

# Stereo Review

JULY 1995 • US \$2.95 • CANADA \$3.95 • UK £1.95

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# Bad news.



Adcom's GFA-555II is no longer made.

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Adcom's new GFA-5500 continues the legend.

The Adcom GFA-555II power amplifier has been legendary among audiophiles and serious music listeners. It set the standard for high end sound at reasonable cost, consistently being compared to amplifiers costing two and three times as much. Now, after years of evolutionary development, its successor is available.

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for improved sound. And the really good news is that while providing all the punch and muscle of MOSFETS, they have a remarkable ability to sound as sweet as tubes.

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CIRCLE NO. 1 ON READER SERVICE CARD

# *The Road Kill Diaries*



**June 8**

**Wandered out into the road.**

**Heard music pounding.**

**Figured I had time to cross.**

**Didn't.**

**PIONEER SUBWOOFERS.** Nothing says "move it or lose it, varmint" like raw bass pounding out your window. Our subwoofers are designed with specially blended materials to handle up to 450 watts of pure power. They also come in a variety of car-friendly shapes and sizes. So, go ahead and put a ton of bass in your system. And give nature a chance to dig that crazy beat. Call 1-800-PIONEER for a dealer near you.

The ten second pitch.

Acoustic Research invented the modern home loudspeaker in 1954.

For over forty years, they have been the leader in bookshelf loudspeaker design, technology and sound reproduction.

To this day, you can not buy a better loudspeaker for the money. ■

The two minute pitch.

AR loudspeakers are designed for optimum performance in real world use.

Their sound patterns are designed to interact with the boundaries in your home – doors, bookshelves, walls, furniture – so they are less particular as to their exact placement.

Their wide baffle design and exposed dome drivers produce a wide and consistent sound field, resulting in a proper tonal balance from more listening positions throughout the room.

Due to their true *acoustic suspension technology*, they produce stunningly powerful and accurate bass from relatively small cabinet enclosures.

They are high-value, no compromise loudspeakers engineered with the essential materials and technology needed to reproduce superior sound. ■



■  
■  
■  
We wrote the book on the bookshelf loudspeaker.



The all day pitch.

No company in the history of audio has done more to improve the sonic accuracy of musical reproduction in the home than Acoustic Research.

For forty years, AR's sound philosophy has centered on the belief that technical innovation would only be incorporated for the benefit of tonal accuracy - not at its expense.

AR's design philosophy remains to this day, to focus and improve on the fundamental speaker technology needed to reproduce music as accurately and beautifully as the original source.

For AR, this means flat frequency response. Wide dispersion. Low distortion. High power handling. Exceptional bass extension. Musicality.

AR began its journey to capture sonic accuracy in

1954 with the introduction of *acoustic suspension technology*, an innovation which truly revolutionized the audio industry. Prior to AR's acoustic suspension design, loudspeaker technology primarily utilized some form of vented or baffled enclosure where a relatively stiff mechanical spring force was applied to the moving cone

to return it to its resting position. This spring force tended to become increasingly non-linear in its action as cone movement increased from either higher output levels, lower frequency, or both.

In order to reproduce lower bass at higher output, large woofers were needed, resulting in larger cabinets. In addition, the large cones become more massive, and in order to maintain reasonable efficiency without an enormously costly magnet structure and voice coil assembly, cones had to be designed with low density. The net result was the loss of stiffness which resulted in driver "break-up" and uneven frequency response with resonance, thus trading one form of distortion for another.

AR's solution was the revolutionary AR-1, the first loudspeaker to use the air compressed inside the sealed enclosure to control the excursion (movement) of the woofer. The woofer was given a very "soft" mechanical suspension, including the now legendary "half-roll" surround. The voice coil and magnet pole piece were redesigned for long excursion while a very stiff cone was fabricated for rigid, piston-like action. The woofer was then mounted in an airtight enclosure. The trapped air within the speaker cabinet exerted consistent pressure on all points of the woofer to precisely and evenly control and dampen the woofer movement. The result of this *acoustic suspension* design was reduced distortion and greater bass response in a substantially smaller speaker enclosure.

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- The Multi-Driver Vertical Array Loudspeaker
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- The Ambient Subsystem Loudspeaker
- The Powered Partner

For the AR dealer nearest you, call 1-800-969-AR4U.



Cover

Five of the ten outdoor speakers we tested in "The Patio Challenge" (page 58): clockwise from top, the Pioneer CSL-70E, NEAR AEL-1.4, JBL ProIIAW, Bose Model 151, and Polk Audio AW/M5. The lawn sprinkler and garden hose are from Smith & Hawken.

Photograph by Dan Wagner

# Stereo Review

INCORPORATING HIGH FIDELITY

JULY 1995

## Bulletin

The autosound business, JVC Jazz, music on the Internet, Digital Satellite System, and more

## User's Report

Digital Music Express. *by Rebecca Day*

## Equipment Test Reports

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## Rodriguez Caption Contest

Another witty reader wins the gold!

## Home Improvement

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## Shopping Smart

A low-stress guide to buying better. *by Bernard R. Kingsley*

## The Patio Challenge

10 speakers for the great outdoors. *by Tom Nousaine*

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How to select the ideal partner. *by Edward J. Foster*

## Collectibles

20 movies you'll watch more than once. *by Steve Simels*

## Best Recordings of the Month

The Tokyo Quartet plays Debussy and Ravel, Elvis Costello covers the field in "Kojak Variety," Simon Rattle finds subtlety in Liszt's *Faust Symphony*, and Linda Ronstadt "Feels Like Home"

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RLC-1 Review  
Julian Hirsch  
Stereo Review, Jan '95



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Beetlejuice	0633008
Pink Floyd: The Wall	*1293802

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Philadelphia	*1251404
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Unforgiven (1992)	*1084003
Maverick	*1297209
The Fugitive	*1197706
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Wolf	*1314905
Total Recall	*1286103

