provides the standard divide, combine, erase, and move editing features and long-play mono recording.

I was glad to see that the clock can be used as a timer for both recording and playback. You could, for example, automatically record a favorite late-night radio show that you just can't stay awake for. VCRs have done such time-shifting since the beginning, but clocks, it seems, disappeared from audio gear more than a decade ago. Unfortunately, the timer in the MD-X7 is not all that it should be. Specifically, even though the minisystem understands what date it is — and dutifully writes it to the MD when a recording is made — the one-event record timer cannot be set by date! You can only set the time, and then you must put the system in its timer-standby mode sometime within 24 hours before you want the recording to start. Another potential hassle is that recordings made from the tuner are stored as a single track. You must go back and insert track markers.

Along with a flat setting, there are five other preset equalizer settings (labeled Heavy, Vocal, Soft, and so on)

**SHARP MD-X7**



**DIMENSIONS**  
electronics: 9½ inches wide, 11½ inches high, 12½ inches deep  
speakers: each 7½ inches wide, 11½ inches high, 9⅞ inches deep

**WEIGHT** electronics, 18 pounds;  
speakers, 6½ pounds each

**PRICE** \$650

**MANUFACTURER** Sharp Electronics, Dept. SR, Sharp Plaza, Mahwah, NJ 07430; telephone, 800-237-4277; Web, www.sharp-usa.com

**MEASUREMENTS**  
All measurements made from the analog output with all test signals at 44.1-kHz sampling rate and dithered, which limits performance for noise level and distortion.

**PLAYBACK**  
**Maximum output**  
(1 kHz, 0 dBFS\*) ..... 2.5 volts

**Frequency response**  
20 Hz to 20 kHz +0, -1.4 dB

**Noise** (A-wtd)  
at -20 dBFS\* ..... -73.4 dB

**Linearity error**  
at -90 dBFS\* ..... +1.7 dB

**RECORD/PLAYBACK**  
All measurements made using the analog line-level input.

**Sensitivity** (for 0-dBFS\* output level with max. record level) ..... 750 mV

**Frequency response**  
20 Hz to 20 kHz +0, -3.3 dB

**Noise** (F-wtd)  
at -20 dBFS\* ..... -68.1 dB

**Linearity error**  
at -90 dBFS\* ..... +4.3 dB

\* decibels referred to digital full-scale

plus SRS, which creates a surround-like ambience enhancement using only two speakers, and a bass boost.

There are three CD trays, each with its own eject button, which opens the tray. You can play each disc with its own play button, or all three with a master play button.

Tuner features worth mentioning include a forty-station memory that can store any combination of FM and AM frequencies along with call letters or other labels. The four-way rocker is used to scroll through the stations in memory. The remote has cursor buttons that allow you to do the same, in addition to direct-access memory buttons.

The front panel has jacks for a headphone, an auxiliary input (with level control), and a microphone input (with level control). The back panel has line-level jacks for analog input and output, and coaxial and optical jacks for digital input. There is no digital output.

The internal power amplifier is rated

at 40 watts rms per channel into 6 ohms from 60 Hz to 20 kHz with 10 percent distortion. The two-way ported speakers have wooden enclosures with plastic fronts. Two drivers — a 2-inch tweeter placed above a 5⅛-inch midrange — are covered by a plastic-reinforced cloth grille. In truly cheesy fashion, the speaker cables are hard-wired to the backs of the speakers, which are not magnetically shielded for placement next to a TV.

A forty-nine-button infrared remote accompanies the system. It controls almost everything you can think of, and a few things more. For example, you can program an MD or CD track sequence, adjust the sense of width and depth in the SRS surround circuit, or switch from stereo to mono FM reception — something you *can't* do, unfortunately, from the front panel.

Operation of the MD-X7 is straightforward for playback, and recording MDs from a variety of sources is easy.

# Sony MDX-C7900

THE AVERAGE AMERICAN spends a lot of time on the road. Most people choose CD as their mobile music source, but the convenience of MD makes it an attractive alternative. The Sony MDX-C7900 can give you access to both formats.

This head unit contains an MD transport and an AM/FM tuner. It can control an optional CD changer and has more features than your neighborhood cineplex. Like most of its kin, the MDX-C7900 features a detachable take-it-with-you faceplate that discourages theft. It also sports Sony's way cool rotary controls. The potentiometer controls volume as well as bass, treble, fader, and balance when used with the Sound button. Inset in the knob is a switch that selects MD or tuner (and the optional CD changer). A concentric lever is



used for manual and seek tuning, track skipping, and audible searching. All in all, this is one of the most ergonomically well designed sets of controls I've used.

A not-so-elegant rotary switch is used to control a bass-boost circuit, with three levels plus off. Ten preset buttons store radio frequencies, and when the Shift button is pressed, some of the presets do double duty for other functions, including intro track scan, selecting repeat or random play, best-station memory, and selecting mono or stereo reception. You can tune to a station, then enter a name for it (up to eight characters). Then, using the List button, you can look at the stored station names and pick the one you'd like to listen to.

The MDX-C7900 is accompanied by a wired remote called the Rotary Commander (not shown); using a variety of switches you can control many primary functions. Once it's installed near your fingertips, you'll never have to do the famous Radio Lean again.

If you've ever installed a head unit before, the MDX-C7900 will not pose unfamiliar obstacles. It slips into any DIN-size dash opening and uses a wiring harness to connect to power, ground, and the speakers. Alternatively, you can use line-level outputs to drive external power amplifiers. The Rotary Commander plugs into a rear socket, as does the all-important cable link to the optional CD changer.

Except for its smaller loading slot, the MDX-C7900 looks and acts like a CD player. When you insert an MD, it is grabbed and pulled into the transport. The disc title is displayed, followed by the first track title and its playing time. It is easy to find tracks, or sections within a track, and, in fact, this transport's access time is faster than that of most CD transports I've seen. In a quiet home environment, a keen listener can detect the subtle deficiencies in the MD format's ATRAC perceptual-coding algorithm. In a moving car, MD recordings sound just fine and are indistinguishable from CDs.

Strictly from a numbers standpoint, the MD player in the MDX-C7900 did a superb job on the test bench, with performance rivaling the best home MD players. Moreover, because of MD's low bit rate and buffer memory, you'll never have to worry about skipping even as you exercise vigorous driving techniques. Finally, the tuner did a pretty good job, delivering excellent FM fidelity with a strong signal and reasonable quality under degraded conditions.

The MDX-C7900 provides the best of both worlds. You can enjoy the complete convenience of MD playback in the dashboard, while the addition of an optional CD changer in the trunk or package shelf lets you enjoy your library of CDs as well. This is an excellent piece of autosound gear. —K.P.

**DIMENSIONS** 7 1/8 inches wide, 2 inches high, 7 1/4 inches deep (standard DIN)

**PRICE** \$450

**MANUFACTURER** Sony Electronics, Dept. SR, 1 Sony Drive, Park Ridge, NJ 07656; telephone, 800-432-8005; Web, [www.sony.com/sel](http://www.sony.com/sel)

## MEASUREMENTS

All measurements, playback only, made from the analog output with all test signals at 44.1-kHz sampling rate and dithered, which limits performance for noise level and distortion.

### Maximum output

(1 kHz, 0 dBFS) .....2.7 volts

### Frequency response

20 Hz to 20 kHz +0.7, -0.5 dB

### Noise (A-wtd)

at -20 dBFS\* .....-82.9 dB

### Linearity error

at -90 dBFS\* .....-3 dB

\* decibels referred to digital full-scale

The MD transport has a 10-second buffer memory, so it's not bothered by shock. On the test bench, the MD recorder/player delivered very respectable results with either the analog or digital inputs. Sound quality was okay, but the ATRAC noise floor was occasionally audible, and dynamics seemed to lack the punch of the Kenwood 1050MD home recorder. True, the MDX7 is not audiophile gear, but it demonstrates the power of digital technology. It is remarkable that an MD recorder/player and a three-disc CD changer can be put together for this price.

The speakers are the only serious weakness of the system. Indeed, if you

take advantage of the analog line outputs and connect them to an external amplifier and better speakers, the MDX7 would probably sound quite nice. In that respect, it makes a perfect starter system for anyone wishing to enjoy recording and playback on a budget, with the option of stepping up to higher quality in the future.

**The Prospects** This selection of new MD gear demonstrates that the Mini-Disc format is far from dead. In fact, it is capably supported by several manufacturers who have invested the resources and confidence needed to improve MD from its first generation to

today's high state of the art. The variety of the equipment described here indicates that, if nothing else, MD is a flexible format, moving with ease from the road to the gym to the listening room.

Perhaps the only real weakness of MD is the relative lack of prerecorded discs, which means you must make most of your MD recordings yourself. If you're willing to do that, then MD has a lot to offer in terms of both sound quality and functionality. In 1998, the MD is five years old, but it is still a fresh and exciting technology waiting to be discovered. If the latest crop of MD components can't jump-start the U.S. market, then nothing can. □

# "The M&K S-150 THX surround-speaker system sets the performance standard for the \$5,000 region"

Wes Phillips, *Stereophile Guide to Home Theater, Spring 1997*



And *AV Shopper* said, "This M&K lineup will give many more expensive THX systems a serious run for their money...[it is] the best low-priced THX certified speaker array I've heard yet."

Since 1974, M&K has been at the leading edge of high-performance audio. Numerous technology leaders in the audio and video fields use M&K speakers for developmental work and for critical industry demonstrations.

The new 150 THX system, designed for the playback of Dolby Digital AC-3 and DTS sources, has become a new professional standard, and is currently used in dozens of recording studios,

Hollywood postproduction facilities, and DVD authoring suites.

For under \$4,500, you can now own this Home THX system, including the reference-quality S-150THX front and center speakers; the award-winning "Tripole" surround—with its exclusive combination of enveloping sound and imaging; and the articulate room-shaking deep bass of the extraordinary MX-150THX powered subwoofer.



MX-150THX powered subwoofer  
"an excellent subwoofer"  
*Audio magazine*



Tripole SS-150THX  
1996 *Audio Video Interiors*  
Excellence in Design award



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<http://www.mksound.com>

ASK A SPEAKER DESIGNER WHAT sort of speaker he would *really* like to create, and he'll probably say one that's "active." He's not talking about a newfangled speaker that sways to the beat of the music, but one with a built-in power amplifier. By its very nature, a self-powered speaker solves, or at least mitigates, some of the more vexing problems of sound reproduction. Since the designer is able to choose the drivers, power amp, and crossover, he can optimize the individual performance of these elements to deliver the best overall sound quality in a given price range. The savvy designer can enhance performance further by building in "amplifier smarts" like active equalization and overload protection. ♦ All that is good news, at least from an engineering point of view. In reality, powered

# towers of power

speakers have never really caught on here in America. Whether it's an unwillingness to give up the freedom of choosing an amplifier, or a prejudice against speakers you have to plug in, we tend to prefer traditional "passive" speakers over powered models by about 99 to 1. ♦ But there is an exception, a new kind of "power tower" speaker — now starring in listening rooms and home theaters around the nation — that looks like an ordinary floor-standing speaker at first glance. On

closer inspection, you find that each speaker incorporates a subwoofer section with its own dedicated, built-in power amp and crossover.

Built-in subwoofers are good news for music lovers — and spouses — who prefer a speaker setup that has ample bass but doesn't need a separate bass module. ♦ One of the chief performance benefits of the power-tower configuration is that designers can engineer to order a powered subwoofer that complements the system's

passive midrange/treble section. The sub section usually includes an active crossover, which divides the audio signal with greater precision than the passive crossovers found in most nonpowered speakers. The sub section may also include equalization to extend or "enhance" bass output and optimize its blend with the midrange/treble section, overload-sensing circuitry to limit audible distortion (and prevent driver damage), and level and contour controls to help compensate for

room acoustics and speaker placement. In addition, since the physical relationship between each speaker system's "satellite" and "subwoofer" sections is permanently fixed, problems associated with phase relationships between the two sections or the effect of room acoustics at the critical "blend" frequency (usually around 150 Hz) are often less severe than for systems that have a stand-alone subwoofer. ♦ Another advantage of power-tower design is that you

**Built-in  
subs take  
floor-standing  
speakers  
to new heights**  
by Daniel Kumin



# towers of power

get two subwoofers, in different locations, which may help smooth bass response throughout the listening area. In general, however, the most compelling benefit of the power-tower approach is that having an onboard amplifier just to handle the speaker's watt-gobbling deep-bass duties dramatically reduces the demands placed on the main system amplifier.

Of course, as in life, there's no free lunch in the world of speaker physics. By building powered subs into the main-speaker cabinets, designers give up the single biggest advantage of the sub/satellite layout: the freedom to place the sub where it will have the best bass response (usually in a corner) and the satellite speakers where they'll sound best in terms of imaging and tonal balance.

Many power towers locate their woofers in what for conventional speakers would be unusual spots. For instance, loading the woofer in the side of the cabinet can lend the speaker a narrow profile, which improves imaging — and is visually appealing. Moreover, bass-dedicated woofers can live close to floor level without compromising lower-midrange response. Some power towers use one big woofer, while others use two or more smaller woofers to keep the enclosure as small as possible.

So, is a power tower for you? If you already own a good powered subwoofer, the answer is probably no. If you don't own a sub and need new main speakers, it's certainly an option worth

exploring if you have the space (or desire) for a pair of big floor-standing speakers.

As far as the actual hookup to your system goes, most power towers provide two options:

1) Simply run speaker wire from your system amp to the speakers' binding-post connectors as you would with a conventional speaker. An internal passive dividing network in the tower directs the low-bass part of the audio signal to the subwoofer.

2) Connect the towers as above, and *in addition* use the line-level inputs found on most (if not all) power towers to feed the bass sections from the subwoofer output on your surround preamp or receiver. It's often advisable to use the line-level sub connection in a home-theater system that's built around an A/V receiver or preamp with bass-management facilities so that the low-frequency balance and bass redirection will be handled according to the overall system settings. But you might want to try it both ways. And since the line-level runs are likely to be long, be sure to use good, well-shielded cables to minimize interference from nearby electrical lines or AC power cords.

Once you overcome these modest obstacles, the power-tower parade holds a variety of high-performance speaker possibilities. Let's take a look.



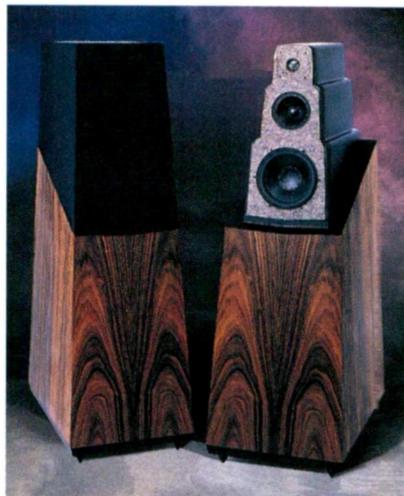
The hefty base of the 45-inch-tall Mirage OM-6 (\$3,000 a pair) contains two side-firing 8-inch woofers and a 150-watt amplifier.

**Definitive Technology** It's only fair that we begin our survey with the latest from Definitive Technology, the Baltimore-based company that popularized the powered-sub-on-board concept in 1995 with the introduction of the BP 2000. Definitive Tech has several power towers in its current lineup, including the Pro-Tower400 (\$1,098 a pair), a sleek newcomer that partners a powered subwoofer with a two-way driver array in a 38½-inch-tall cabinet. Rated down to 19

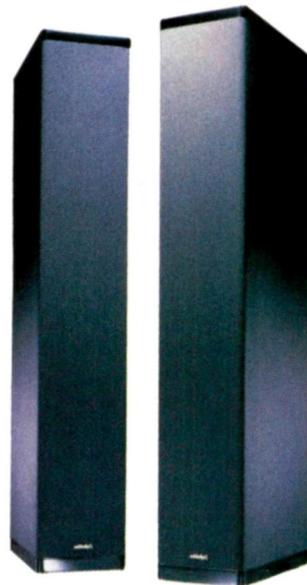
Hz, the sub section features a pair of 6½-inch drivers and a 125-watt amp. But the company's biggest news — literally — is the BP 3000 (\$4,500 a pair), which builds on the trend-setting BP 2000 (\$2,998 a pair). Each BP 3000 has an enormous 18-inch, side-firing subwoofer driven by its own 1,000-watt amplifier. The payoff: bass rated down to 13 Hz. The upper part of the 52-inch-tall cabinet sports two bipolar D'Appolito driver arrays, each comprising a 1-inch aluminum-dome tweeter with 6½-inch woofers above and below it. The arrays operate in phase, with one firing forward and the other backward, creating Definitive's hallmark spacious sound quality.



The Klipsch KSP 400 (\$3,500 a pair) incorporates a side-firing 15-inch subwoofer and a 200-watt amp in the 4-foot-tall cabinet. Finish is mahogany or black.



The bass section of Vandersteen's Model 5 (\$9,800 a pair), 44 inches high, has a push-pull 12-inch driver and a 400-watt amp; various wood veneers are available.