Aliens	0360909
Allen	0000208
Alien 3	*1042506
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Monty Python And The Holy Grail	*0192005
The Paper	*1285501
Rambo: First Blood	*0650309
The Sound Of Music	*0003905
Unforgiven (1992)	*1084003
Hard Target	*1179605
Dragon: The Bruce Lee Story	*1150705
The Wizard Of Oz	0001404
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Batman Returns	*1029909
Goodfellas	*0969808
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Back To The Future Part II	*0921304
Back To The Future Part III	*0497008
Scent Of A Woman	*1121300
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Conan The Barbarian	*0220509
Home Alone 2: Lost In New York	*1104900
Patriot Games	*1051309
Backdraft	*0559005
The Last Of The Mohicans (1992)	*107*406

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The Bodyguard	*1105907
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On Deadly Ground	*1251909
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Star Trek II: The Wrath Of Khan	*0201301
Star Trek III: The Search For Spock	*0201608
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Star Trek VI: The Undiscovered Country	*1001007
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Guarding Tess	*1299700
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Chinatown	*0202507
Grumpy Old Men	*1251503
2001: A Space Odyssey	*0844308
The Naked Gun 33 1/3 - The Final Insult	*1286707

NEW RELEASES

Big	*1336601
The Shadow	*1297001
A Clockwork Orange	*1356005
Ladyhawke	*1356302
The Mosquito Coast	*1356401
Richie-Rich	*1353705
Priscilla Queen of the Desert Academy Award® Nomination: Best Costume Design	*1345206
The Pagemaster	*1338409
32 Short Films About Glenn Gould	1337005
The River Wild	*1336304
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It Could Happen To You	*1332006
In the Name Of The Father	*1247709
The Running Man	*1316108
Witness (Remastered)	*1315407
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Time Bandits (Remastered)	*1330109
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# BULLETIN

BY BOB ANKOSKO  
AND WILLIAM LIVINGSTONE

## JVC JAZZ

The 1995 JVC Jazz Festival New York will be held from June 23 to July 2. JVC Jazz Worldwide will feature events in Paris, Rome, Turin, London, The Hague, and Newport, RI. In the United States, JVC Jazz on Tour includes events in Atlanta, Chicago, Dallas, and Hollywood. For information or a Festival brochure call 212-787-2020 or write to JVC Jazz Festival, P.O. Box 1169, Ansonia Station, New York, NY 10023.

This year the National Arts Club, based in New York City, created a new award, the Governors Medal for Patrons, for corporations and individuals who support the arts. The first recipient of the Medal is JVC, honored for bringing the JVC Jazz Festival to American culture.

## DSS SALES SOAR

Noting that it took four years for the compact disc to crack the million-unit sales mark and eight years for color TV, RCA announced that one million Digital Satellite

System (DSS) receivers had been manufactured and more than 600,000 installed in U.S. homes — a mere ten months after the DSS launch last summer. The company also previewed its second-generation DSS receiver, due later this year, featuring enhanced on-screen graphics.

Meanwhile, Sony announced its entry into the DSS market with three satellite receiver/dish packages: the single-output SAS-BS1 (\$749), to be available in June, and the dual-output SAS-BD1 (\$849) and SAS-AD1 (\$949), both slated for release in August. The top-of-the-line SAS-AD1 features a low-speed data port, a programmable recording timer, and a programmable remote control. Toshiba, Uniden, and Hughes Network Systems (HNS) are expected to introduce their DSS products next year.

## A/V DIGEST

The winner in the sound category of *Discover* magazine's sixth annual Discover Awards for Technological

Innovation was the ingenious Bose Auditioner, a computer system that enables engineers to use architectural specs to actually hear how a building, such as an auditorium or airport concourse, will sound before it is erected — and to adjust the acoustics in the space. Among the finalists were Snell's Digital Room Correction System, Yamaha's Silent Series pianos, and SRS Labs' Vivid 3D Sound Retrieval System. . . . Mitsubishi plans to re-enter the audio market next year with a line of A/V receivers, amplifiers, speakers, and possibly other components. . . . Sales of consumer audio equipment reached a new high in 1994, topping \$8 billion wholesale, according to the Electronic Industries Association. The figure includes aftermarket car stereo and portable components.

## NET SURFING

Said to be the Internet's first rock-and-roll magazine, *Addicted to Noise* is now on the World Wide Web at <http://www.addict.com/ATN/>.

BMG Classics claims creation of the Internet's first dedicated resource for classical music, "Classics World," also resident on the World Wide Web. Internet users with a Web browser can reach Classics World at <http://www.classicalmus.com>.

## PBS MUSIC

Bang-up musical coverage on PBS this month includes the annual Fourth of July special "A Capitol Fourth (1995)," to be broadcast live from the West Lawn of the U.S. Capitol with fireworks over the Washington Monument. The 90-minute program by the National Symphony Orchestra conducted by Erich Kunzel will feature pop performers Leslie Uggams and Rita McKenzie, soprano Sylvia McNair, opera star Gregg Baker, the U.S. Air Force Singing Sergeants, the

Navy Sea Chanters, and the Old Guard Fife and Drum Corps. . . . On July 25 the Live from Lincoln Center series will present the opening concert of this year's Mostly Mozart Festival, to be conducted by Gerard Schwarz with the pianist Alicia de Larrocha and the violinist Gil Shaham as soloists. On July 26 there will be an "In the Spotlight" special on Mary Chapin Carpenter. Check local listings.

## CLASSICAL NOTES

Among those granted honorary doctoral degrees by the Juilliard School of Music this year are the soprano Teresa Stratas and the conductor/pianist Daniel Barenboim. . . . BMG Classics/RCA Victor Red Seal has signed a long-term exclusive contract with the conductor Michael Tilson Thomas, who succeeds Herbert Blomstedt as the music director of the San Francisco Symphony this year. That orchestra is leaving London Records to return to RCA. . . . Following the example of Elizabeth Taylor, Cher, Catherine Deneuve, Omar Sharif, and Michael Jackson, the operatic superstar Luciano Pavarotti is launching a line of celebrity fragrances. The Luciano Pavarotti for Men line of after-shave, cologne, and so forth has already been introduced in England and is due any minute in the United States along with a women's counterpart.

## BESTSELLERS

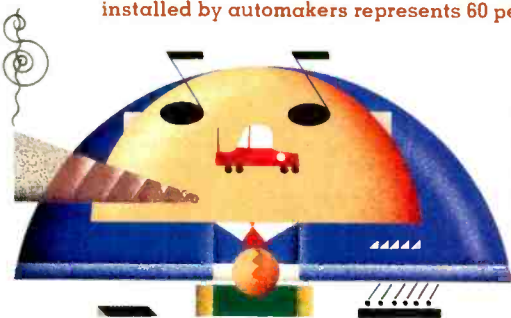
The RIAA announced that the value of domestic shipments of prerecorded music and music videos exceeded \$12 billion in 1994, a record 20 percent increase over the previous year. RIAA figures also reveal that Garth Brooks's "No Fences" has sold 13 million units, the all-time high for a country album. Combined sales of Brooks's RIAA-certified titles now exceed 51 million. □

## AUTOSOUND: A BIG BIZ

So you think car stereo stuff is small potatoes, eh? Think again. U.S. sales of mobile audio gear — including in-dash cassette and CD players, CD changers, speakers, and amplifiers — are expected to top \$5.3 billion this year, according to the Electronic Industries Association. Audio equipment installed by automakers represents 60 percent of this total;

more than 95 percent of domestic cars roll off the assembly line these days with a stereo system of some kind. As for the \$2.2 billion worth of car stereo components expected to be sold at retail this year, the

EIA anticipates sales of in-dash CD players to shine, with a 25-percent increase over last year. Car CD sales continue to climb — one in ten U.S. households already owns at least one in-dash CD player and one in twenty a car CD changer.





# With Cinema DSP, you'll be amazed at what comes out of the woodwork.

Bats screech overhead. Wolves howl in the distance. And footsteps crunch across your living room floor.

No, it's not your imagination. You're hearing sounds placed around the room, just as the director intended.

All courtesy of Yamaha Cinema DSP. The home theater technology that gives dialogue more definition. Music, more dimension. And sound effects, more graphic detail.

Only Yamaha Cinema DSP creates phantom speakers that fully replicate the experience you get in multi-speaker movie theaters. It sounds so real, in fact, you'll swear you hear sounds in places you don't even have speakers.

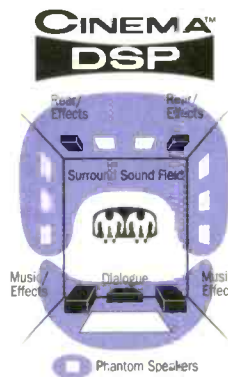
As you might imagine, a breakthrough like this is no small feat. It's accomplished by multiplying the effects of Digital Sound Field Processing and Dolby Pro Logic.<sup>®</sup>

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# LETTERS

## Troubleshooting

Daniel Kumin's article on A/V system troubleshooting in June was great! Thank you. After reading it, even the most nontechnical "can't fix anything" bumpkin with ten thumbs should at least have the gumption to look for what's wrong with his equipment without fear of causing an earth-shattering cosmic meltdown — instead of taking the (probably not broken in the first place) equipment to some fly-by-night repair emporium that will charge a princely fee for replacing a 25¢ fuse. I have given copies of the article to many of my friends, and they love me for it and have put it to good use.

ROB SARGENT  
Brooklyn, NY

## EAD's AC-3 TheaterMaster

We appreciate David Ranada's comprehensive review in June of the TheaterMaster, the world's first high-end digital-to-analog (D/A) converter with AC-3 surround-sound decoding. We are gratified that he found the TheaterMaster to be "loaded with outstanding audio performance and exceptional versatility."

Regarding his comments about the TheaterMaster's ergonomics, it's true that some of the setup procedures are not intuitive, but we'd like to point out that these functions are meant to be implemented *one time only*, when you first install the TheaterMaster in your system. After setup, daily use of the TheaterMaster is as simple as turning the unit on, selecting the desired input, and adjusting the master volume control. Anyone can operate it, even without seeing the manual.

Finally, regarding AC-3 playback, we share Mr. Ranada's view that "if you hear one new audio technology this year, it must be Dolby Surround AC-3." But since his impression of AC-3 was formed using the TheaterMaster, it is important to note that AC-3 will not sound the same in all implementations. The TheaterMaster is a high-end component, incorporating some of the finest materials available and a no-compromise design philosophy. Not all AC-3 decoders will sound like the TheaterMaster.

BEN GOSVIG  
General Manager  
Enlightened Audio Designs  
Fairfield, IA

## Hearing Limitations

After reading Julian Hirsch's "Unrealistic Expectations" in May ("Technical Talk"), I thought about my experiences with stereo equipment, especially speakers, over almost

twenty years. I listened to dozens of different models in various price ranges. None of them sounded "right"; all but two seemed to have little bass, lots of midrange, and no treble, no matter what the listening environment. I wondered what was wrong.

Then one day, when I started a new job, I took a required hearing test. Imagine my shock at finding that the frequency response of my ears is only 100 Hz to 5 kHz, with nothing at all below or above those limits — the result of a youth filled with circular saws, electric drills, and gasoline-powered lawnmowers, and a summer factory job without ear protection eighteen years ago.

I'm not advocating hearing tests for all audiophiles, but as far as "unrealistic expectations" go, it doesn't matter how much money one may be willing to spend in pursuit of perfection if one's own ears can't tell the difference between "low-fi" and "hi-fi." At least now I'll save money not buying high-end equipment. DENNIS A. WATTS  
Westfield, MA

## Digital Home Theater

I enjoyed Michael Riggs's article on the evolution of home theater systems ("Digital Surround Comes Home," May), but I don't understand why there was no mention of Home THX. I'm still not clear on the difference between Dolby Pro Logic and THX.