Definitive Technology's BP 3000 (\$4,500 a pair), 52 inches tall with a wraparound grille, features an 18-inch side-firing subwoofer driven by a 1,000-watt amplifier.



Infinity's elegant Compositions Overture series includes the OVTR 3 (left, \$2,800 a pair), the OVTR 2 (middle, \$2,200 a pair), and the 1-foot-tall OVTR 1 (\$1,350 a pair).

**Boston Acoustics** Powered-sub modules are built into the company's new Lynnfield VR970 (\$1,600 a pair) and VR960 (\$1,000 a pair), both of which feature a cabinet so slim (6½ inches wide) that it requires a stabilizing plinth. The 48-inch-tall VR970's side-firing 10-inch woofer is supported by a 12-inch passive radiator and powered by a 100-watt amp. The slightly shorter VR960 has an 8-inch driver and a 75-watt amp. The difference in rated bass response (at -3 dB) for the two models is small, with the VR970 rated down to 25 Hz and the VR960 to 29 Hz. For frequencies above 150 Hz, the VR970 employs a 1-inch aluminum-dome tweeter with 4½-inch woofers above and below it, while the VR960 uses only one woofer. Also common to both speakers is Boston Acoustics' Active Bass Contour control, which adjusts only deep-bass output below 100 Hz — instead of over the sub's entire operating range — to prevent the midrange from sounding too tubby or too lean.

**Acoustic Research** The latest addition to the High Output series AR introduced a couple of years ago is the P315 HO (\$2,399 a pair),



Polk Audio's RT3000p (\$3,600 a pair) combines a mid/high-frequency module and a sub module with two 8-inch drivers and a 300-watt amp in a 50-inch-high tower.

featuring a subwoofer section with a 15-inch driver and a 500-watt Sunfire power amp designed by amplifier guru Bob Carver. Upper frequencies are handled by a 1-inch diamond-coated-titanium tweeter and two midrange drivers. The 44-inch-tall P315 HO comes in a black or cherry woodgrain finish.

**Polk Audio** Polk's newest tower of power is the RT3000p (\$3,600 a pair), a stylish four-piece system available in a black oak or rosewood finish. For each channel Polk provides a mid/high module containing two 6½-inch woofers and a 1-inch "trilaminar" tweeter, which sits on top of a cosmetically matched subwoofer with two 8-inch drivers and a 300-watt amplifier. The sub's rated low-end response is 26 Hz at -3 dB. The bass volume control is located on the front panel for quick access. The RT3000p serves as the heart of Polk's RT5000 home-theater system, teamed with the new CS1000p center speaker (\$1,200) and a pair of RT f/x1000 switchable bipole/dipole surround speakers (\$1,200

**The Mission 705a (\$1,750 a pair), 56 inches tall, has dual ported 8-inch woofers driven by a 100-watt amp, a 6½-inch midrange, and a 1-inch silk-dome tweeter.**



Paradigm's 43-inch-tall Monitor 90P (left, \$1,499 a pair) and 39-inch-tall Monitor 70P (\$1,199 a pair) both have 140-watt amps in their subwoofer sections.

a pair). Interestingly, the CS1000p is one of the first center-channel speakers to incorporate a powered subwoofer section, making it a sort of center-channel power-bar.

**Infinity** In the past two years, Infinity's Compositions series has grown from just one power-tower model — the elegant, eight-driver Prelude (\$3,900 a pair) — to an entire family. The new Compositions Overture lineup comprises three models distinguished by dramatic styling and narrow baffles. The OVTR 3 (\$2,800 a pair), rated down to 25 Hz, and OVTR 2 (\$2,200 a pair), rated down to 30 Hz, are true towers. The OVTR 3 features seven drivers and a 600-watt amp, and the OVTR 2 has five drivers and a 300-watt amp. At barely a foot tall and less than 6 inches wide, the OVTR 1 (\$1,350 a pair) is a "power bookshelf" that combines a side-firing 8-inch woofer (driven by an internal 150-watt amp) with two 4-inch midrange drivers and a 1-inch tweeter.

**Eosone** Designed by Infinity's cofounder, Arnie Nudell, the Eosone RSF 1000 (\$2,500 a pair) was on the power-tower scene early. The 4-foot-tall speaker employs a quasi-dipolar layout, with a front-firing three-way driver array operating out of phase with a rear-firing two-way array. The RSF 1000's sub section is rated down to 26 Hz and houses a 225-watt amp that powers two

# towers of power



The 15-inch side-mounted subwoofer in the 44-inch-tall Acoustic Research P315 HO (\$2,399 a pair), shown in cherry veneer, is driven by a 500-watt Sunfire amp.

10-inch drivers. The Eosone line is available at Best Buy stores nationwide or through the Crutchfield catalog.

**Klipsch** From one of the oldest names in hi-fi comes a line of speakers that is far from conservative. With its new Synergy Premiere Series, Klipsch melds the power-tower concept with its classic horn technology. The flagship KSP 400 (\$3,500 a pair) shoehorns a side-firing 15-inch subwoofer and its dedicated 200-watt amp into a 4-foot-tall cabinet that's only 8 $\frac{3}{4}$  inches wide. The upper section has a horn-loaded 1-inch tweeter/midrange compression driver, which is centered vertically between a pair of 6 $\frac{1}{2}$ -inch woofers. The KSP 300 (\$2,000 a pair), a half-foot shorter, downsizes with just one 6 $\frac{1}{2}$ -inch woofer and a 12-inch subwoofer, powered by a 150-watt amp.

**Paradigm** One of the few speaker companies to offer a line of fully powered speakers, Canada's Paradigm also has two formidable entries in the power-tower field. The 39-inch-tall Monitor 70P (\$1,199 a pair) essentially mates Paradigm's widely praised two-way Mini Monitor with a sub section that exploits two additional — though different — 6 $\frac{1}{2}$ -inch drivers, powered by a 140-watt amp. The Monitor 90P (\$1,499 a pair) is identical to its little brother except that it has two 8-inch subwoofers, employs a larger cabinet,

and is rated down to 16 Hz instead of 23 Hz (both at -2 dB). Both come in a light or dark cherry or black ash finish.

**Mirage** Also from north of the border comes the Mirage OM-6 (\$3,000 a pair), one of the more unusual looking power towers (see photo on page 76). The OM-6 employs what Mirage calls an "omnipolar" speaker array designed to radiate in 360 degrees. This circular dispersion is accomplished by placing a 5 $\frac{1}{2}$ -inch woofer and 1-inch tweeter on each side of an enclosure that's only 4 $\frac{1}{2}$  inches thick; the two driver arrays radiate sound in phase both front and back, creating a spacious effect. The base of the OM-6 contains a 150-watt amplifier and two 8-inch woofers that fire toward the side and center of the room, which can help cancel unwanted vibrations and distortions; bass extension is given as 18 Hz. Mirage offers a scaled-down version of the OM-6, the OM-8 (\$2,200 a pair), which is identical except that it has two 6 $\frac{1}{2}$ -inch woofers and a 100-watt amp.

**Energy** Mirage's sister brand, Energy, tops off its Audissey series with a power tower it calls the APS5+2 (\$2,500 a pair), which has a very narrow but deep (9 x 16-inch) cabinet. There are two 5 $\frac{1}{2}$ -inch woofers and a 1-inch tweeter in the front and a single woofer/tweeter combo around back that plays at a lower volume than the front array. The result is an "asymmetrical bipolar" radiation pattern said to deliver a 3-D effect. The sub section is manned by back-to-back 8-inch woofers that radiate from the cabinet sides to deliver bass down to 18 Hz (at -3 dB). Power is supplied by a resident 150-watt amp.

**B-I-C America** While power towers tend to be more expensive than their unpowered counterparts, they are far from being exclusively "high-end." Witness B-I-C America's \$999-a-pair PT-12, which boasts side-firing, back-to-back 12-inch subwoofers. A 170-watt amplifier in one of the cabinets powers all four drivers; response is rated down to 22 Hz (at -3 dB). The PT-12's upper section supports a 6-inch midrange driver and a custom European-made Vifa tweeter. Unlike most power towers, the PT-12 offers an adjustable crossover; for convenience, the crossover and level controls are on the front panel.

**Vandersteen Audio** A widely admired maker of high-end but sensibly de-

signed speakers, Vandersteen Audio recently unveiled the singular-looking Model Five (\$9,800 a pair in oak or walnut; photo on page 76). It incorporates a unique subwoofer section built around a proprietary two-in-one woofer, which has two high-power magnet assemblies sandwiched around a common 12-inch aluminum diaphragm. This one-piece push-pull configuration means that the cone is actively controlled in both directions, which is said to lower distortion. The 400-watt amp features controls for adjusting the subwoofer's response — rated down to 22 Hz (at -2 dB). The upper part of the 44-inch-tall speaker holds a 7-inch woofer, a 4 $\frac{1}{2}$ -inch midrange, and a 1-inch alloy-dome tweeter mounted in a stair-stepped module designed to minimize edge diffraction.

**Mission** While the British are not culturally predisposed to big, high-output tower speakers, Mission's 705a (\$1,750 a pair) covers both of those bases. Standing some 56 inches tall, though barely 10 inches wide, the slim-profile speaker handles bass chores with dual 8-inch subwoofers powered by a 100-watt amp; the low-end response is specified as 30 Hz (at -3 dB). To cover the remaining seven or so octaves, the 705a relies on a 6 $\frac{1}{2}$ -inch midrange and a 1-inch silk-dome tweeter, closely spaced on a contoured, anti-diffraction baffle. Cabinet finish is black ash. □

Only 6 $\frac{1}{2}$  inches wide, Boston Acoustics' VR970 (\$1,600 a pair) contains a 10-inch subwoofer powered by a 100-watt amp as well as a 12-inch passive radiator.



# To tweak,



# or not to tweak?

## Could our listening panel hear the difference?

I have conducted a number of high-sensitivity, controlled listening tests over the past dozen years. Many, if not most, of them have come about because of challenges from enthusiasts who steadfastly maintained that a certain amplifier or cable provided a special path to audio nirvana. So far, no one has ever demonstrated scientifically that any single amplifier or cable — unless it's broken or exhibits a nonlinear frequency response — has the slightest effect on sound quality. No one. Never. The results I've gotten have been duplicated time and again by colleagues such as David Clark, Brad Meyer, and Ken Pohlmann in their own tests for *Stereo Review* and other publications.

Although we have long known that sensitivity to audible differences is enhanced when comparisons are made with minimal delay between them, some continue to argue that any sort of switching device inevitably compromises subtle details of sound reproduction. The arguments continue even when we consider that every music system contains *some* type of switching, if only in the source selector.

The newest criticism posed to audio realists is based on a theory of system synergy. Although an *individual* amplifier or cable may not have audible effects, critics say, a *system* full of various tweaks will deliver improved sound quality because of the synergy of combined elements.

Indeed, the process of matching wires and other components to each other is described as an art, and proponents of audio synergy claim that the search for an optimal system is never-ending because there is no scientific way to predict how components will react with each other. If the components don't necessarily change the sound by themselves, and there is no way to predict in advance how they will sound together, then obviously the theory can only be tested by trial and error, and no one trial can ever be definitive. If any one combination of components and "tweaks" fails to exhibit an improvement, well, you just have to keep try-

ing. Boy, talk about insulating a theory from criticism!

Clearly, there's no way to disprove the synergy "theory" because it's not a theory at all, but an article of faith. Nevertheless, for those not already committed to this faith, I worked out a test that should at least settle whether synergistic effects are *likely*. If we carefully compare an expensive, "tweaked-out" high-end audio system with an inexpensive, carelessly assembled one, we should be able to hear a consistent *difference*, right?

In order to test that hypothesis, I assembled a panel of seven listeners, all but one male. Six are hard-core audio enthusiasts, ranging from a 29-year-old technician to a hi-fi salesman in his mid-40s to a classical-music DJ in his late 50s, who own over-the-top high-end systems and maintain a keen interest in high-performance sound reproduction. Our seventh listener, a junior-high-school teacher, has an active interest in audio but no high-end tendencies. All the panelists were offered either a straight \$20 for their participation or the opportunity to bet \$20 against \$100 that they could correctly identify the

by Tom Nousaine

# To **tweak**, or not to **tweak**?

systems nine times out of ten, which would qualify as statistically significant at the 95-percent confidence level. Only one chose to wager his own money.

The panelists individually compared the sound of the two systems using a single-presentation protocol with no switching. The elements of the two systems were so radically different that they should at least have *sounded* different from one another — *if* the synergy theory has any merit.

## Tweak and Geek

The two systems were affectionately titled Tweak and Geek. Both began with a Marantz CD-63 CD player and ended with the same pair of PSB Stratus Mini loudspeakers. This speaker has been measured in the anechoic chamber at the National Research Council in Canada and is ruler flat, making it an excellent reference standard.

There is no controversy in saying that speakers vary in sound quality. Using the same speakers for each system eliminates the speakers and room placement as variables. The same source component was used for consistency, but the Tweak system used an outboard digital-to-analog (D/A) converter while the Geek system used its built-in converter. Between the speaker terminals and the CD player similarities between the two systems were minimal.

The Tweak system routed the player's digital output to a PS Audio Digital Link II outboard D/A converter, which in turn drove a Musical Design SP-1 vacuum-tube preamplifier. The preamp delivered the signal to a 250-watt-per-

channel Bryston 4B-NRB power amplifier, which drove the speakers. Cabling included Tributaries Silver interconnects (\$120 a meter) and Monster Cable Sigma 2.2s speaker cables, which are directional, have termination boxes on either end, and cost \$235 a pair.

In the Geek system, the CD player's analog output was fed to a Heathkit AP-1615 preamp. I built this preamp, which is based on an ancient integrated circuit, from a \$99 kit in 1976, and it has never been modified. The Geek power amp was a 60-watt-per-channel Parasound HCA-800II, which I purchased used about ten years ago for \$200. The interconnects, from my junk box, have an uncertain pedigree, but they were probably packaged with some sort of electronic product. In any event, they're of the cheap and decidedly low-class molded-plug variety. Speaker cabling was 16-gauge zip cord, with a 6-foot length feeding the right channel and a 25-foot length for the left.

In terms of price, the CD player and speakers totaled \$1,400. The rest of the Geek system cost \$300, compared with about \$5,000 for the Tweak system. If the system-synergy theory is true, there should have been a large enough difference in component quality and enough tweak elements in series with each other to create an audible sonic difference in their performance.

## System Setup

Both systems were installed in a large (23 x 46-foot) unfinished room with fiberglass insulation on the walls and a concrete-slab floor. The speakers, on

26-inch-high stands with spikes, were positioned 6 feet apart and 3 feet out from the long wall. The closest side wall was 15 feet from the nearest speaker. A 6 x 8-foot area rug was under the speaker stands, and the single listening chair was placed in the sweet spot directly between the speakers and 6 feet away, thus in their direct field. The listening environment was quiet and nonreverberant. There were no slap echoes or early reflections except for the floor bounce caused by mounting the speakers on stands.

The Tweak system was carefully installed following setup folklore. The interconnects and speaker leads were carefully dressed and elevated with Tekna-Sonic vibration dampers to keep them away from each other and the power cords. Power and signal leads were crossed at 90-degree angles to avoid interference. The Geek system, on the other hand, was sloppily installed in a rat's nest of wires. The power and signal leads were bunched together with no particular caution.

The Tweak system was broken in after installation with 24 hours of a continuous 88-note piano scale (using the A-B repeat on the CD player), then left on for a full week prior to the listening sessions and throughout the entire experiment. The Geek system had no warm-up or break-in, and it was regularly shut off between sessions. The main idea here was to insure that *any* possibility of an audible difference would be maximized.

## The Protocol

The single-presentation method was used to insure a minimum of switch contacts in the signal path. Each member of the listening panel auditioned the systems alone. The panelists were given as much time as they wanted, using their own CDs, to become acquainted with the sound of each system. These warm-up sessions lasted between 40 minutes and an hour. The formal listening sessions each lasted 1 to 2 hours, with a minute or less between trials.

After the listeners familiarized themselves with the systems, I matched the Geek system in level and balance to the Tweak system using the volume and balance controls on the Heathkit preamplifier. There was a channel imbalance of 1.2 dB between the systems before they were matched, and afterward each channel matched within 0.1 dB at the loudspeaker terminals, measured with a Fluke 45 voltmeter and a sine

## WHAT THEY THOUGHT THEY HEARD

What did the listening panelists think? Well, one of them voiced his belief that two-channel stereo is obsolete. He suddenly proclaimed during Trial 2, "Damn, it's hard to keep the image still and to find the exact sweet spot with each recording. Can't I go home to my surround system?" This is the same listener who completed six extra trials in a vain attempt to improve his score to the level of significance. Hearing a difference seemed to be of the highest importance to him. He offered to return and complete twenty or twenty-five trials. He also showed the common tendency to interpret some data out of context. That is, he took a run of correct answers as an indication of differences heard instead of as part of a longer string of results that were no better than chance.