CHRIS BURNS  
Rockford, IL

*Home THX controllers apply specific additional processing to the outputs of a surround decoder, which could be either Dolby Pro Logic or Dolby Surround AC-3. The processing is designed to make the sound a closer match to that heard by the engineers who mixed the soundtrack. Thus, every current Home THX controller or receiver includes a Dolby Pro Logic decoder that is active whenever the THX Cinema mode is engaged. For a complete explanation of Home THX, see Tomlinson Holman's article in our April 1994 issue.*

## Nick Lowe

Ron Givens (May "Popular Music" reviews) should give Nick Lowe's "The Impossible Bird" another listen. Lowe has teetered on the edge of country in the past, and this time he's jumped in all the way, exhibiting an outstanding country voice. I admit that at first listen it's kind of like having someone put pizza in your mouth when you were expecting ice cream, but that doesn't mean it isn't great pizza. Lowe's versatility is an asset — how can Mr. Givens fault

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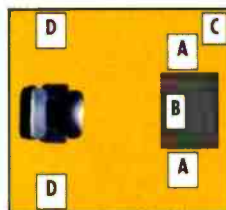
“You want your home theater system to perform as well with music as it does with movies. In fact, you’ve told me that you will continue to spend more time listening to music than watching movies. So to create the ultimate home theater, I started with the LS90 loudspeaker, recognized for its audiophile-quality music performance. Through innovative technologies, I can now give you that same level of sound quality in the center speaker, the surround speakers and the powered subwoofer. Outrageously exciting home theater and audiophile quality performance at affordable prices. One system. Movies *and* music.” *Matthew Polk*

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*Matthew Polk*  
Co-founder, Polk Audio

Onkyo's new DSP  
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offers up to  
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processing  
capacity



Onkyo introduces the next generation of Home Theater receivers and amplifiers equipped with the new Motorola 56004 Symphony DSP chip.



The new Motorola DSP Chip found in Onkyo Home Theater components offers 50 - 100% increased processing capacity over typical DSP chips used today.

The chip's 24-Bit data path makes it far superior to the 16-Bit formats of other DSP processors. Running at 50 MHz, the 56004 DSP can execute 25 million instructions per second (MIPS) using three separate buses to access commands and data simultaneously. This makes it the ideal digital engine not only for today, but for the future of digital sound as well.

The integrity of the Motorola 56004 Symphony DSP is assured by the high quality design of Onkyo components. Oversized transformers, individual power supplies, discrete output stages, and full digital Dolby Pro Logic decoding all combine to deliver flawless reproduction of the most complex soundtracks.

him for not pumping out the same rock-and-roll twenty albums in a row?

"The Impossible Bird" also demonstrates Lowe's ability to write beautiful melody lines — what a lost art *that* is. What Mr. Givens describes as "plain" are songs played without all the Cheez Whiz processing so commonly used by "songwriters" to hide the absence of real melodies.

The only problem I see with the diversity of Lowe's albums is the inconvenience to record stores that need to categorize music, but he crosses over with such authoritative flair that maybe they could just put him in a section labeled Indelibly Cool.

JEANNE YEAGLEY  
El Segundo, CA

### Laserdisc Upgrade

Michael Riggs said in "Digital Surround Comes Home" that there are no manufacturers who will add an AC-3 output to someone's existing laserdisc player. MSB Technology Corporation (14251 Pescadero Rd., La Honda, CA 94020; telephone: 415-747-0271) will modify an existing laserdisc player by adding an AC-3 output for \$385 plus shipping. A one-year warranty is offered on the new output.

MICHAEL KAZONIS  
Amherst, MA

*Michael Riggs replies: I was speaking only of equipment manufacturers themselves. It's good to know there is some place people can turn to for this service, though. The asking price seems a little high given that only a few dollars' worth of parts is required, but no custom service comes cheap these days.*

### Cassette Head Alignment

In May "Letters," a reader asked why head alignment is such a problem in cassette decks. The reply stated that "part of the problem is that the precision of azimuth alignment required . . . is very high on the narrow tape used for cassette recording."

Actually, the narrow track width isn't a problem when it comes to azimuth alignment. All else being equal, the narrow tracks used in audio cassettes make azimuth alignment *less* critical.

AL LOTZE  
Brookdale, CA

*Oops! You're absolutely right. The problem is the slow recording speed of cassettes, not the tape width.*

### DSS Convert

Regarding "DSS Pros and Cons" in April "Letters," here is a "pro" for DSS! For the last three months my DSS system has performed as advertised, crystal-clear picture and excellent sound without rain or snow fade. During one storm we had 33 inches of snow in 19 hours, and the picture never faltered. I am getting an 80 reading on my signal meter, and that is up from 76 at installation. Maybe reader William Hinson's cable system is first-rate, but ours is bottom-of-the-line, and there was no upgrade in sight (small rural systems are not very profit-

able). As you drive around our valley, it is very evident that the satellite dish is in — DSS, PrimeStar, and full-size — with cable being the loser.

DOUG STEPHENS  
Paris, ID

### Authentic "Messiah"

Jamie James, in his review of a King's College Choir recording of *Messiah* (April), complains that "for a while it seemed as though the soprano arias were irrevocably lost to countertenors, who are about as authentic for *Messiah* as synthesizers." I know that countertenor Randall Wong has performed *Messiah*, but I don't believe he has recorded it. Actually, I don't know of any recorded *Messiah* with a countertenor singing the "soprano" solos. Perhaps I need to get out more.

Also, in classical "Quick Fixes" (same issue), Mr. James states that soprano Nancy Argenta is British. She is Canadian.

GARY A. DAY  
Saskatoon, Saskatchewan

### Is DAT Here to Stay?

In the April issue I noticed the absence of any mention of DAT decks in either "New Products" or "CES Showstoppers." You did mention MD and DCC, however.

Is DAT here to stay, and is it a popular system? I am considering the purchase of a DAT deck to replace an open-reel tape deck for recording jazz programs from FM radio. DAT's high quality and 2-hour playing time are important considerations. Is the DAT format a worthwhile investment, or is it becoming obsolete? JAMES A. RUSSELL, JR.  
Dunbar, WV

*Although new models come along relatively infrequently, DAT is very well entrenched, especially in professional audio. We don't think you need to worry about its disappearing anytime soon.*

### Finding George Shearing

Where can I purchase the five-CD boxed Mosaic Records set, "The Complete Capitol Live Recordings of George Shearing," that Chris Albertson reviewed in April? I have been unable to find it in the major local record stores.