Another listener said that he had only one

trial where the identification was "easy." Interestingly, he was wrong in that case (he misidentified the Geek system as the Tweak one). Another mentioned that "it sounds high-priced to me . . . excellent high end . . . handling high-current bass spikes very well" in describing the sound of the Geek system, which he thought was the Tweak. He also wondered whether "something is wrong with me if I can't tell these systems apart."

Still another felt strongly that "differences are there," yet they seemed small enough that he was not surprised that his score was statistically insignificant. Another thought he "heard more distortion, but maybe I was just guessing." In a few trials his comments indicated that he was indeed guessing, and his score sheet indicated likewise. — T.N.

# To **tweak**, or not to **tweak**?

wave taken from the ProSonus test CD. The frequency responses of both systems measured flat within  $\pm 0.15$  dB between 30 Hz and 20 kHz.

All of the listeners also used their own music selections for the test sessions. One listener had a compilation disc of special tracks to evaluate sound quality. Others chose a variety of music selections including rock, bluegrass, New Age, jazz, and classical. Most included tracks with both male and female vocals. The listeners typically honed in on two or three selections for their most critical listening. Peak listening levels varied between 87 and 96 dB sound-pressure level (unweighted), as monitored with an Audio Control 3050a sound-level meter.

To start, each listener left the room while I flipped a coin to determine whether I would connect the speakers to the Tweak or Geek system. Then I hung a large, acoustically transparent cloth behind the speakers to conceal the identity of the selected system. I noted the selection and trial number on the back of a business card and deposited it in a large cardboard box.

The listener was then invited back into the room and had as long as he or she wanted to identify which system was driving the speakers, circle Tweak or Geek on the score sheet (identified with the listener's name and the trial number), make any notes deemed important, and deposit the sheet in the box with the card that held the answer.

We then repeated the process nine more times in each listening session. Listeners were allowed to score each trial immediately or to wait until the end; all but one chose to wait. One listener monitored his progress after trials Nos. 6 and 10, then completed six extra trials in an attempt to improve his score. Between trials, listeners were allowed to make open checks of the systems' relative levels and balances if they wanted. Three asked for a recalibration at least once during their sessions. After ten trials, I dumped the contents of the box and scored the test.

## Reading the Scoresheets

Could these audio enthusiasts hear differences between two highly divergent systems? Most of them *believed* they could during the experiment, but their score sheets say otherwise.

The best score was 11 correct out of 16 trials, and the worst was 3 out of 10. *No listener had a statistically significant score.* In other words, everyone's

TRUTH IN NUMBERS							
Listener	A	B	C	D	E	F	G
Trial 1	x	x	x	x	x	x	✓
Trial 2	✓	✓	✓	✓	✓	x	x
Trial 3	✓	✓	✓	x	x	x	x
Trial 4	✓	✓	x	✓	x	x	✓
Trial 5	x	✓	x	x	x	x	✓
Trial 6	x	x	x	x	✓	✓	✓
Trial 7	x	✓	x	✓	✓	x	x
Trial 8	✓	✓	x	x	✓	x	✓
Trial 9	✓	✓	✓	x	✓	✓	✓
Trial 10	✓	x	✓	x	✓	✓	x
<b>correct</b>	<b>6/10</b>	<b>7/10</b>	<b>4/10</b>	<b>3/10</b>	<b>6/10</b>	<b>3/10</b>	<b>6/10</b>
Trial 11	✓						
Trial 12	✓						
Trial 13	✓						
Trial 14	✓						
Trial 15	x						
Trial 16	✓						
<b>correct</b>	<b>11/16</b>						

Flip a coin, and you have a 50 percent chance that it will be heads. Flip twice, and there is a 25 percent chance that both will be heads. Same thing here: There was a 50/50 chance of getting any answer correct just by guessing. With nine trials, there would be less than a 5 percent chance of getting nine answers correct by guessing. So 9 of 10 correct would be statistically significant at the 95-percent confidence level. If the number of trials was increased, a lower percentage of correct responses would be needed to assure us that subjects were really hearing differences and not just guessing. At the same level of confidence, 12 correct out of 16 trials (75 percent) would qualify as significant, but the 11 out of 16 score (69 percent) achieved by the listener who insisted on more trials was not significant. — T.N.

score was within the tolerance range to be expected if he was just guessing.

So what does all this mean? Well, from past research we know that amplifiers, cables, and CD players that have flat frequency responses and are operating within their intended limits sound the same when they are compared head to head. Now we also know that inserting a series of typical "tweaks" in a system of high-quality audio components does not make it sound different from a modest untweaked system.

Does this mean that buying a high-end amplifier or using expensive cable is crazy? Of course not. After all, many people revel in owning a Rolls-Royce even though there are much better performing cars on the road. We are all free to use whatever equipment we want for whatever reason. However, if you purchase expensive wire instead of better speakers or recordings, you are very unlikely to improve your system's overall sound quality. Better recordings, advanced multichannel formats, and better loudspeakers are the most effective routes to better sound, not esoteric tweaks and high-end fashions.

So why do people continue to profess an ability to hear "improvements"

where no basis for perception actually exists? There are three primary reasons. First, many listening tests are flawed. For example, if there is more than 1 dB difference in channel balance between two systems — as there was between the Tweak and Geek systems before they were matched — the difference will be audible. It won't sound like a channel imbalance, though, but like a subtle shift in imaging and clarity.

Second, when humans hear two sonic alternatives with small level differences, we tend to interpret those differences as changes in quality, not level. Some manufacturers build in level differences to make their products sound "better" in direct comparisons.

Third, humans have no difficulty "choosing" between identical alternatives. Given two sonic alternatives and asked, "Which one did you like?," we are internally programmed to select one. (See "Can You Trust Your Ears?" in the August 1997 *Stereo Review* for a primer on listener-response bias.)

These bias mechanisms are a part of the human condition, and we can't tune them out with good intentions. The only way to overcome them is with scientifically controlled listening sessions. □

# my first stereo



**40**  
ANNIVERSARY  
1958 1998

HANDMADE COMPONENTS play a part in each of the reminiscences by editors and contributors in this installment of our series, including Tom Nousaine's high-end Heathkit power amp, the tuner young Brian Fenton put together himself, a whole series of component kits assembled by Rich Warren, and the crude but serviceable gear that the local TV repairman built for David Stein before he knew any better.

## TOM NOUSAINE

Contributing Technical Editor

My introduction to stereo as such came when I was in Vietnam. However, my first venture into high fidelity began ten years later. A good friend celebrated his wife's promotion by buying himself a \$1,200 stereo system. It featured Citation electronics,

a Thorens turntable, and Fried Studio Monitor speakers. It sounded so good I was immediately hooked. Twelve big ones was beyond my young family's resources at that time, so I did the next best thing and bought a Heathkit AA-1640 power-amplifier kit the next Christmas. It cost \$399 (a buck a watt), drew enough power to take down a house circuit breaker before reaching full output into 4 ohms, and had a full set of features. The protection features included speaker and line fuses and a special circuit

that diXsconnected the speakers when a short circuit or DC was detected.

This amplifier was way ahead of its time. Each channel had a circuit card bolted directly to a huge heat sink that formed one side of the cabinet. That way you only needed to unbolt the heat-sink assembly to fix a blown channel. You could even use the other channel until you fixed the broken one. The layout was so efficient that it's still common in modern power amplifiers.

In retrospect, the layout topology was not all that important. Now going into its twenty-second year, the Heathkit AA-1640 has never failed. In the early 1980s I replaced its polarized speaker connectors with dual five-way binding posts, and about five years ago I replaced the filter capacitors in the power supply. Otherwise this amp has performed flawlessly in spite of abusive treatment and sloppy care.

Furthermore, blind testing shows that it sounds exactly the same as my newest high-end amplifiers costing thousands of dollars (which are much more inclined to break, as it turns out). Indeed, a dozen stereo amplifiers now power my home theater and speaker-testing lab, enough channels to conduct multiple speaker-testing experiments without having to cannibalize my regular surround system. The Heathkit is the sonic equal of every one of them.

What's changed over the past couple of decades? Well, my modern amplifiers are smaller and lighter than the 60-pound Heathkit for the same amount of power. They also have more robust chassis made of thick metal, so I can rack-mount them by hanging them from their front panels. The new boys also have internal bridging facilities, and many are stable into 2 ohms.

The Heathkit AA-1640 amp is the epitome of hi-fi value: scads of power, highly reliable, easy to use, self-protective, great sounding, and relatively cheap. It has outlasted its manufacturer by several years and shows no sign of quitting, although the level controls are going to need replacement soon. My initial venture into high fidelity was fortunate. As Natalie Merchant says, "I feel blessed and lucky."

## BRIAN FENTON

Senior Editor

My parents were always interested in music, and they encouraged their kids to take an active interest in music, too. They weren't, however, very concerned about high fidelity, although they did have a lot of records (mostly Irish music) and a portable Columbia stereo record player with a built-in tube amp. The right-channel speaker was in front,

and the left-channel speaker was in the removable flip-up lid. I used to carry it up to my room, lie down on the floor between the two speakers, headphone-style, and listen to Janis Joplin's *Pearl* or the Beatles' *Abbey Road* or *Let it Be*.

Then my older brother, whose room I shared, figured that it was time to get something a little more serious. By default, that became "my" first stereo system. A Pioneer SX-525 receiver was the heart of the system. A Garrard semiautomatic turntable was the main music source, and a pair of private-label speakers rounded it out.

I remember being impressed by the sound of the setup, and I can't even guess how much time I spent listening to the LPs of the early 1970s — Bowie's *Ziggy Stardust*, the Doors' *LA Woman*, the Grateful Dead's *Europe 72*, Todd Rundgren's *A Wizard a True Star*, and the Jimi Hendrix Experience's *Axis: Bold as Love* probably logged the most hours.

As luck would have it, my brother moved out, took his stereo system with him, and left me to fend for myself. Any mainstream gear was beyond the reach of my paper-route income, but over the next couple of years I assembled a respectable system.

A Lafayette Radio warehouse outlet nearby allowed me to pick up display items, or last year's (or even older) model, including a Garrard 990B turntable and a Lafayette LA-222 four-channel amplifier that I still have. The most important component of the system was the tuner, which was built around a circuit board that I bought from a surplus-electronics mail-order house (I think it was manufactured for an H. H. Scott tuner). I added a small power supply, a stereo/mono switch, an antenna, and connectors and hooked it to the amp. It was ready to go — even if I could never figure out a good way to add a tuning display.

It was through listening to the radio that I broadened my musical tastes. I learned about Charlie Parker, John Coltrane, Thelonious Monk, and Ornette Coleman. I learned about J. S. Bach, Sergei Rachmaninoff, John Cage, Philip Glass, the Mighty Sparrow, Tito Puente, and countless other geniuses who were creating music that I loved, even though I could never convince my friends to listen.

Most of us can point to a particular schoolteacher who served as an inspiration. But for me, it was that jerry-rigged tuner. It gave me an appreciation of music that continues to enrich my life.

**Tell us briefly about your first stereo. We may publish it along with other reader memories in a future issue. Write to My First Stereo, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, but submissions for this feature cannot be acknowledged or returned.**

## RICH WARREN

Contributor

When I was 14, I slept with the Allied Radio catalog next to my bed. It was my *Kama Sutra*, my *Gideon Bible*, my *Joy of Cooking*. Every night I paged through the glossy section featuring amplifier and receiver kits and stereo systems built around them. My technologically conservative parents assumed that both the 33-rpm record and FM radio were passing fads and felt I should be satisfied with our 78-rpm Webcor and our General Electric AM clock radio. Finally, in 1961, they broke down. My father bought me a Traveler portable stereo phonograph with a detachable speaker, and my mom anted up for a Silvertone AM/FM radio without automatic frequency control (AFC).

I decided that neither of these was high fidelity, so I worked in my father's warehouse for a summer to earn the \$200 that would buy the Allied Radio package comprising a Knight Kit 40-watt solid-state amplifier, a Garrard AT-60 record changer, and a pair of Knight two-way bookshelf speakers. I popped for another \$10 for a Shure M55E phono cartridge. The primitive Knight Kit amplifier, which still works, took about three days to build, and it worked the first

time I plugged it in. I replaced some of the noisy carbon resistors in the preamp section with precision wire-wound resistors, and to my young ears it sounded pretty impressive. The smell of melting rosin-core solder remains my favorite incense.

The next year I built a Scott kit LT-112B tuner, the first to use FETs, and added a Sony TC-350C portable three-head open-reel tape deck. By then I had taken a higher-paying warehouse job. I also ran a radio station from my bedroom using Remco and Knight Kit AM transmitters. (One always needs a backup transmitter.) However, I extended the legal 10-foot antenna to 100 feet so that I could serve most of my block. This ultimately brought a visit from a representative of the FCC, who threatened to fine and imprison my mother if I did not cease and desist.

By the time I was 17, my audio tastes far outran my finances. I solved the problem by becoming a salesman at a prestigious local stereo emporium. I gladly skipped my senior prom in high school to work that night. It was an omen, as I sold a \$3,000 system, a sizable amount for 1968. To my mother's chagrin, all my earnings went back to the store. I finally achieved my heart's desire with a pair of JBL D53-S12 speakers. Coupled with the Scott LK-60 kit amp that I built and an AR turntable, it was my first true high-fidelity stereo system.

## DAVID STEIN

Managing Editor

Sometime in the very early 1960s, in a small town 40 miles southeast of Pittsburgh, PA, my family acquired a newfangled "stereo system." It consisted of a pair of large, mahogany-finish cubes on legs. One had a lift-up top that revealed a record changer with speeds from 16 to 78 rpm (and we still had examples of both formats), an AM/FM radio, and the controls; somewhere inside was the preamp, amp, and speaker, which played through the grille on the front. The other unit just had a speaker.

Not knowing anything about how stereo really worked or what it was supposed to sound like, my father positioned the pieces in opposite corners of our long and narrow living room. The imaging must have been pretty bizarre, especially in the chairs close to the speakers. However, since no one in our house ever sat and just *listened* to the stereo, but always put it on to accompany some other activity, we thought it was just wonderful.

Not long afterward I was given a rather nice-sounding AM/FM table radio for my bedroom so that I could listen to the area's one classical station instead of the rock-and-roll my brother favored. I noticed that

the radio had a rear input jack. Hmm . . . if I had another speaker and some electronics, maybe I could have my *own* stereo system? I broached the subject to my father, and he bucked it to the closest we had to an expert — our television repairman.

"No problem!" he said, and a couple of weeks later he brought over a big wooden box with a grille (my add-on speaker), a cheap record changer, and a little black box with some knobs on it (an integrated amp of sorts that he'd cobbled together). I was ecstatic, and I immediately started collecting records to play on my very own "stereo system." Every time I heard a new piece on the radio that I liked, I put it on the "to buy" list that absorbed most of my allowance.

I actually dragged this ragtag system off to college, and it wasn't until I subscribed to *Stereo Review* and started working at the college radio station that I realized how far it was from anything that could charitably be called hi-fi. When I finally got a "real" system and junked the speaker the TV repairman had made for me, I opened it up for the first time. Inside was . . . a lot of air, and a single 5- or 6-inch driver hanging in the middle from some thin aluminum struts fastened to the top. No baffle, no crossover, no damping, no bracing — just the naked driver that a nice man, no "audiophile," had used to make a kid happy.

# HOW TO SET SURROUND SYSTEM LEVELS



## PROPER SPEAKER BALANCING IS THE KEY TO GREAT HOME THEATER

The story goes like this: During a Consumer Electronics Show, my audio mentor — the late Peter Mitchell — attends a home-theater demonstration put on by a very well-known manufacturer. After listening only a short period, Peter proclaims in his inimitably self-confident style that “the surrounds are a half-decibel too low.” Embarrassed by this claim of a faulty setup, the manufacturer’s representatives haul out their sound-level meter — they must at least be given credit for having one — put on some test signals, and, lo and behold, Peter is right.

This tale, probably half apocryphal, nonetheless points up the importance of balancing the speakers in a home theater — that is, making sure that all five main channels (front left/center/right and surround left/right) produce the same volume at the main listening position when fed the same signal.

**Why balancing is important** If the speakers are not properly balanced, you simply cannot experience the effects as intended by the filmmaker. That’s because movie soundtracks are made under standardized listening conditions, which must be duplicated as closely as possible if you want to hear the soundtrack as the filmmaker meant it to be heard. Those conditions include balanced speaker levels.

Setting the level of the center speaker just slightly higher than the other front speakers, for example, will tend to pull subtle off-center effects toward the mid-

dle, distorting the sound image. If the volume of the center speaker is too low, dialogue that’s intended to be soft may be buried by sound effects or music in other channels.

The surround speakers, which in an ideal setting are placed high and to the sides of the main listening position but often wind up behind it, are equally sensitive to imbalances. Many surround effects, especially background sounds that establish location (crickets, singing birds, traffic, room reverberation, etc.) or sounds that are intended to move slowly between the front and surround speakers (like a passing spaceship), will not sound realistic if the level of the surround speakers is too loud or too soft. The effect will either collapse into the front or surround speakers, or, if it’s

BY  
DAVID RANADA

one of those front-to-back pans, it will “stick” too long at either extreme, possibly becoming out of sync with the picture momentarily.

Speaker balancing is important for multichannel music too. Famed classical recording engineer John Eargle, who has worked recently on several Delos surround-sound orchestral CDs, tells me that level mismatches as small as 1.5 dB can destroy the immersive concert-hall ambience he intends.

**Getting it right** Fortunately for the home-theater enthusiast, it’s easy to balance your speakers to better than 1.5-dB accuracy. You need just three things:

① A home-theater component that generates speaker-balancing test tones (any recent A/V receiver with a Dolby Pro Logic or Dolby Digital decoder has this ability) or a test disc with speaker-balancing tones. The tones included on the second disc of Delos’s *Surround Spectacular* (DE 3179) will do for Dolby Pro Logic setups. Delos’s *DVD Spectacular* (DV 7001), containing a multichannel Dolby Digital recording of Tchaikovsky’s *1812 Overture*, also has a chapter of test tones suitable for balancing your system in Dolby Digital operation. In any case, the test tones should be hiss-like noise signals, *not* the sine waves or other single-pitch tones found on some “test” discs.

② Access to your system’s level-balancing controls. These are implemented with on-screen menus in many A/V receivers, though separate surround decoders sometimes have individual knobs for controlling the level of each channel. Ideally, you’d want to be able to play external tones from a test disc while adjusting channel levels, but many components allow only internally generated test tones to be used during the adjustment process. Assuming that your test-signal source is not itself misbalanced, either method *should* produce the same results.

③ A relatively accurate, high-resolution sound-level meter.

Let me emphasize that the last requirement is not an option. It is very difficult to optimize speaker levels by ear alone, the surrounds being particularly troublesome to get right. Even the center speaker can be difficult if it is not a good sonic match with the other front speakers. Besides, a sound-level meter is a handy audio accessory to

have (a future article will cover some other ways you can use one).

You can get a surprisingly good sound-level meter from Radio Shack for only \$35: the now-classic Model 33-2050. Radio Shack also sells another sound meter, the costlier Model 33-2055 (\$60), featuring a digital readout. But for most audiophile purposes, the 2050 is the more useful model, because you can reliably read sound-level differences down to a fraction of a decibel on its analog scale, whereas the 2055 reads only down to the nearest decibel. Meters from other manufacturers with similar controls are equally usable, and possibly more accurate in measuring absolute loudness (sound-pressure level, or SPL). But since what is most important here is the *relative* loudness from each speaker, the 2050 is plenty accurate enough.

**Sound-level-meter basics** The Radio Shack 33-2050 is easy to use. It has very few controls and they do relatively simple things. The most complex control is the large Range knob next to the pointed front of the unit where its microphone is located (see photo on previous page). Turning the dial away from its off setting and past its battery-status position powers up the instrument and determines the sound-level range covered by the meter. Although they can't be seen in the photo, the settings show up as you turn the dial and are calibrated from 60 to 120 dB SPL in 10-dB steps. The range setting you select is the sound-pressure level the meter "hears" when the meter needle points straight up to the 0-dB mark.

The only tricky part is that there are negative numbers to the left of the 0-dB mark and positive numbers to the right. Depending on which way the needle points when you take an SPL reading, you have to do some quick addition or subtraction. When the needle points to the right of the 0-dB mark, you add that number to the range setting you've selected; when it points to the left, you subtract. If, for example, the range dial is set to 70 dB and you get a reading of +4 dB, the actual SPL is 74 dB ( $70 + 4 = 74$ ). If you get a reading of -3, the actual SPL is 67 dB ( $70 - 3 = 67$ ). If you're on a mission to measure absolute SPL with the greatest accuracy possible, set the range dial so that the sound makes the needle point between 0 and +6 dB.

There are two other controls on the 33-2050. The Weighting switch on the left selects one of two filters: A-weighting, which makes the meter read according to the ear's sensitivity at low volumes, and C-weighting, which does the same for medium-to-high volumes. Use the C-weighting position when you're balancing speaker levels. The Response switch on the right of the meter slows the speed of the needle movement so it's easier to read. Use the Slow position when balancing speakers.

**Doing the deed** Once you've figured out how to use the meter — read the manual, too, and take the unit outside to measure some everyday sounds — you're ready to balance your system. The procedure is simple and can be broken down into a few steps:

① Activate the speaker-balancing test tones, either by switching on your surround decoder's internal test tone or by playing a suitable test disc.

② Set the meter's Range to 70 dB, Weighting to C, and Response to slow.

③ Hold the meter vertically *at arm's length and at the position of your head* when seated in your favorite listening position. If you have dipole surround speakers, make sure that listening position is in the "null" of the dipole's radiation pattern. Be careful not to stand between the meter and the speaker emitting the test tone. Do *not* put the meter down on a chair. You can use the meter's threaded mounting hole to attach it to a camera tripod, if necessary.

④ Adjust the system's master volume control so that the test tone from the front left speaker reads somewhere close to the 0-dB mark, indicating 70 dB SPL. Remember this reading. You want the tones to be at least this loud so that background noise doesn't influence the measurements.

⑤ As the test tone moves from one speaker to the next, adjust the level control for each channel so that the reading is as close as possible to that produced by the left front speaker.

Remember, you're tweaking the individual channel-level controls, not the system's master volume control. With late-model A/V receivers and surround-sound processors, you should be able to get all the readings to fall within a spread of 2 dB or better.

In *Stereo Review's* main listening room, acoustical conditions are such that the front left and right speakers

usually receive the same level setting. But the level for the left surround speaker almost always has to be set 1 or 2 dB higher than the right surround speaker. This side-to-side variability is normal, especially in physically asymmetrical room/speaker setups (even furniture can have an effect on balance).

**What to expect** A properly balanced center speaker, in conjunction with the other two front speakers, should be able to convey sounds moving smoothly from one side of the screen to the other. More important is the intelligibility of dialogue. *If* the movie was mixed well, and the center speaker has an acceptable frequency response, the dialogue should *always* be understandable when it needs to be. If it's a little difficult to hear at times, that should be only in dramatic situations where words are not the primary means of storytelling (such as a battle sequence).

If the dialogue isn't crystal clear after you've balanced the system, either the center speaker's frequency response is deficient, or else the speaker is too far away from the listening position compared with the other front speakers. Many Dolby Digital systems allow you to compensate for a center speaker that is too close to the listening position. Unfortunately, most of these systems don't allow you to compensate for a center speaker that is too far away.

What will you hear from the surround speakers when the system is properly balanced? Actually, what you *don't* hear is probably more important. Don't count on a distinct sonic presence from them all the time. Most film soundtracks use the surround channels sparingly, saving their most blatant use for dramatic high points. The rest of the time, the surround channels usually carry only background ambient noises.

One trick to see if you've gotten the surround balance right is to quickly switch off the surround speakers during a nondramatic passage (unfortunately, this is difficult to do with many A/V components!). Although you may not have noticed them before, their absence should be instantly perceptible. With properly set surround levels, you should be able to simply sit back and enjoy the experience as the filmmaker takes you to another time or place, visually and sonically. Just be prepared to be amazed when a nuclear submarine glides smoothly through your living room. □

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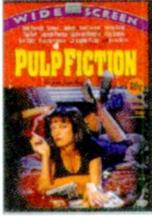
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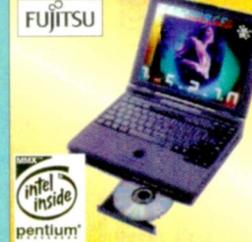
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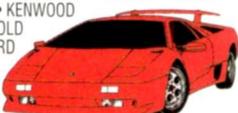
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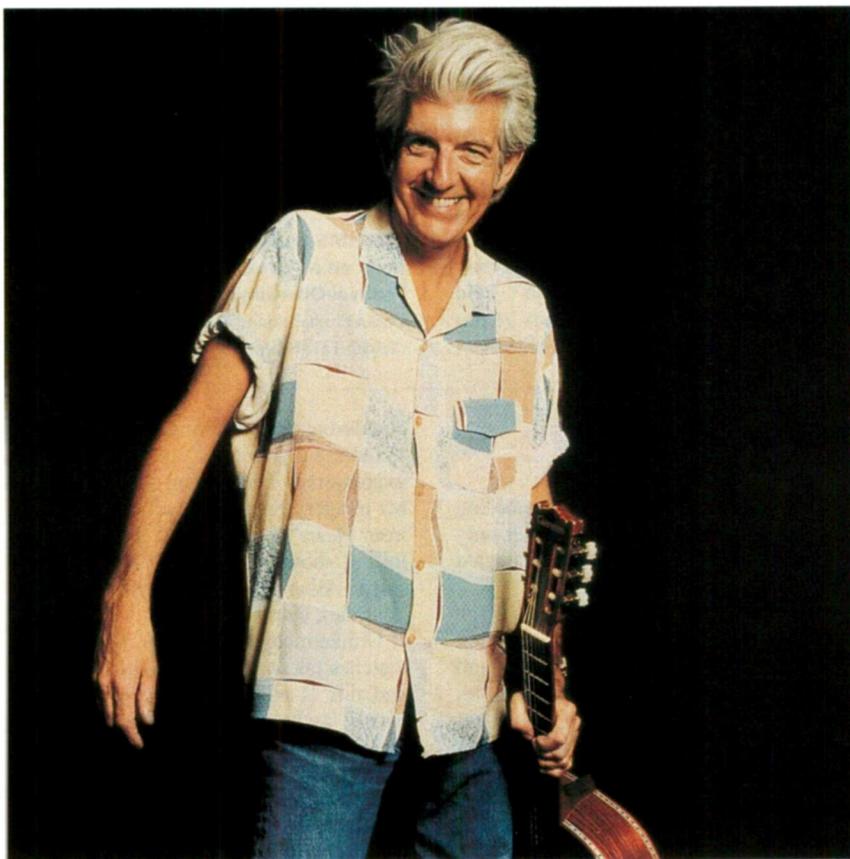
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# BEST OF THE MONTH

REVIEWS

OUR CRITICS CHOOSE THE OUTSTANDING CURRENT RELEASES



UPSTART/ROUNDER

## A New High for Lowe

**N**ick Lowe's last album, *The Impossible Bird*, was a slight disappointment because it didn't rock enough. So go figure why the follow-up, which doesn't rock at all, ranks among his best. Maybe it's because time has been kind to Lowe's wry, tuneful brand of songwriting. Mostly it's because *Dig My Mood* is a fine album on its own terms, with impeccably stripped-down arrangements, emotive singing, and an aura of gorgeous melancholy. Although it's the least poppish and most downbeat album

in his catalog, this is where Lowe finally masters one of his favorite types of song, the heartbroken country/soul ballad. You can think of *Dig My Mood* as his version of Bob Dylan's *Time Out of Mind*, atmospheric production and all, but from the perspective of a wounded romantic instead of a hopelessly jaded one.

There was a time when a tasteful and sensitive Nick Lowe album seemed far-fetched at best, back when the 1978 classic *Pure Pop for Now People* staked his territory as pop's resident wiseguy. But

the next album, *Labour of Lust*, included "You Make Me," a ballad so deep and breathy that many fans mistook it for a joke. Lowe has mixed the funny with the serious ever since, but unless you count its title, *Dig My Mood* is his first album with absolutely no jokes. That's a big step for him, and it's the right one: a novelty tune would have gotten in the way of some of his warmest love songs ("You Inspire Me" seems ready to be played at hip weddings) as well as some of his darkest self-doubt ("Man That I've Become" is tailor-made for Johnny Cash).

Most of the tracks seem inspired by a relationship on the rocks, and Lowe calls on some familiar music to get the moods across: low-key swamp rock ("Lead Me Not"), Memphis soul ("Cold Grey Light of Dawn" and "What Lack of Love Has Done" recall Elvis Presley's late-1960s sessions), and lounge balladry ("Freezing" does the cocktail sound without any trendy irony). His voice is fuller than it has been in years (I'd guess he quit smoking for this session), and he remains a savvy producer, lending the album an inviting late-night feel with brushed drums and vibrato twang. While it would be nice to hear Nick Lowe do one more pop record for the road, *Dig My Mood* is an album that gives growing up a good name.

Brett Milano

### NICK LOWE *Dig My Mood*

*Faithless Lover; Lonesome Reverie; You Inspire Me; What Lack of Love Has Done; Time I Took a Holiday; Failed Christian; Man That I've Become; Freezing; High on a Hilltop; Lead Me Not; I Must Be Getting Over You; Cold Grey Light of Dawn* (Upstart, 37 min)

## Harnoncourt's Brahms Symphonies

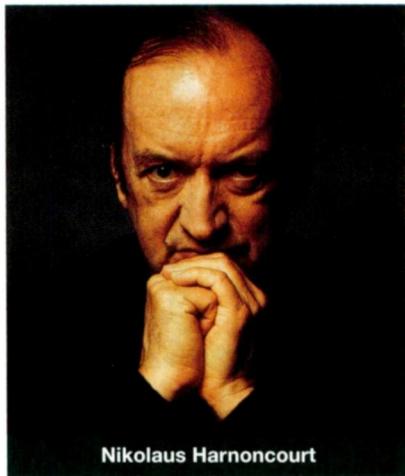
**F**or some four decades the conductor Nikolaus Harnoncourt has been relentlessly researching music we thought we knew and offering corrections in respect to performance practice, texts, and even the way we listen. But perhaps none of his endeavors has been quite as directly and powerfully appealing as his new Brahms set on Teldec. The three CDs contain the four symphonies, the two overtures, and the *Haydn Variations*, recorded live with the Berlin Philharmonic between March 1996 and April 1997.

Harnoncourt was one of the first of the so-called authenticists to make the point that eighteenth-century composers ex-

pected their music to be played faster than what had become the norm in the middle of our own century. In the nineteenth century, too, and specifically in the music of Brahms, tempos were brisker than those generally favored today. Harnoncourt's Brahms, however, is definitely on the expansive side. There is certainly no lack of momentum or drive, but the music breathes comfortably. It sings, it blooms, and its drama is the more convincing for the absence of anything resembling breathlessness on the one hand or monumentalism on the other.

I suspect, in fact, that many listeners may register disbelief over the timings, because the performances have an unflinching sense of flow that seems not only spontaneous but frequently downright breezy. The *Tragic Overture*, for instance, runs more than 14 minutes but is in no way distended. Listening to it, you are aware only of the dramatic sweep, supported by felicities of dynamic emphasis and phrasing that make the piece come alive as it seldom has before. The *Academic Festival Overture*, too, with the same basic approach, comes off on an unexpectedly high level, a truly Olympian revel.

The four symphonies are the focus in this set, and each is nothing less than rev-



Nikolaus Harnoncourt

THOMAS MÜLLER/ATLANTIC CLASSICS

elatory. One of the revelations is in the area of dynamics. Harnoncourt notes that Brahms rarely called for anything louder than a *forte*. That was his marking for the dramatic opening of the First Symphony, and that is how it is done here, relieving it of the bombast acquired from so many excessive approaches over the years. When a double *forte* or *pianissimo* is really indicated, Harnoncourt doesn't hold back; he shows us that Brahms really knew how to build a convincing climax.

Apart from questions of dynamics and pacing, much of the persuasiveness of these performances — whether in the excitement of the finales of the Symphonies Nos. 1 and 2, the chamber-music intimacy of the inner movements, the almost mystical level of poetry in No. 3, or the tragic radiance of No. 4 — has to do with Harnoncourt's emphasis on clarity. He sees to it that every voice is heard from its natural setting without upsetting balances or impeding the flow.

The Berliners are at or near their formidable best all the way. I particularly noticed the eloquence of the oboe in the opening section of the *Haydn Variations*, the burnished gold of the horns in their big moments, how gloriously prominent the brass are in the rich Brahmsian colors, the lustrous (but never schmaltzy) strings, and even the timpani, which almost sing. The sonic focus is not so much warm as downright fiery — but there are more than a few points at which this serves the music well, too.

Richard Freed

**BRAHMS Symphonies Nos. 1-4; Variations on a Theme by Haydn; Academic Festival Overture; Tragic Overture**

Berlin Philharmonic, Nikolaus Harnoncourt cond. (Teldec 13136, three CDs, 214 min)

## Paul Kelly: Awesome Aussie



Paul Kelly

VANGUARD

year's awards of the Australian Recording Industry Association, Kelly was not only voted Best Male Artist but also inducted into the ARIA Hall of Fame.

Given all that information, the average American is likely to respond . . . Paul who? If we're lucky, that will change with the release of Kelly's new studio record, *Words and Music*, which he'll be supporting with a tour starting in June. Not that the album needs any "support" — it's his best work yet.