GALVIN CHAN  
San Jose, CA

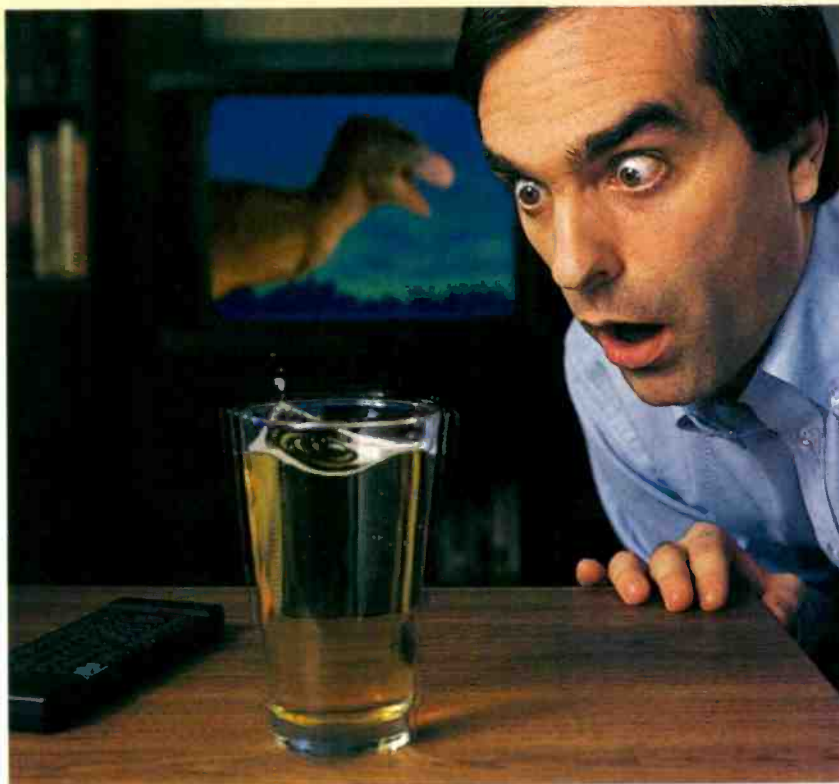
*It can be ordered directly from Mosaic at 35 Melrose Pl., Stamford, CT 06902; telephone 203-327-7111.*

### Correction

The Niles OS-10 indoor/outdoor speaker system, reviewed in the June issue, is available in black as well as white. □

We welcome your letters. Please address correspondence to Editor, Stereo Review, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

Which is  
important  
if you're a  
T-Rex



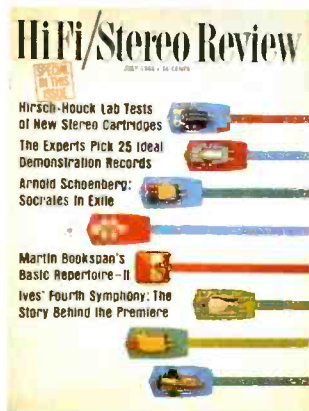
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# TIME DELAY



## 30 Years Ago

In his July 1965 editorial, William Anderson described the music he'd heard on an excursion to the New York World's Fair — Spanish flamenco, Polynesian songs and dances, a German brass band, Caribbean calypso. "We should all be prepared to discover and enjoy many more kinds of music than we usually restrict ourselves to," he concluded.

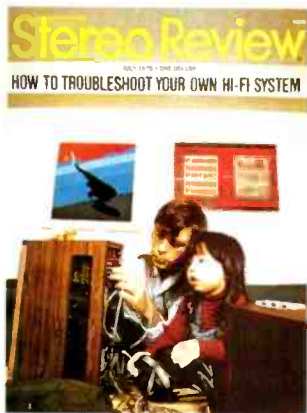
New products this month included the Kenwood TK-80 80-watt receiver, with a frequency response of 20 to 60,000 cps [Hz]  $\pm 1$  dB, the Uher 9000 stereo tape deck, and Microtran's HD-15 bulk tape eraser. In the cover story, Julian Hirsch and Gladden Houck examined eight new stereo phono cartridges ranging in price from \$19.95 (the Dynaco Stereodyne III) to \$75 (the IMF MkIII). As for what to play with those cart-



Microtran's HD-15, 1965

ridges. Furman Hebb and Larry Klein picked twenty-five stereo demonstration records. Among their favorites: Fritz Reiner's RCA disc of Strauss's *Also Sprach Zarathustra*.

Nowhere Man: Reviewing "The Early Beatles," critic Gene Lees wrote, "They sound like an imitation of an American rhythm-and-blues or rock-and-roll group, and a pretty dull one at that."



## 20 Years Ago

For July 1975, Peter Sutheim and Larry Klein prepared foldout flow charts for troubleshooting stereo systems. They also advised: "When all else fails . . . try reading the instruction manuals." The cover showed associate technical editor Ralph Hodges demonstrating the techniques to his daughter, Justine.

Among the new products this month were Advent's Model 400 mono FM radio, Allison's Model One speaker system with two 10-inch woofers, and the Technics SL-1350 turntable, then the only available automatic record changer with a direct-drive motor. In test reports, Hirsch-Houck Labs looked into Concord's CD-1000 cassette deck, whose sound was described as "above reproach,"



"The Early Beatles," 1965

and the Koss Phase/2+2 four-channel headphones, which gave "a remarkable 'surround-sound' effect."

In Best of the Month, Richard Freed endorsed pianist Jean Phillippe Collard's performance of Fauré's *Nocturnes* on Connoisseur Society ("a distinguished release"), and Noel Coppage was impressed by Mickey Newbury's "Lovers" on Elektra ("a singular mystique of a high order"). Elsewhere in the review sections, Chris Albertson pondered Marlena Shaw's "Who Is This Bitch, Anyway?" and concluded, "She would love to be Roberta Flack." And Paul Kresh was spooked by a quadraphonic Philadelphia Orchestra/Eugene Ormandy album of familiar overtures, noting that he "feared it might never be possible to move the living-room walls back into place."