Let's look at the material as he sees it: words and music. "I just want nothing on my mind," he sings early on. But it wouldn't be like Kelly to have truly nothing on his mind, and, like its predecessors, this album brims with direct but expressive words. He can be political in "Little Kings" ("I'm so afraid for my country"), but more often than not he and his characters prefer the personal. As simple and sacred a phrase as "glory be to God" is offered in praise of the joys of love and sex. Similarly, the next track celebrates a woman who's both "Saturday night and Sunday morning." The album's one cover song, Hot Chocolate's "It Started with a Kiss," shows how falling in puppy love can result in getting kicked like a dog; it's possible that Kelly included the song to

counterbalance "Melting," whose plea of "Where are you now?" may be better left unanswered. Through all the storytelling, his imagery remains vivid, as in "Beat of Your Heart": "I remember well a night of falling snow / Reading you a tale from Edgar Allan Poe / By the firelight, how your dark eyes shone."

Unlike many songwriters, Kelly always matches his words with distinctive music, and this is where the new album really excels, as he explores more musical avenues than ever before. He seems to have a newfound interest in rhythm, from the insistent slam of the bar band evoked in "Nothing on My Mind" and the awkward lurch of the protagonist in "Tease Me" to the triumphal march of the title track. Lyrics come alive, too, around the delicate guitar figure and solo in "I'll Be Your Lover," the saxophone that's as slithery as the snake of "Gutless Wonder," and the stinging hard-rock guitars in "Glory Be to God." There are beautiful guest duets by Rebecca Barnard in "She Answers the Sun (Lazybones)" and Monique Brumby in "Melting," which she co-wrote. And Kelly's band has gelled to the point where it now surpasses both the deftness and the authority of his previous band, the Messengers, no shabby outfit itself.

In Paul Kelly's hands, *Words and Music* equals art. There are fifteen songs to enjoy here — and, for once, you get a 70-

**J**ust how serious is Australia about its native son Paul Kelly? *Songs from the South*, his 1997 collection of hits, debuted at No. 1 on the charts Down Under and, forty weeks later, was still in the Top 40. And at last

minute CD with no hint of filler. Which is only appropriate from a prolific, important musician with no signs of slowing down.

Ken Richardson

**PAUL KELLY** Words and Music

*Little Kings; I'll Be Your Lover; Nothing on My Mind; Words and Music; How to Make Gravy; Gutless Wonder; Tease Me; I'd Rather Go Blind; She Answers the Sun (Lazybones); Beat of Your Heart; It Started with a Kiss; Glory Be to God; Saturday Night and Sunday Morning; Charlie Owen's Slide Guitar; Melting (Vanguard, 69 min)*

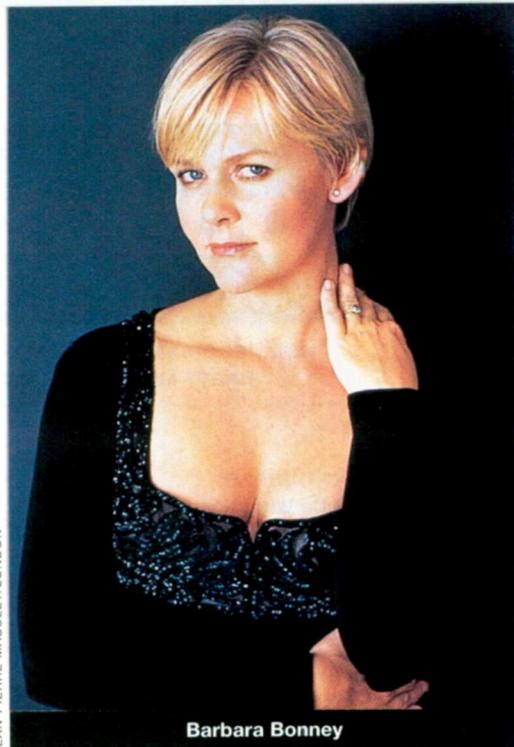
## Bonney and Previn's Americana

**B**arbara Bonney's new CD, *Sallie Chisum Remembers Billy the Kid*, is titled after an extraordinary nine-minute fantasia on the life of the legendary Western stick-up artist William H. Bonney, Jr. Believing the outlaw to be one of her ancestors, the soprano commissioned the piece from André Previn — best known these days as a classical conductor, he began his career as a jazz pianist and film composer — and she sings it deliciously, accompanied by Previn on piano. Previn based his text on a novel by Michael Ondaatje, author of *The English Patient*. It's really a mini song cycle, with snatches of jazzy melody and a shifting prism of shimmer-

ing moods, that sets the plain words of Sallie Chisum, a pioneer woman who knew both Billy and the man who killed him, lawman Pat Garrett: "There was a lot of good mixed in with the bad in Billy the Kid," she wistfully recalls, "and bad mixed in with the good in Pat Garrett."

Previn is also the accompanist for the rest of the accessible, well-chosen American songs on the CD. Aaron Copland's best-known cycle, *Twelve Poems of Emily Dickinson*, is an ideal mating of artistic sensibilities, the composer's craggy, idiosyncratic idiom perfectly reflecting the ethereal moods and twisty logic of the strange lady from Amherst. Bonney's performance is spirited and carefully modulated, and she shows a mastery of American diction, daring to be plainspoken and conversational where the words call for it. Samuel Barber's *Hermit Songs* were written for Leontyne Price, who has a much heavier, dramatic voice, but Bonney finds unsuspected delicacy and jewel-like transparency in these haunting miniatures based on texts by medieval Irish monks — a musical equivalent of *The Book of Kells*.

Sandwiched between the Copland and the Barber selections is the first-ever recording of Domenick Argento's *Six Elizabethan Songs*. Argento is best known for his melodic, somewhat old-fashioned operas on subjects ranging from Edgar Allan Poe to Rudolf Valentino. These lovely, lyrical songs, setting texts by Shakespeare, Jonson, and others, bring out the best in Bonney's voice, which glints with steel one moment and gleams like a spring morning the next. The disc concludes



Barbara Bonney

JEAN-PIERRE MASCIET/LONDON

with Previn's dark, moody *Vocalise*, in which voice and piano are joined by cello, played here by Sato Knudsen.

If you've been put off recordings of contemporary art songs by the idea that they're too highfalutin, here's the disc to win you over. Bonney and Previn have created a modern classic. *Jamie James*

**BARBARA BONNEY** Sallie Chisum Remembers Billy the Kid (Songs by Previn, Copland, Argento, and Barber)

Barbara Bonney, soprano; André Previn, piano (London 289 455 511, 76 min)



**GREASE** (Polydor)  
**NILSSON** The Point!

(DCC Compact Classics)  
Two very different soundtracks. The first is the twentieth-anniversary edition of the hit movie score. The other is the material Nilsson wrote and sang for the charming 1970 animated children's TV special.

**THE KINKS** Muswell Hillbil-lies; Everybody's in Show-Biz

(Velvet) The first two titles, from 1971 and 1972, in Velvet's reissue campaign of the band's RCA and Arista albums, overseen by Ray Davies and including bonus tracks.

**THE STEVE MILLER BAND**  
The Joker (JVC)  
**TINA TURNER**

Private Dancer (JVC)  
First pop releases in JVC's Extended Resolution CD (XRCD) series.

**ROD STEWART** The Rod Stewart Album; Gasoline Alley; Every Picture Tells a Story; Never a Dull Moment; Sing It Again Rod; Smiler (Mercury)

**FOREVER MOD: A TRIBUTE** (DeRock)  
Stewart's Mercury catalog — now 20-bit remastered from the original tapes for budget CDs featuring restored packaging — spans 1969

to 1974 and represents his musical pinnacle. The new tribute album gathers members of Guns N' Roses, Poison, Warrant, Kiss, and Ratt.

**BEETHOVEN** Symphonies Nos. 5 and 7; Coriolan and Fidelio Overtures

Chicago Symphony, Fritz Reiner cond. (RCA Victor 68976) "Elegance of detail and a sense of fleet-footed movement" (January 1971 review of tape reissue of 1959 LP).

**GUBAIDULINA** Rubaiyat; Detto II; Misterioso; Concerto for Bassoon and Low Instruments

Soloists; chamber ensembles; various conductors (Melodiya/BMG 49957) Late-1970s recordings, including the concerto considered one of the most interesting works by the Russian composer Sofia Gubaidulina (b. 1931).

**RACHMANINOFF** Symphony No. 2 **TCHAIKOVSKY** "Manfred" Symphony; Marche Slave; Romeo and Juliet

London Symphony, André Previn cond.; Royal Philharmonic, Yuri Temirkanov cond. (EMI 69776, two CDs) "Virtuosity to burn and absolutely superb wind players. . . . the recording job is one of the label's very best" (January 1976, review of "Manfred" Symphony).

**1962 INTERNATIONAL TCHAIKOVSKY COMPETITION**

Vladimir Ashkenazy, John Ogdon, piano; U.S.S.R. State Symphony, Konstantin Ivanov, Victor Dubrovsky cond. (Melodiya/BMG 33219) The famous "draw" competition: Ashkenazy, playing the Tchaikovsky Concerto No. 1, and Ogdon, the Liszt Concerto No. 1, tied for first place, launching both their careers.

NEW RECORDINGS REVIEWED BY CHRIS ALBERTSON, FRANCIS DAVIS, WILL FRIEDWALD, PHYL GARLAND, BRETT MILANO, ALANNA NASH, PARKE PUTERBAUGH, KEN RICHARDSON, AND STEVE SIMELS

## FRANCIS DUNNERY

### Let's Go Do What Happens

(Razor & Tie, 54 min)

★★★★

There aren't many guys who can take the guitar-and-tambourine-driven sentiment "I would like to buy you sunflowers" and turn it into a grand statement of desire. But Francis Dunnery has always been adept at making heartfelt pleas out of little tunes, and while *Let's Go Do What Happens* isn't as immediately catchy as the previous *Tall Blonde Helicopter*, it ultimately blossoms into a rich, moving pop manifesto.

The first track, "My Own Reality," may be built on a bevy of guitars, keyboards, vocals, and samples, but riding this garden wall of sound is a long, supremely attractive melody. "Perfect Shape" proves that Dunnery's R&B forays have become a lot more genuine than they were on his American debut record, *Fearless*, and the song still has room for a downright neighborly guitar solo. Even though his mood is mostly reflective, he can still rev it up, whether powered by the modern beeps of the information superhighway ("Crazy Is a Pitstop") or the rhythm of the actual road ("I'95").

Later, Dunnery settles into a slow-burning rocker ("Whoever Brought Me Here") and uses the solo-acoustic format not only to lend poignancy to words as seemingly simple as "Wherever you go, wherever you are / You've got a home in my heart" but also to celebrate the "Revolution" of breaking free from his former record label and other physical/emotional shackles. Then he ends by unsheathing a power riff for "Give Up

Your Day Job," urging "the youth of 1998" to do just that. It's all in a CD's work for the talented Francis Dunnery. *K.R.*

## MICHAEL FRACASSO

### World in a Drop of Water

(Bohemia Beat/Rounder, 42 min)

★★★

Austin-based singer/songwriter Michael Fracasso may make some timeless observations, but his literate, passionate music brings to mind easily identifiable styles. "Started on the Wrong Foot," for example, recalls both John Lennon's plaintiveness and Buddy Holly's rhythm structure and insouciant vocal. In fact, Fracasso sounds like an old friend right off the bat, but a friend whose world revolves on a slightly bent axis. The oddly unsettling "Jar of Pennies" focuses on a househusband who's getting restless — and menacing — around the ol' abode, and "Marie" reflects one man's obsession with a nude dancer (and possible smack addict). Then there's "Hospital," a creepy description of a place that seems to administer more to mental than physical ills. It's a song that highlights both the strength and the weakness of Fracasso's writing: shadowy, imprecise imagery, ripe for the listener's very personal interpretation. Still, Fracasso doesn't just deliver his songs; he offers up a piece of his life with each one. Neat trick. *A.N.*

## ARETHA FRANKLIN

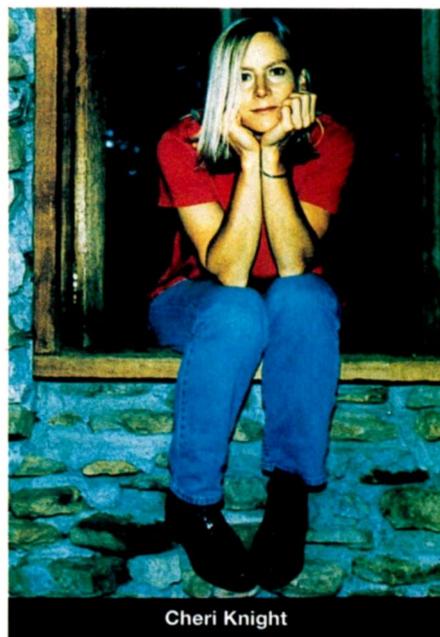
### A Rose Is Still a Rose

(Arista, 52 min)

★★

Aretha Franklin's press kit has thechutzpah to call *A Rose Is Still a Rose* her "most exciting album of the Nineties" — conveniently forgetting that it's also her only album of the Nineties save for the lackluster (and abysmally titled) *What You See Is What You Sweat*. The halfhearted praise is entirely appropriate for this disc: Franklin's voice remains glorious, but it gets squashed by mediocre material and faceless high-tech arrangements.

A team of expensive producers ranging from glossy R&B specialist Narada Michael Walden to ex-Babyface collaborator Daryl Simmons to current hitmaker Sean "Puffy" Combs is employed to make Frank-



Cheri Knight

RICK HAWKINS/SQUARED

lin sound like an up-to-date hip-hop artist — as if being the Queen of Soul wasn't good enough. It's surprising that the diverse producers came up with such an interchangeable bunch of forgettable R&B ballads, and they all cover her voice in the same overload of backing vocals and drum machines. The most promising collaboration, with Fugees member Lauryn Hill on the title track, is a letdown: the power-of-sisterhood message is a little trite, and the borrowed hook from Edie Brickell's "What I Am" (newly sung, not sampled) is more than a little annoying.

Franklin does her best to liven things up, putting some gospel testifying into two of the blandest tunes, "In the Morning" and "Watch My Back" — why not just give her a real gospel number? The closest thing to uncut Aretha is her one original tune, "The

## STAR SYSTEM

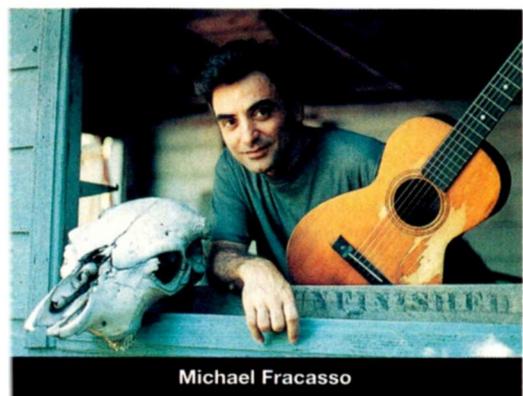
Excellent ★★★★★

Very good ★★★★

Good ★★★

Fair ★★

Poor ★



Michael Fracasso

BOHEMIA BEAT/ROUNDER

Woman." The eight-minute piano ballad is the only track that gives her a live rhythm section and lets her have the vocal spotlight to herself. More of this and we'd have a real comeback, not another false alarm. *B.M.*

**CHERI KNIGHT** *The Northeast Kingdom*  
(E-Squared, 52 min)

★★★★

The widely praised second solo album by a former member of the Blood Oranges (who blended bluegrass and rock into a tasty if chewy musical soup) deserves its spotlight. Cheri Knight, who plays bass, is more an alt.country rocker than a Nashville girl or a deep-dish folkie, and she should feel right at home on E-Squared, the label co-owned by Steve Earle, since the twelve original songs on *The Northeast Kingdom* leave categorizing in the dust. The best and most appropriate way to describe them is "organic," considering Knight is a professional flower farmer when she's home in Massachusetts — and because the songs seem to naturally fold in a swirl of sounds including Celtic, folk, country, and pop, augmented by gypsy fiddle, harmonium, and assorted riffs borrowed from Neil Young and the Beatles. Both "Dar Glasgow," one of two songs featuring Emmylou Harris on harmony, and "The Hatfield Side" seem to have been resurrected from centuries-old hiding places deep in Appalachia, while the title track suggests the Cowboy Junkies. Elsewhere, Knight's at home with rough-hewn country rock ("If Wishes Were Horses") and California-branded honky-tonk ("White Lies"). But she makes her deepest marks in the aching ballads. When, toward the end, she sings, "Sweetheart, do you favor another?," she summons the sorrow of the ages. *A.N.*

**MARY LOU LORD** *Got No Shadow*  
(Work, 46 min)

★★★★

**JULES VERDONE** *Diary of a Liar*  
(Q Division, 42 min; 443 Albany St., Boston, MA 02118; www.qdivision.com)

★★★★

At first glance, Mary Lou Lord and Jules Verdone seem to have an awful lot in common. Both women are Boston-based musicians who write, sing, and play guitar. Both of their albums open with a tune about the girl who's got her guy: "His Latest Flame" in Lord's case, "Through My Teeth" in Verdone's. Both have a song about money problems: Verdone's is "Debt" and Lord's a tune about the pawnshop blues (written by the great Elizabeth Cotten) called "Shake Sugaree." And then there's timing: released in close proximity, both albums are full-length debut records.

However, Lord sings in a gauzy, little-girl-lost voice while Verdone is more forceful and pugnacious. Lord, who has always

## Live from Austin

"IT'S NOT VERY OFTEN that anything happens," Robyn Hitchcock deadpanned about life in general as he tuned up for an in-store appearance at the South by Southwest (SXSW) Music and Media Conference. But as Austin played host in March to the annual industry confab, plenty was happening. Veteran journalist Dave Marsh, for example, traded verbal blows with the Mekons' Jon Langford and challenged a young SXSW-goer, who had brought up Marsh's exploits in Fred Goodman's book *Mansion on the Hill*, to step outside, presumably to trade real blows — and that was in the light of day at a panel discussion about advertising. In the dark of night, 800 bands hit the stages of fifty venues. SXSW keynoter Nick Lowe — who had never heard the term "keynoter" before and who surmised he was asked because someone thought "it's time to get a foreigner, does anybody know one?" — set the mood when he ended his talk by announcing, "I declare the bars open."

However, if the point was for managers, labels, and the media to discover developing artists, you wouldn't know it from the number of people who headed for a big show by long-in-the-tooth Sonic Youth. Some of us preferred the bands less heard, and that made all the difference. San Francisco's **Imperial Teen**, whose Slash/London debut album *Seasick* prompted *Austin Chronicle* music editor Raoul Hernandez to rightly tout the band as "the Talking Heads to Nirvana's Sex Pistols," played a riveting set. Chicago's **Falling Wallendas**, championed in these pages but now without a record contract (hey, Big Deal give 'em a big deal!), transcended their already fine pop material with an impressively tight show. Portland's **44 Long**, a Western-flavored outfit that on *Collect Them All* (Schizoponic; 17 S.E. Third Ave., #501, Portland, OR 97214) sounds rather like Creedence Clearwater Revival, came across like early Elvis Costello and the Attractions. And L.A.'s **the Delphines**, who were pretty green when we first wrote about them in March 1997, have enlisted Gina Schock as full-time drummer; she joins fellow ex-Go-Go Kathy Valentine (on guitar) and bassist/singer Dominique Davalos, and they thrashed through a terrific 2 a.m. set. Still, some of the long weekend's best music came from . . . New Mexico. **Ana Egge** got her start there, but she's been adopted by Austin to the point where she was named

Best Singer/Songwriter at the pre-SXSW Austin Music Awards on the strength of her shows and her 1997 debut album, *River Under the Road* (Lazy S.O.B.; P.O. Box 49884, Austin, TX 78765). Then there was **ThaMuseMeant** — the name sounds like "amusement" and so does the music, billed as "funky, eclectic acoustic rock" but summoning much more as it touches on not just Dave Matthews but also Phish and Fairport Convention. The quartet made a cozy audience delirious with the winding interplay of its guitarist, drummer, mandolinist/fiddler, and five-string-bassist, the last of whom also disarmed with her lead/harmony vocals and yodels. It's all on the band's brand-new CD, *Sweet Things* (P.O. Box 262, Santa Fe, NM 87504).

Meanwhile, the lovably dour Hitchcock, the perennial "developing artist," was seemingly everywhere, ostensibly in town for the world premiere of his live-performance film *Storefront Hitchcock* (directed by Jonathan Demme and due in October) but also spotted singing on various stages, free-associating on the artists panel, and, very late one night, nursing a drink alone at the Hyatt Regency bar. Perhaps he was mulling over the end-of-the-world scenario he had conjured up earlier that day: "The media is going to be the last thing to die." Overall, the abundance of fresh music at SXSW had both the media and artists feeling fine, end of the world (or century, or biz) or not. No wonder somebody scrawled in the men's room of one of Austin's clubs, "Neil Young is a little boring."

— Ken Richardson



PHOTO: DAN WAGNER; ICON: COURTESY THE AUSTIN CHRONICLE

## QUICK FIXES

### CHRIS KNIGHT

(Decca, 49 min; enhanced CD) ★★ ★  
Knight is being hyped as the second coming of Steve Earle, but California country-pop strains are nearly as strong. The better tracks suggest he can carve out his own identity: "It Ain't Easy Being Me" combines classic honky-tonk self-pity with the modern trappings of big fuzz guitars and pounding drums. The CD's multimedia, clunky to access, provides merely one video clip, one publicity photo, a reprint of Knight's press bio, and a link to his label's Web site. *B.M.*

### MOTÖRHEAD Snake Bite Love

(CMC, 45 min) ★★ ★  
Motörhead has now made the same album too many times to count, but it's still a heck of an album. The metal is still fast, loud, nasty, and fun, and Lemmy is still hilarious; if there's going to be a better one-liner this year than "Nobody knows the trouble I've seen, but it could be arranged," I look forward to hearing it. This is the band's first album to include the word "love" in the lyrics of three songs, but that doesn't mean Motörhead has gone wholesome: the word "dead" turns up in four. *B.M.*

### NITTY GRITTY DIRT BAND

**Bang, Bang, Bang**  
(Decca, 35 min) ★★ ★

The Dirt Band has been down for the count so long that it seemed just about out, but this joyful record might just turn the Phoenix trick for the venerable group. With meaty songs from Jim Lauderdale, Gillian Welch, and Mac McAnally, the band seems both rejuvenated and updated, yet its charming, homemade style remains intact. Welcome back, guys. Pull up a chair and stay a while. *A.N.*

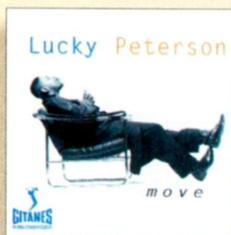
### PEE SHY Don't Get Too Comfortable

(Blue Gorilla/Mercury, 42 min) ★★ ★★  
Built around two women with literary credentials, Tampa's Pee Shy burns several degrees brighter than your average pop band. Best is the unpretentious simplicity of the arrangements. "Big Blue Sky," for instance, is built on a roiling bass line and the underwater twang of an e-bow guitar. There's no fat on this LP-length CD, just delectable tunes for the discerning listener. *P.P.*

### LUCKY PETERSON Move

(Gitanes Blues/Verve, 54 min) ★★ ★★  
With the authority of someone who has explored thoroughly the nooks and cran-

nies of blues-cum-soul, Peterson sings in a powerful voice, but it is his guitar work that really shines on *Move*. His solos are well-constructed, often intricate weaves that tend to update rather than straight-



out borrow licks of old. Six of the dozen selections are originals; the others include songs by Prince, Ashford & Simpson, and Robert Cray. If you need to get close to the soil, this one's for you. *C.A.*

### BERNARD PURDIE Soul to Jazz II

(Act/Blue Jackel, 63 min) ★★ ★  
Purdie's supporting cast includes Stanley Turrentine, Hank Crawford, Vincent Herring, Cornell Dupree, Junior Mance, Benny Green, Pancho Morales, and even fellow drummer Jack DeJohnette. The result is a very mixed, disappointing bag that will set your body in motion, get your fingers snapping, and leave your brain free to focus elsewhere. *C.A.*

### UFO Walk on Water

(CMC, 52 min) ★★ ★  
Out of nowhere comes a reunion of all four core members — Phil Mogg, Michael Schenker, Pete Way, Andy Parker — plus latecomer Paul Raymond, and they don't embarrass themselves. Mogg shows flashes of his old swagger, Schenker remembers how to write (and play guitar) with imagination, and producer Ron Nevison returns to his hard-rock roots. "New versions" of "Doctor, Doctor" and "Lights Out" sound like the old versions and are basically filler. *K.R.*

### WOMEN OF SPIRIT

(Putumayo World Music, 60 min) ★★ ★★  
Not a pious meditation, this set gathers thirteen female artists from around the world expressing in different ways a positive, upbeat spirit of sisterhood. Their material is interesting, and they sing beautifully. I especially like Susana Baca (Peru), Ima Galguen (Spain), and Savina Yannatou (Greece). Also here are America's Toshi and Bernice Johnson Reagon, Cassandra Wilson, and Ani DiFranco.

*William Livingstone*

been more of a covers girl, wrote about half the material on *Got No Shadow* while Verdone wrote everything on *Diary of a Liar*. Known around Boston as a subway busker, Lord strums an acoustic guitar while Verdone plays an electric (with authority, too). Both women are immensely talented, in their own ways, and their albums possess a newly minted freshness.

*Got No Shadow* marks something of a departure from Lord's previous EPs and busking days in that the songs have been polished and produced to a fare-thee-well, which sometimes detracts from the simplicity and intimacy that have been her hallmarks. At the same time, her folk-rock, with its distinct echoes of the Byrds and Fairport Convention, is as brisk and uplifting as the first breath of fall blowing into Cambridge. Lord's own "Western Union Desperate" is a wistful bit of California dreaming while "Two Boats" (cowritten with Nick Saloman of the Bevis Frond) matches gorgeous acoustic-guitar licks to a well-crafted metaphor for dimming love.

By contrast, Verdone is no sentimentalist, and *Diary of a Liar* can be viewed as a Nineties version of Elvis Costello's *This Year's Model* from a prickly, feminine perspective. Marrying nimble, quick-witted wordplay to dynamic and unpredictable music, Verdone comes off as a precocious talent who uses her guitar and voice in furtherance of the strategy "don't get mad, get even." Still, there's considerable handiwork in the delicate complexities of "Little," the edgy, rollicking dissonance of "Keep This Up," and the deft incorporation of jazzy, off-kilter guitar licks into a pop framework in "Everything's Your Fault" and "Baltimore or Less." *P.P.*

### MADONNA Ray of Light

(Maverick/Warner Bros., 67 min)

★★★

**M**adonna has always been willing to bare herself in the name of art and commerce. She's calculating, but she's also honest about her wily ambitions, offering nearly equal amounts of shock-value entertainment and soul-searching artistry. However, she seems more genuinely vulnerable of late, and having a child has wrought indisputable changes. With *Ray of Light*, the Material Girl embarks on a spiritual path.

A cynic may be forgiven for harboring reservations, but, in Madonna's defense, there's no doubting her sincerity here, just the rapidity with which she's gone from fallen angel to ardent disciple to would-be authority. She's most convincing as a soul in the early throes of a spiritual transformation, which she conveys to captivating effect in *Ray of Light*'s first half, especially the soaring title track. When Madonna and collaborator William Orbit find their mark, as they do in the hypnotic "Swim" and the

throbbing "Skin," the album proves eminently capable of uniting body and spirit. There's also a wonderfully uplifting ode to her daughter ("Little Star") and a scene of haunting childhood autobiography ("Mer Girl") reminiscent of the more intimate songs from her introspective *Like a Prayer*.

Alas, much of the album falls short of such heady moments. Although the spirit is willing, the spacey electronica and burbling sound effects are more hindrance than help. Not to impugn Madonna for what sounds like a genuine attempt to walk into the light, but to quote a skeptical Jack Kerouac on his one and only acid trip, "Walking on water wasn't built in a day." P.P.

**CARRIE NEWCOMER** *My True Name*

(Phil/Rounder, 43 min)

★★★★

Neo-folkie Carrie Newcomer may have played a lot of bars and bowling alleys in her time, but *My True Name* shows she's ready for the biggest venues. Although she opened for Alison Krauss & Union Station on tour last year, her new album finds her wearing a more sophisticated, polished pop sheen, with only the slightest of ensemble accompaniment hoisting her vocals and guitar. Newcomer's poetic songwriting, sensuous alto, pinpoint intonation, and self-confident delivery add up to a compelling package, whether she's walking the dark and restless side of love in the Joni Mitchell-ish "This Long" or pondering "The Length of My Arms," a bit of whimsy turned poignant. "Some stories you only need to tell once . . . others you're not through with yet," she writes in her liner notes. But the stories on *My True Name* will do more than bear repeated listenings; they'll carve their names on your heart. A.N.

**E.C. SCOTT** *Hard Act to Follow*

(Blind Pig, 40 min)

★★★★

The style is Sixties Atlantic: romping rhythm, brass accents, an occasional echo from a small chorus of background voices, blues-drenched guitar licks, and a surging sax. You get the idea. It's an environment that perfectly suits E.C. Scott's deliberately raw-edged vocals on *Hard Act to Follow*, her second album. You won't find innovation here, but this solid set of performances is delivered with such authority and spirit that it doesn't matter if you think you've been there, heard that. One thing you probably haven't heard is Scott's original material — brass-tacks poetry that is witty, often ribald, sometimes sweet, and always perceptive. This is a well-conceived program of mood swings with not a dull track among the eleven. At a time when so many singers sound tortured and too many songwriters have nothing to say, E.C. Scott is a fresh blast from the past. C.A.

**VAN HALEN** *Van Halen 3*

(Warner Bros., 65 min)

★★★

**EVERYBODY WANTS SOME!**

(CherryDisc/Roadrunner, 63 min)

★★★★★

Van Halen *still* needs a new lead singer: Gary Cherone is largely wasted, made to shriek like a wide-scream version of Sammy Hagar. The band also needs an editor, as three of its new songs top six min-

utes and one flirts with nine. Too often, it takes too long for the material to get anywhere. How, then, is *Van Halen 3* worth three stars? When it *does* get somewhere, it's usually at the behest of Eddie Van Halen's thankfully reenergized guitar. "Without You," for example, leaps to a new level as soon as it's triple-injected with a linear riff, choppy chords, and a jaw-dropping solo. Credit, too, the adventurous construction of "From Afar" as well as the meat and



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potatoes of "Fire in the Hole." And except for the insipid piano ballad "How Many Say I," the album has a limber rock setting not heard from this band in ages. Now if we can just get the *fun* back into Van Halen.

Two-Point Plan for Getting the Fun Back into Van Halen: (1) Lose the sunglasses, guys. (2) Listen to *Everybody Wants Some!*, which earns every one of its five stars. Subtitled "A Loose Interpretation of the Musical Genius of Van Halen," this is loose as a goose, honking at Latin ("Jamie's Crying"), lounge (the title track), the Beats ("Atomic Punk"), the Ronettes ("Feel Your Love"), "Eleanor Rigby" ("Little Guitars"), and hill-billy ("Dance the Night Away"). Best-known of the Boston acts assembled here are Mary Lou Lord, who delivers a folkie "Jump," and the Gigolo Aunts, making the only stab at the Hagar era with the Beatlesque "Why Can't This Be Love?" The parodies of Diamond Dave in "Beautiful Girls" and "Panama" are hysterical, and the set opens and closes with versions of "Eruption" — one for pipe organ, one for banjo. Tribute album of the decade. *K.R.*

LOUDON WAINWRIGHT III Little Ship

(Charisma/Virgin, 48 min)

★★★

For all the attention his novelty tunes get, Loudon Wainwright III also writes some of the bleakest relationship songs this side of Richard Thompson. And he's in bummed-out mode for most of *Little Ship*, the follow-up to the relatively lighthearted *Grown Man*. The new disc's centerpiece, "What Are Families For?," rivals the decade-old "Thanksgiving" (also about the strangling nature of family ties) as the most depressing song in his catalog: it's long, haunting, and full of uncomfortable details, with a dour vocal that drops his usual court-jester overtones. The rest of *Little Ship* is slightly more upbeat and humorous, but to sum up its tone, this is the first album this year to include the word "crappy" in two songs.

It's still more radio-friendly than the average Wainwright album, thanks to the sparkling production by Shawn Colvin collaborator John Leventhal. The innuendo-filled rocker "Breakfast in Bed" is an obvious attempt at a novelty hit, but it isn't much of a song. "Our Own War" stands a better chance of breaking through, with its attractive melody and Colvin guest appearance. Still, Wainwright can't resist a perverse joke like "The World," which sets a doomsaying lyric to a jolly banjo tune. And he spills more information about a failed relationship than you might want to know. "OGM" shows the couple falling apart via phone messages, "I Can't Stand Myself" finds him cruising pickup bars afterward, and "So Damn Happy" proudly makes him out to be a jerk. Wainwright closes with "A Song," a funny stab at the writing process,

in case he wasn't being hard enough on himself already. *B.M.*

JAZZ

MINGUS BIG BAND ¡Que Viva Mingus!

(Dreyfus Jazz, 74 min)

★★★★★

S o-called ghost bands, orchestras perpetuated after the leader's death, do well as nostalgia but aren't very satisfying from a musical point of view. Still, names like Glenn Miller and Count Basie continue to appear on marquees and new releases. I'd rather listen to an old Basie record than hear well-oiled musicians recreate the past note for note. I don't feel that way about the Mingus Big Band, however, because it is so clearly a labor of love and respect, and the participants are really having fun.