Goring the Ox Department: In Letters, reader Thomas Magee, of Mission Hills, California, took exception to Steve Simels's tongue-in-cheek comparison of jazz great John Coltrane to "a second-year sax student wasted on Seconal."

The Koss Phase/2+2, 1975



noting that "If Mr. Simels had said 'pre-1967 Pharoah Sanders,' it would have been a different story."

## 10 Years Ago

As part of the issue's CD theme, Daniel Sweeney offered an overview of the history and likely future of compact disc

technology. In companion features Fred Petras examined a variety of second- and third-generation players, and David Ranada discussed the advantages and disadvantages of their digital and analog output filters. New products



previewed included Radio Shack's Archer Video/Audio control center, for switching between up to six audio and video components, and Sansui's SV-M25 color video monitor/receiver with a high-resolution 25-inch picture. Test reports included the Rich Acoustic 7B speaker system and Sony's CDP-520ES CD player, which Julian Hirsch called "a top contender in a crowded field."

Coming soon — Madonna Unplugged at the Gap? Reviewing "Wham! The Video," critic Louis Meredith dismissed it as another example of "the trend toward blurring the distinctions between rock videos and commercials for designer clothing."

— Steve Simels

Sony's CDP-520ES, 1985





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*- Audio Ideas Guide on the Eclipse/BP*

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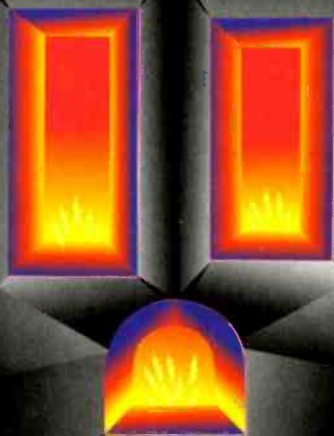
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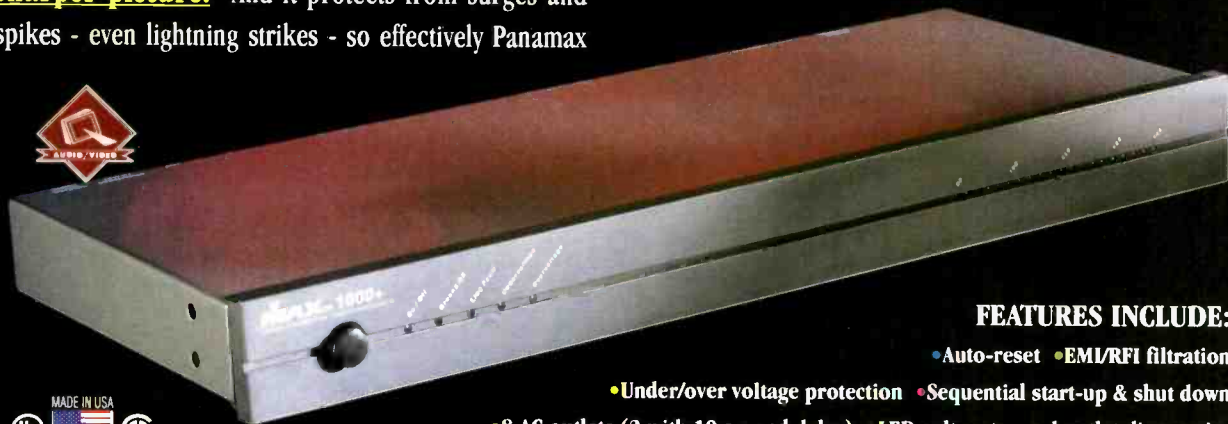
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# NEW PRODUCTS

## ▼ McINTOSH

McIntosh's MR7084 AM/FM tuner features a selectable Spatial circuit that's designed to produce a stereo effect from mono AM and weak FM signals and to widen the stereo image from strong FM signals. You can store fifty AM or FM presets in memory and cycle

through them by hitting the Review button, which engages a scan mode. Channel separation in FM is given as 50 dB. Price: \$1,300. McIntosh Laboratory, Dept. SR, 2 Chambers St., Binghamton, NY 13903-2699.

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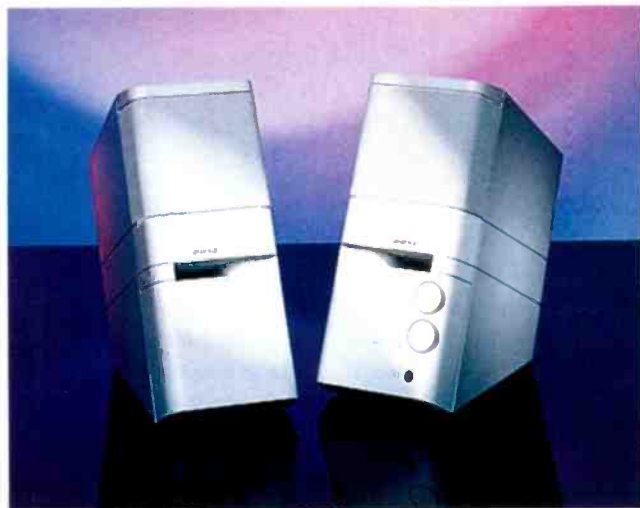


## ▼ BOSE

Designed for use with sound-card-equipped computers, Bose's MediaMate powered speaker system comprises two 7½-inch-tall enclosures, each of them housing a magnetically shielded 2½-inch driver. One of the platinum-colored cabinets also

contains a stereo power amplifier with two inputs, a master volume control, a mix control (for blending two sources), and a headphone jack. Price: \$339 a pair. Bose, Dept. SR, The Mountain, Framingham, MA 01701-9168.