*¡Que Viva Mingus!* is largely devoted to Charles Mingus's exploration of Latin rhythms, which resulted in some of his most memorable work — notably *Tijuana Moods*, from which four of this CD's ten selections are drawn. The program spans nearly his entire career from "Moods in Mambo" (1949) to "Cumbia & Jazz Fusion" (1978), but dates matter little when it comes to this music. Although he revered the past, Mingus always looked ahead, seeming to anticipate jazz's natural evolution. His compositions were skillfully crafted works, colorful montages in which recognition and surprise played tag, and in the Mingus Big Band the beat (and the off-beat) goes on. The arrangements here capture his flair for the dramatic, his irresistible gift for devising vignettes imbued with social satire and humor. The solo lineup includes Vincent Herring, Ryan Kisor, Ku-umba Frank Lacy, Randy Brecker, David Sanchez, Mark Shim, David Kikowski, and John Stubblefield. This isn't a ghost band; it's more like a rebirth. *C.A.*

ERIC REED Pure Imagination

(Impulse!, 50 min)

★★★

At 24, Philadelphia-born pianist Eric Reed already has an impressive background, including work with Gerald Wilson, Wynton Marsalis, and Joe Henderson. On *Pure Imagination*, his second album for Impulse!, he leads a trio through a program of Broadway tunes. Yes, there are tinkly moments that wouldn't seem out of place in a cocktail lounge, but Reed is a fine, lyrical player whose creativity allows him to rise above such pedestrian fare as "Hello, Young Lovers." Bassist Reginald Veal and drummer Gregory Hutchinson help make a cohesive unit. Although not as adventurous as D.D. Jackson or the late Don Pullen, to mention two of my recent favorites, Reed has enough imagination and skill to become a keyboard mainstay. *C.A.*

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NEW RECORDINGS REVIEWED BY RICHARD FREED, DAVID HALL, JAMIE JAMES, GEORGE JELLINEK, AND ERIC SALZMAN

**BACH** Unaccompanied Sonatas in A Minor, C Major, and G Minor (BWV 1003, 1005, and 1001, arr. Barrueco)

Manuel Barrueco, guitar (EMI 56416, 59 min)

★★★★★

The three Bach sonatas for solo violin (not to be confused with the partitas) are here arranged for classical guitar and magnificently performed by Manuel Barrueco. Bach himself was well acquainted with the practice of arranging music from one medium to another. The biggest changes here involve register (the guitar is pitched much lower than the violin). The biggest successes are the fugal movements, which not only survive the transition from a sustaining to a plucked string instrument but emerge with far greater clarity and definition. That is partly thanks to the arrangements, but it also has a lot to do with Barrueco's playing, which is, in all senses of the word, smart. He has really rethought everything twice: once in terms of writing for the guitar, and then again in terms of performing on the instrument. There are always certain elements of stress, strain, and struggle in performances of the original versions of these sonatas, but the ones here are, in the best sense, "normal." This permits an ease of expression and a beauty of sound that bring out aspects of the music that are not often heard. *E.S.*

**BEETHOVEN** Leonore

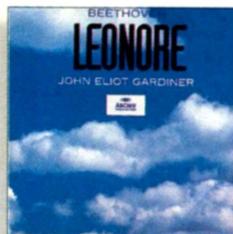
Hillevi Martinpelto, Kim Begley, Matthew Best, Franz Hawlata, others; Monteverdi Choir; Orchestre Revolutionnaire et Romantique, John Eliot Gardiner cond. (Deutsche Grammophon Archiv 453 461, two CDs, 138 min)

★★★★★

In his introductory notes, conductor John Eliot Gardiner makes some interesting points in comparing Beethoven's early *Leonore* (1805) and the more mature and thoroughly reworked *Fidelio* (1814). You don't have to agree with all of Gardiner's views

to find the semi-forgotten, uneven *Leonore* worth hearing.

Gardiner paces the work at the usual fast "period-instruments" clip, which sometimes benefits the music, sometimes not. Using a narrator to replace the extensive spoken recitatives is a practical solution for non-German audiences. *Leonore* is undoubtedly closer in form to the Mozartean *Sing-*



*spiel* operas than the more concise and dramatic *Fidelio*. That explains why for the latter Beethoven jettisoned such melodic highlights of *Leonore* as the first-act trio (Marzelline-Jaquino-Rocco) and the second-act duet (Marzelline-Leonore) with its delicious violin/cello accompaniment. Listeners discovering these for the first time will be grateful for the experience.

But it is hard to examine *Leonore* unburdened by the powerful impact of its successor. In this performance, both the *Leonore*, soprano Hillevi Martinpelto, and the Florestan, tenor Kim Begley, do well with their big scenes, but they will sound underpowered to listeners who recall the great singers who have portrayed these roles in *Fidelio*. Christiane Oelze and Michael Schade make an attractive young pair as Marzelline and Jacquino, and Franz Hawlata presents a kindly and jovial Rocco, but instead of singing Pizarro's lines Matthew Best substitutes toneless and unfocused shouting. He is, fortunately, blanketed by the loud chorus and the merciless timpani. Alastair Miles's Don Fernando, however, is a distinct plus. *G.J.*

**DELIUS** Violin Sonatas

Tasmin Little, violin; Piers Lane, piano (Conifer/BMG 51315, 77 min)

★★★★★

Tasmin Little's 1991 Argo recording of the Delius Violin Concerto is one of the gems in that composer's discography, as is her follow-up a year later with the Double

Concerto, along with cellist Raphael Wallfisch, on EMI. Even so, she waited a good five years before tackling the four violin sonatas. Delius completed the first of the three numbered sonatas in 1914. Earlier, in 1892, he had composed a Violin Sonata in B Major, but it remained unpublished and unrecorded until recently. Little's recording being only its second. The music is attractive in its late-Romantic way, marked by an almost Schumannesque impetuosity in the fast movements. Delius's fluid chromaticism permeates the three numbered sonatas, the last two of which came to realization while his health was deteriorating into blindness and paralysis. The Third Sonata, my personal favorite, could only be put on paper by way of painstaking dictation to Eric Fenby, the composer's amanuensis from 1928 until his last days.

As Little recounts in her notes for the present recording, she had the benefit of Fenby's counsel when she first began playing the Third Sonata, but he died before work began on these recordings. She and the pianist Piers Lane achieve just the right compromise between the sensuous and virile aspects of Delius's muse — a very fine line to toe! The recording's church-acoustic surround is evident but not obtrusive. *D.H.*



HANYA CHLALA/SHEILA PORTER

Tasmin Little

**STAR SYSTEM**

Excellent ★★★★★

Very good ★★★★

Good ★★★

Fair ★★

Poor ★

**HANDEL** Music for the Royal Fireworks; Concertos in F Major and D Major; Passacaglia, Gigue, and Minuet; Occasional Suite

English Concert, Trevor Pinnock cond. (*Deutsche Grammophon Archiv 453 451, 60 min*)

★★★★

Trevor Pinnock's earlier recording of the *Royal Fireworks Music* is still one of the most engaging presentations of the work. This new one gives us a different instrumentation, with large batteries of winds and percussion alone, following the "original version of 1749," whereas the previous one was based on Handel's revised concert version, with strings, flutes, and harpsichord accompanying fewer winds and percussion. There have been other recordings of the "no strings" version, but none quite so grand as Pinnock's new one, which not only uses period instruments but benefits from a spacious sonic realism barely hinted at in its predecessors. As in his recording of the version with strings, Pinnock opens the overture not with a perfunctory single chord but a little drum roll, which instantaneously invests the proceedings with a heightened sense of vitality and excitement, and there are other such touches along the way.

The two concertos are no strangers to recording. The one in D Major is in essence a different version of the overture in the *Fireworks Music*; the one in F Major is similarly related to sections of the *Water Music*. The remaining items, however, are quite new, being Pinnock's own arrangements, in the first instance of three movements from one of Handel's trio sonatas and in the second of five numbers from the *Occasional Oratorio*, the opera *Ariodante*, and the oratorio *Joshua*. Both suites, like the originals on the disc, are tastefully and effectively concocted and brightly performed. R.F.

**SCHUBERT** Lieder

Anne Sofie von Otter, mezzo-soprano; Bengt Forsberg, piano (*Deutsche Grammophon 453 481, 69 min*)

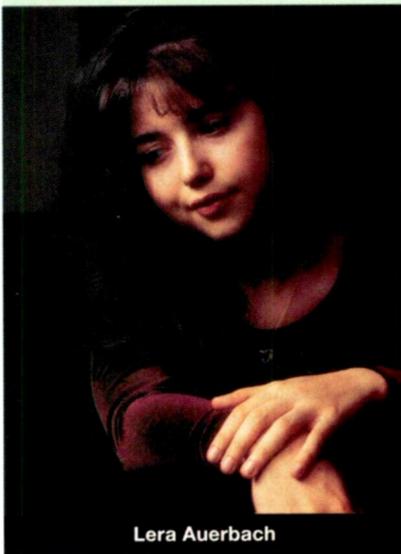
★★★★

In many ways an old-fashioned anthology of Schubert songs, this CD has no big musicological point to make, no overarching literary theme or narrative agenda. Anne Sofie von Otter and her long-time accompanist, Bengt Forsberg, simply sat down and sifted through the songbooks and chose their favorites. The performances are all intelligent and well prepared, and occasionally one soars, like the rarely heard "*Ständchen*" ("Serenade," which sets a different text from that of the more popular song of the same title). In this moody piece, shimmering with the cool, rapturous colors of moonlight, Von Otter is accompanied by the women of the Swedish Radio Chorus.

The material alternates between the very familiar, such as "*Ave Maria*," which Von

## Lyrical Debut

Based on her first CD, 23-year-old Russian-born Lera Auerbach is versatile and gifted not just as a pianist but also as a composer. She emigrated from the then Soviet Union in 1991, and the New York concert performances recorded here date from 1993 and 1996.



Lera Auerbach

AGNES BRUNEAU ASSOC.

Auerbach's gift for the lyric line is displayed to fine effect in the opening Rachmaninoff Prelude in G Major, and she generates atmosphere and exhibits crackling virtuosity in Prokofiev's youthful Sonata No. 2, in D Minor. More lyrical

cal Rachmaninoff comes to the fore in two *Études Tableaux*, in A Minor and C Minor. *Three Evocations* by Jay Weigel, a contemporary New Orleans composer, is in a more expressionist vein than his usual jazz-tinged style; the recording is said to be a world première.

The high point of the CD is Auerbach's sharply characterized performance of Mussorgsky's *Pictures at an Exhibition*, to my mind one of the better recorded versions. The lyrical pieces are done with great poetic feeling, but no undue liberties are taken. The fingers are nimble where they need to be, and "Baba Yaga" is jet-propelled. The concluding "The Great Gate at Kiev" sounds just right in sonority, attack, and measured contrast rather than being overblown. Last on the disc is Auerbach's own Fugue and Postlude. The slow-tempo fugue is decidedly chromatic in texture, like some of Shostakovich's piano fugues. The postlude is intense, poetic, and drenched with bell sonorities.

My one regret about this CD is the less-than-ideal quality of the live recording. Performances like these deserve state-of-the-art sound. — David Hall

**LERA AUERBACH**

**Live Performances**

Lera Auerbach, piano (*Lyric 101, 71 min*;  
*Lyric Records, P.O. Box 1112,*  
*New York, NY 10023*)

★★★★

Otter herself suggests in her booklet essay is "almost too famous to record," and rarities, such as a jolly little number called "*Totengräbers Heimweh*" ("Gravedigger's Homesickness"). In general, she fares better with the highly dramatic, tempestuously paced story songs, such as "*Waldesnacht*" ("Night in the Forest"), which she propels with irresistible narrative thrust, than with frothy pieces like "*Heidenröslein*" ("Little Wild Rose"), in which her attempts to make her voice sound light have the opposite effect. The most ambitious undertaking on the disc is the 13-minute-long "*Viola*," a mock-heroic tale of a lady flower jilted by her bridegroom, Spring, which Von Otter spins out with winning charm. The singer's deft Schubertian touch is evident throughout, as is the creative electricity that only comes after years of close collaboration with an accompanist. J.J.

**SCHUMANN** Introduction and Allegro Appassionato, Op. 92; Piano Concerto;

**Introduction and Allegro Concertante, Op. 134**

Murray Perahia, piano; Berlin Philharmonic, Claudio Abbado cond. (*Sony 64577, 57 min*)

★★★★

**SCHUMANN** Kreisleriana; Piano

**Sonata No. 1**

Murray Perahia, piano (*Sony 62786, 58 min*)

★★★★

It was with Schumann that Murray Perahia made his debut on the Columbia label twenty-five years ago, and Schumann has retained a favored position in his repertory. This new recording of the Piano Concerto, in fact, is his second, superseding in every respect the excellent live recording with Colin Davis and the Bavarian Radio Symphony issued less than ten years ago. The new performance retains all the freshness and spontaneity of its predecessor, the partnership with Claudio Abbado is every bit as complete as the one with Davis, and the recording itself is richer and fuller. Moreover, the companion pieces, Schumann's only

other concerted works for piano, are rarely performed.

The earlier of the two pieces, the Introduction and Allegro Appassionato in G Major, Op. 92, is frequently designated *Konzertstück* ("Concert Piece"); the later Introduction and Allegro Concertante in D Minor, Op. 134, is sometimes given that title also, but less frequently. They are both striking and wholly characteristic of their composer, if in different ways. The G Major, composed in 1849, is an engagingly lyrical piece, showing off the orchestral winds as much as the piano itself, while the D Minor, one of Schumann's very last compositions, is also one of his most personal and self-revealing. He gave it to his wife Clara on her birthday in 1853, only a few months before a mental breakdown brought an end to his creative efforts. Perahia's performances of both works are on the very highest level.

On the new solo disc, his realization of the very essence of the *Kreisleriana* is utterly complete and irresistible in its communicative power. It is nothing less than a total identification with the creative source, and, having heard it I cannot imagine being without it. In respect to the sonata, however, even Perahia, for all his sympathetic response, is surpassed by the deeper levels of

poetry conveyed by the young Norwegian Leif Ove Andsnes in his recent Schumann disc on EMI. *R.F.*

**SIBELIUS Kullervo; Symphony No. 7; Rakastava; En Saga**

London Symphony Chorus and Orchestra, Colin Davis cond. (RCA Victor 68312, two CDs, 138 min)

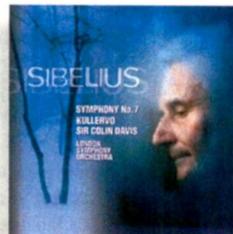
★★★

Sibelius's *Kullervo* for soprano, baritone, male chorus, and orchestra was a remarkable achievement for a 26-year-old, at one stroke putting him at the forefront of Finnish composers. For this recording Colin Davis adopts far broader tempos than usual, especially for his soloists, and as a result the work runs 81 minutes, spilling over onto a second CD. To compensate, the set is filled out with the tersely Olympian Seventh Symphony, the tone poem *En Saga*, and the *Rakastava* suite for strings and timpani.

The five movements of *Kullervo* comprise a spacious "Introduction" succeeded by a depiction of "Kullervo's Youth" that is largely somber but leavened by pastoral episodes. Then comes "Kullervo and His Sister," in which the soloists and chorus join the orchestra to tell us how he unwittingly raped his own sister. Following is the purely orchestral "Kullervo Goes to War"

and the final episode, "Kullervo's Death," with male chorus. The vocal movements are best, especially the third with its final heart-wrenching lamentation.

Any performance of *Kullervo* stands or falls on the performance of the third and fifth movements, and Davis and his forces, particularly the chorus, meet the challenge convincingly — with help from the splen-



didly full-bodied, you-are-there sonics, which are also clear and bright throughout. Baritone Karl-Magnus Fredriksson lends great pathos to the figure of Kullervo, and soprano Hillevi Martinpelto comes across tellingly as the sister. Davis gets wonderful results from the London Symphony, particularly with regard to woodwind detail in the second and third movements.

As for the accompanying works, the Seventh Symphony gets off to a rather placid start, but the rest goes very well indeed. *Rakastava (The Lover)* is both refined and intense throughout the first two movements, but the lovers take an interminably long time for their final "Good Night — Farewell." *En Saga* has a few slack moments but makes up for them with a chillingly ferocious conclusion. *D.H.*

**TCHAIKOVSKY Arias and Duets**

Inessa Galante, Marina Shaguch, soprano; Alexander Fedin, tenor; Sergei Leiferkus, baritone; Orchestra of the Royal Opera House, Covent Garden, Neeme Järvi cond. (Conifer/BMG 50222, 79 min)

★★★

Titled "The Tchaikovsky Experience," this valuable compilation of arias and two duets offers selections from all of his operas, including some that he abandoned or later destroyed. Natalya's lovely arioso from *The Oprichnik*, as performed by the Latvian soprano Inessa Galante, glowingly foreshadows the atmosphere of nostalgic longing that pervades the arias in his mature works. And Bastryukov's aria from *The Voyevoda* is a sweet serenade from his rejected first opera. Both are virtually unknown except to musicologists, yet even though the latter is weakly sung here by tenor Alexander Fedin, it is fascinating to glimpse the composer's earliest attempts to write for the lyric stage.