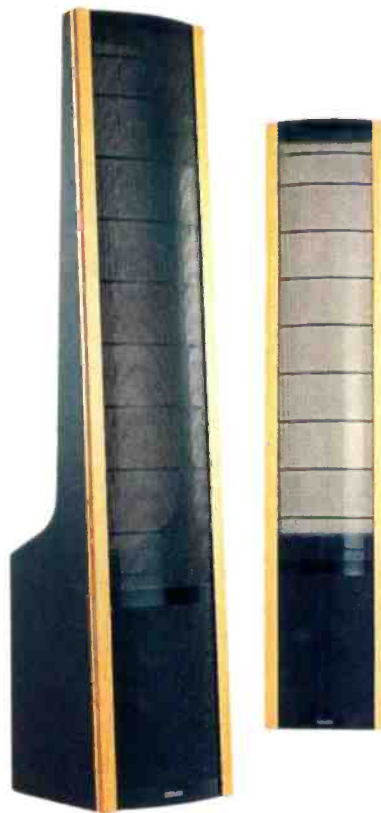
• Circle 122 on reader service card



## ▲ MARTIN-LOGAN

Martin-Logan's 64-inch-tall SL3 speaker uses an electrostatic diaphragm — a clear polyester-film membrane sandwiched between two conductive perforated-metal panels — to reproduce frequencies above 250 Hz and a 10-inch woofer in a sealed enclosure to handle frequencies below that point. Frequency response is given as 30 Hz to 24 kHz ±2 dB, horizontal dispersion as 30 degrees, sensitivity as 89 dB, and power-handling capability as 200 watts. Price: \$3,195 with frame in oak (shown) or black; other finishes are available at extra cost. Martin-Logan, Dept. SR, P.O. Box 707, Lawrence, KS 66044.

• Circle 121 on reader service card



## ▲ NUREALITY

Using patented Sound Retrieval System (SRS) technology licensed from SRS Labs, NuReality's Vivid 3D Theater processor is said to create a three-dimensional effect with only two speakers as well as enhancing the realism of multi-channel Dolby Pro Logic surround playback. Both mono and stereo

sources can be processed. A Space control adjusts the apparent width and depth of the sound field, and a Center control emphasizes the vocals or dialogue. Price: \$249. NuReality, Dept. SR, 2907 Daimler St., Santa Ana, CA 92705-5810.

• Circle 123 on reader service card

# NEW PRODUCTS

## ▼ FULTRON

Fultron's MX300 car amplifier is rated to deliver 150 watts per channel into 4 ohms or 240 watts per channel into 2 ohms, both continuous. Output in bridged mono mode is 300 watts into 4 ohms. The MX300 has a low-pass

filter that's continuously variable from 40 to 150 Hz, a 120-Hz high-pass filter, and bass and treble controls. Price: \$440. Arthur Fulmer, Dept. SR, P.O. Box 177, Memphis, TN 38101-9988.

• Circle 124 on reader service card

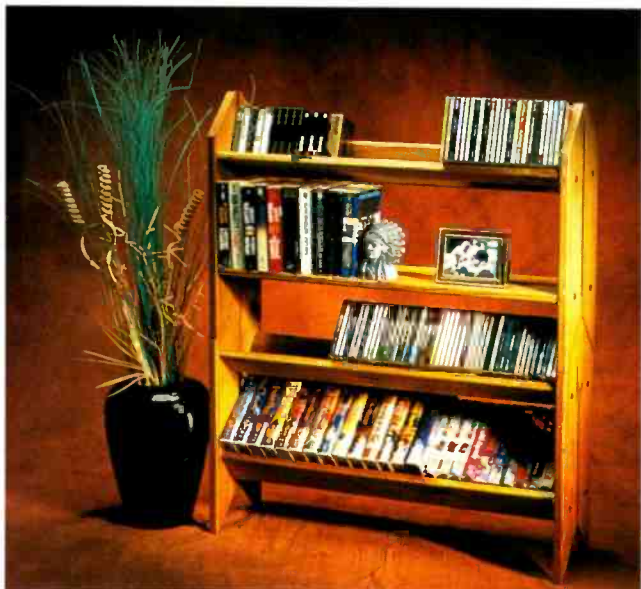


## ▼ NAPA VALLEY

Napa Valley's modular Rocket 2 storage unit, made of Radiata pine with a linseed-oil finish, holds up to 280 CD's or 112 videotapes. The ready-to-assemble kit consists of two stackable Rocket 1 units, each of which has two adjustable shelves.

Assembly requires only the supplied Allen wrench and screws. Price: \$70. Rocket 1 units are available separately for \$40 each. Napa Valley Box Co., Dept. SR, 11995 El Camino Real, Suite 300, San Diego, CA 92130.

• Circle 126 on reader service card



## ▲ ROCK SOLID SOUNDS

The Home Cinema Monitor (HCM) series from Rock Solid Sounds includes the 8-inch HCM 2 (\$99) and 9-inch HCM 1 (\$199 with stand) two-way front/surround speakers and the 14-inch-square Solid Power Bass subwoofer (\$399), which

packs a crossover and a 70-watt amp and is rated down to 38 Hz. The HCM 1 and HCM 2 come in black or white. Rock Solid Sounds, Dept. SR, P.O. Box 8, North Reading, MA 01864-0008.

• Circle 125 on reader service card



## ▲ CARVER

Carver's A-400x THX-certified two-channel power amplifier is rated to deliver 200 watts per channel into 8 ohms, 300 watts per channel into 4 ohms, or 600 watts into 8 ohms in bridged mono mode (all with less than

0.2 percent distortion). Dynamic headroom at 1 kHz (8 ohms) is given as 2 dB. Rack handles are optional. Price: \$485. Carver, Dept. SR, P.O. Box 1237, Lynnwood, WA 98046.

• Circle 127 on reader service card



## ▲ H45 TECHNOLOGY

With H45's battery-powered CD-FM stereo transmitter, you can play a portable CD player through any FM radio — home or car — without running wires. Just plug it into the player's headphone jack and tune the radio to one of

ten frequencies to pick up the signal. Available for \$39.95 (plus \$3 shipping) from H45 Technology, Dept. SR, 415 Clyde Ave., Suite 106, Mountain View, CA 94043; 415-961-9114.

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Stereo Review

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# NEW PRODUCTS



## ◀ MTX

MTX's PSW-101B powered subwoofer combines a 12-inch driver, an adjustable two-way crossover, and a 100-watt amplifier in a 16 $\frac{3}{4}$  x 18 x 18 $\frac{3}{4}$ -inch cabinet finished in black ash veneer. It accepts low-level inputs and has a phase switch and an output-level control. Bandwidth is given as 36 to 150 Hz. Price: \$400. MTX, Dept. SR, 4545 E. Baseline Rd., Phoenix, AZ 85044.