The disc also includes several familiar arias from the composer's great operas. Yeletsky's aria from Act II of *The Queen of*

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*Spades*, one of the most romantic pieces of music ever written, receives a performance from the veteran baritone Sergei Leiferkus that's so ravishing and eloquently phrased it left me wishing he'd been given more space on the disc. Galante also turns in a moving, nuanced version of Tatyana's Letter Scene from *Eugene Onegin*.

The Covent Garden orchestra is playing better than it has in years, and under the direction of the Estonian conductor Neeme Järvi, the music surges with emotion and glitters with seductive color. This generously filled CD would be an ideal introduction to the operatic Tchaikovsky except for one weakness: the booklet provides skeletal synopses of the plots instead of full texts and translations. *J.J.*

#### WAGNER Orchestral Music

National Philharmonic, Charles Gerhardt cond. (*Chesky 161, 78 min*)

★★★★

Charles Gerhardt has been a fixture on the classical and film-music recording scene for a good twenty years or more. Here he offers a well-packed and effective-

ly recorded anthology of orchestral excerpts from Wagner's operas.

The "Love Music" from *Tristan und Isolde* is substantially the same as the "symphonic synthesis" that Leopold Stokowski recorded for Columbia in 1960 on the occasion of his last performances with the Philadelphia Orchestra. For this recording the offstage hunt episode uses the full complement of ten horns, playing from a distant vantage point as Wagner specified, and it's a highly effective plus for a very short span of music.

In "Siegfried's Death and Funeral Music," from *Götterdämmerung*, Gerhardt takes his lead from Arturo Toscanini, performing his expanded concert sequence — again using the full orchestral forces called for by Wagner, with handsome sonic results. Stokowski is again the jumping-off point for "Wotan's Farewell and Magic Fire Music," from *Die Walküre*, though Gerhardt distributes Wotan's vocal line among the instrumental players more effectively than Stokowski did in terms of maintaining the musical flow and continuity. I am puzzled by the alien sound of an anvil at the point where Loge is summoned to ignite the Magic Fire, but "The Ride of the Valkyries" makes a properly rousing finish. This CD offers solid musicmaking, generous playing time, and consistently excellent sound quality. *D.H.*

## COLLECTION

#### SYMPHONIC BATTLE SCENES

Bavarian Radio Symphony, Lorin Maazel cond. (*RCA Victor 68471, 63 min*)

★★★★

While Tchaikovsky's *Capriccio Italien* doesn't exactly fit the "battle scene" sobriquet, the splendidly Italianate martial trumpet call at its beginning certainly establishes the right atmosphere for this collection. Lorin Maazel, with his unerring feel for orchestral coloration, elicits as fine and spirited a performance as anyone could want. In the *1812 Overture*, too, finely honed attacks contribute to a spirited performance complete with tracked-in bells, real cannons, and a sixty-piece military band.

Surprisingly, Beethoven's *Wellington's Victory* is done not with tracked-in cannons and musketry but with the nearest available approximation to the sound-effects devices employed in the December 1815 premiere, along with authentic natural trumpets for the field signals that precede the battle scene proper. The result is like seeing an antique print come to life.

Maazel and his forces go for broke in Liszt's bit of musical claptrap, *The Battle of the Huns*, with imposing organ sonorities at the close. The sonics throughout this showpiece recording pack plenty of brilliance and wallop. *D.H.*

## QUICK FIXES

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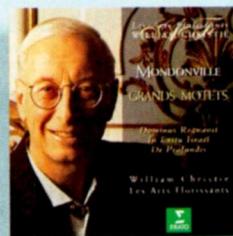
Voices of Ascension, Dennis Keene cond. (*Delos 3219, 77 min*) ★★★

The performances here are almost all solos by members of the small choir, with or without the assistance of other female singers. The approach is very simple, hewing closely to the unadorned single lines and texts that have come down to us from this medieval abbess, mystic poet, and inspired composer. Recordings of Hildegard by the Anonymous 4 or Sequentia are richer and show greater variety and a lot more passion, but the beauty of these ultra-pure performances is undeniable. *E.S.*

#### MONDONVILLE Grands Motets

Les Arts Florissants, William Christie cond. (*Erato 17791, 72 min*) ★★★

The motets of Jean-Joseph de Mondonville, a leading French violinist and composer of the eighteenth century, were popular items in his day. They are elegant yet theatrical, with



orchestral tone painting, dramatic cries from the chorus, recitatives, and operatic arias for the soloists. The performances here are a little cool, but the repertoire is fresh, the realization beguiling, with a sense of discovery and magic throughout. *E.S.*

#### LEILA JOSEFEWICZ

##### Violin for Anne Rice

Leila Josefowicz, violin; Academy of St. Martin-in-the-Fields, Neville Marriner cond. (*Philips 462 032, 71 min*) ★★★

The glamorous young violinist Leila Josefowicz inspired Anne Rice when she was writing her best-selling novel *Violin*. This CD offers a good sampling of her work, including such showpieces as the Tchaikovsky Violin Concerto, Sarasate's *Carmen Fantasy*, and Saint-Saëns's Introduction and Rondo Capriccioso, plus some excerpts and a couple of jarring pop pieces. *William Livingstone*

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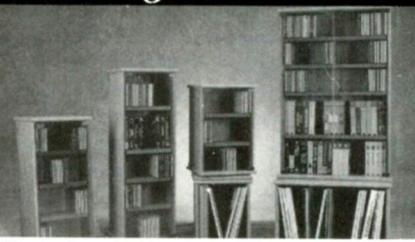
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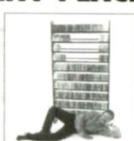
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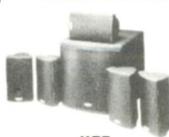
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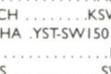
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# THE HIGH END

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## Aisle of White

AS A WRITER of color (one-sixteenth octoroon on my great-uncle Moishe's side), I feel it's my duty to jab my finger into the Man's chest and demand to know why all the music-oriented DVDs released so far feature whitey? There's so much classic black music out on video, and it's a crime that none of it has made it to DVD yet. Where's the DVD of the legendary *TAMI Show*, which includes the hottest footage ever shot of James Brown and the Famous Flames? Or the classic Motown stuff, which makes it to TV every now and then? I want a DVD of Sly and the Family Stone 1969! Where's the great Thelouious Monk documentary *Straight, No Chaser*? And Jimi Hendrix's full live set at the Monterey Pop Festival, or even Woodstock? I want the whole thing, in digital video and AC-3! I'd settle for a DVD of *Car Wash* at this point!

Now, as far as currently available music DVDs go, I'd say the dust hasn't quite settled yet. A while back in this space, I spoke of the learning curve today's recording engineers face as they begin producing music in 5.1-channel surround sound and how we'd probably see a lot of messing around before things settled down. I'm already seeing this with the first music DVDs that have come out — in terms of audio, they're all over the map.

Predictably, it's the classical music DVDs that play it strictly kosher — De-los's *DVD Spectacular* and Denon's DVD of Beethoven's "Eroica" Symphony and Chopin's Piano Concerto No. 2 both aim for a naturally realistic surround mix by panning the musicians across the front three channels only, saving the rear channels for hall reverb and ambience. It's no surprise that these two DVDs offer the most lifelike, you-are-there presentation, which is good because neither disc offers any video to go along with the music.

So far, none of the pop DVDs I've seen follows this surround philosophy, and everyone seems to have his own idea of how best to transfer what was once stereo music to a 5.1-channel soundtrack. Forget the Eagles and Fleetwood Mac reunion discs — if you like the way these ridiculously gimmicky mixes sound, just keep barking and clapping your front paws and Hollywood will keep tossing you more pickled mackerel just like them. A&M

produced a very cool demo DVD of remixed 5.1-channel rock videos from the likes of Soundgarden, Sheryl Crow, and Suzanne Vega, but I don't think it ever hit the stores, which is too bad — even though the mixes are spread all around the room, some of them, especially Soundgarden's "Blow Up the Outside World," sound really huge and meaty.

The *Eric Clapton Unplugged* DVD sounds okay, but I can't get over the fact that they're all sitting down. Who told these guys that "going acoustic" means you have to sit down while you play? I got news for you guys: Lightnin' Hopkins sat down because he was *old*, and because he smacked his guitar silly for 3 hours straight well into his 60s. So stand up already — this is rock-and-roll, not canasta.

Sony Music's otherwise excellent *Stevie Ray Vaughan and Double Trouble*:

**There's so much classic black music out on video, and it's a crime that none of it has made it to DVD yet.**

*Live from Austin, Texas* makes the oddest use of a six-channel Dolby Digital soundtrack I've heard yet from a music DVD: stereo left and right with no center-channel audio, along with a bit of front left/right trickled back into the surrounds. The music's great, but the audio presentation isn't all that different from straight stereo, which is a shame — given the live-performance setting, it would've been a natural for a front-music/rear-ambience mix.

Sony Music recently sent me a couple of music DVDs that really rock, though. If you love the *Sessions at West 54th* live-music TV series, you have to get the new best-of DVD — not only is the picture much, much sharper and cleaner than you've ever seen this show look before, but all the music has been expertly remixed for 5.1-channel surround sound, albeit with varying degrees of subtlety. The Wynton Marsalis track, for example, is pretty straightforward, but most of the rock tracks feature extra-wide panning that places some instruments in the sur-

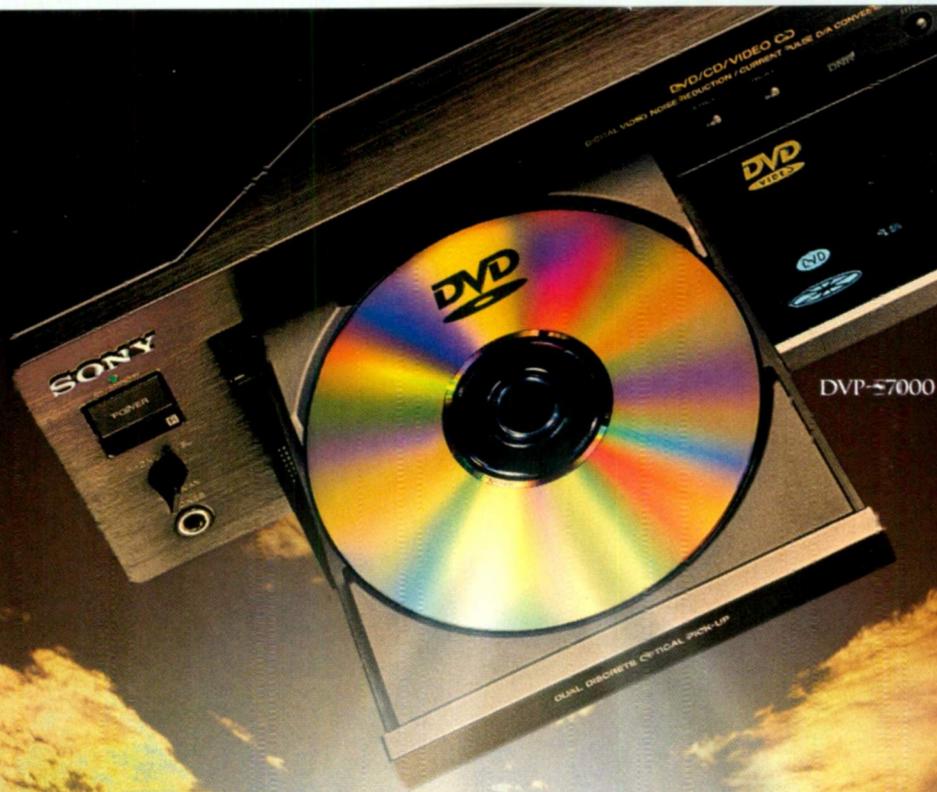
round channels. Still, the clarity and detail of the *Sessions* soundtrack are incredible to hear.

But if I could own just one music DVD from today's crop, it would have to be Sony's new *Message to Love*, the documentary of 1970's infamous Isle of Wight Festival, the British Woodstock wannabe. I love this DVD, but not because of the music, which rarely rises above the merely okay (the Who and Joni Mitchell are the only ones who don't embarrass themselves here). And certainly not because of the sound, which is stereo PCM only — Sony apparently didn't feel that remixing the soundtrack for Dolby Digital was worth it. No, the reason I love this disc so much is because it is hands-down the funniest, most cough-up-a-lung-hilarious DVD I've ever seen! I'm telling you, I watched this thing with some friends last week, and we were crying and pounding our thighs like a bunch of idiots.

Highlights: The sleep-deprived promoter who tries to be as one with the 500,000 hippies in the crowd but totally

loses his cool halfway through the five-day festival and starts furiously screaming at them through the PA between bands. Alvin Lee flying through the exact same speed-guitar lick that he played at Woodstock the previous summer, over and over again, except this time without shouting "Goin' home!" and "My babe!" into the mike every few seconds. And Emerson, Lake & Palmer lighting not one but two real cannons onstage (with flaming torches, no less) as they plow through a totally over-the-top intro to "Pictures at an Exhibition" that's all the evidence anyone would need to outlaw public displays of progressive rock forever.

Still, as fun as *Message to Love* may be, here's hoping that 1998 sees a label like Rhino or even Mobile Fidelity seize the opportunity and begin releasing DVDs of some of the rich, glorious footage of black musicians that's accumulated in the past fifty years. If jive turkeys like Oasis can score a DVD, certainly James Brown deserves equal time. □



THE PINNACLE OF PERFORMANCE...



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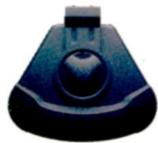
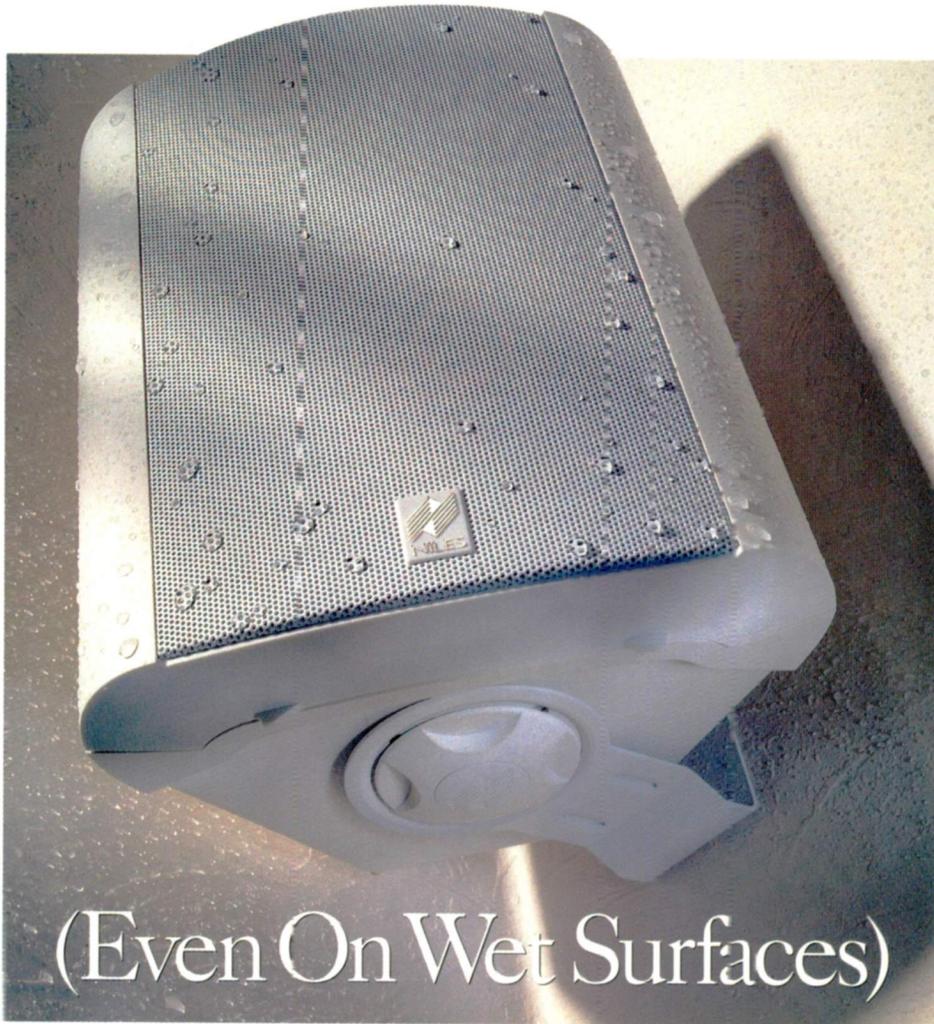
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