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## ▲ SAMSUNG

Samsung's VR-8905 four-head VHS Hi-Fi VCR is one of the first equipped to receive the StarSight on-screen program guide, available in an estimated 98 percent of American homes for a monthly fee. The service displays a colorful grid listing seven days'

worth of TV-program details and facilitates one-touch recording and one-button access to on-air programs, among other features. Price: \$549. Samsung, Dept. SR, 105 Challenger Rd., Ridgely Park, NJ 07660-0511.

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## ▲ HIFONICS

Hifonics offers six versions of its Atlantis Series I car speaker kit, each featuring two woofers with grilles and trim rings, two 1-inch soft- or aluminum-dome tweeters with hardware for surface or flush mounting, and two computer-aligned passive

crossovers. Shown is the HSDK4 kit (\$315) with 4-inch woofers; rated bandwidth is 180 Hz to 25 kHz, and power-handling capability is 60 watts. Hifonics, Dept. SR, 501 Broad Ave. S., Ridgely Park, NJ 07657.

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## RUARK ▶

Ruark's Paladyn speaker teams a 1-inch fabric/silk-dome tweeter, an 8-inch magnesium-basket woofer, and a second-order crossover in a 35-inch-tall bass-reflex cabinet finished in walnut, oak (as shown, but with beige grilles), or black ash wood veneer. Low-frequency limit is given as 38 Hz, sensitivity as 90 dB, and power-handling capability as 150 watts. Price: \$2,500 a pair. Ruark, distributed by Audio Influx, Dept. SR, P.O. Box 381, Highland Lakes, NJ 07422-0381.

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## ◀ APOGEE

Available in a vertical or horizontal (center-channel) configuration, Apogee's 24 x 9 x 11 $\frac{1}{2}$ -inch Ribbon LCR speaker combines a 4-inch corrugated-ribbon tweeter, two 6 $\frac{1}{2}$ -inch woofers, and a first-order crossover in a ported cabinet finished in black ash (shown) with

a black fabric grille. Premium oak and mahogany finishes are also available. Low-frequency limit is given as 45 Hz, sensitivity as 89 dB, and maximum power handling as 200 watts. Price: \$800. Apogee Acoustics, Dept. SR, 35 York Ave., Randolph, MA 02368.

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# SIGNALS

BY KEN C. POHLMANN

## Metamorphosis

In 1915, the mathematician E. T. Whittaker devised an extraordinarily interesting proof. He demonstrated how a band-limited function can be completely reconstructed from samples. His work, which was published in the *Proceedings of the Royal Society of Edinburgh*, minutely redirected the course of an embryonic technology. Eighty years later, that technology is a giant, and it is colliding with another technological giant with a force that is irrevocably changing both of them, and the rest of the world as well.

The very abstract principle Whittaker devised was seized upon by engineers and applied to the problem of sending signals and storing information. Nyquist and Shannon, for example, showed how audio signals could be digitized, then processed, transmitted or stored, and reproduced with great accuracy. Their work advanced analog audio technology over the magic threshold and into the realm of digital audio.

The advantages of digital audio are evident to anyone who has ever listened to a compact disc. But audio CD's are deceptively simple and do not nearly reveal the dramatic changes that digitization will ultimately bring to audio technology. Specifically, once audio is digitized, it becomes data, and the recorders and players that process that data are, of course, computers. When the distinction between audio hardware and computer hardware vanishes, and when audio, previously a hardware-based technology, is brought into the software domain of computing, the opportunities multiply. The two technologies blend and share inventions, and the smaller audio industry gains access to the largesse of the computer industry's R&D. In other words, as far as audio is concerned, it's a whole new ball game.

The audio compact disc improved on the long-play record in the same radical way that the wheel improved on walking. More than just a replacement, it opened up entirely new possibilities. A CD can store any kind of digital information, and lots of it. The CD-ROM, now a fixture in most home computers, has triggered an entire multimedia revolution. It reinvented the way information is archived and published, and it created a new entertain-

ment industry. The *Lion King* CD-ROM sold more than 200,000 copies in the first quarter of this year, for example, and some Hollywood films, such as *Johnny Mnemonic*, are now produced for simultaneous theatrical and CD-ROM release.

Of course, while computer users enjoy accessing every imaginable kind of data, they also enjoy writing it; the CD-R (short for recordable CD) has been developed to fill that need. The price of a computer CD-R drive is dropping quickly, heading straight for \$1,000, and the price of a blank CD-R is predicted to hit \$10 by the end of this year. Given enough computer memory and the appropriate interface software, using a CD-R drive is as uneventful as using a floppy or hard drive. What's being recorded to CD-R? All the digital audio and video programs that increasingly occupy the data buses of home computers.

And once you have a computer that's fast enough to process huge amounts of data (such as digital audio and video),

**When the distinction between audio hardware and computer hardware vanishes, opportunities multiply.**

and CD-R drives that can read and write huge amounts of data, you immediately develop an incredible craving for even more data. Thus online services are growing by leaps and bounds. Given a service such as America Online that has an Internet or World Wide Web gateway, you gain access to an immense global database. Software, text, photos, videos, and everything else can be sucked into your computer and saved. Sounds like a business opportunity? You bet it is. Many American corporations (as well as universities, governments, libraries, museums, and individuals) now have Web "pages" brimming with multimedia information, and they are anxious for you to click on them.

So where is audio in all of this? Lost in the shuffle? Hardly. Audio is pre-eminent

in the computer world. There's hardly a home computer being built these days that doesn't have a sound card. Computers have become articulate, with .WAV files that say hello, goodbye, and everything in between. More important, audio has tapped into the brightest of all the computer-generated gold mines. Consider the supposedly arch-conservative record labels, many of which have Web pages. Log onto <http://www.classicalmus.com>, for instance, a site run by Bertelsmann Music Group, and you can step into a CD Store and browse through art work, repertoire, artist rosters, and ordering information for more than 1,500 current classical music releases.

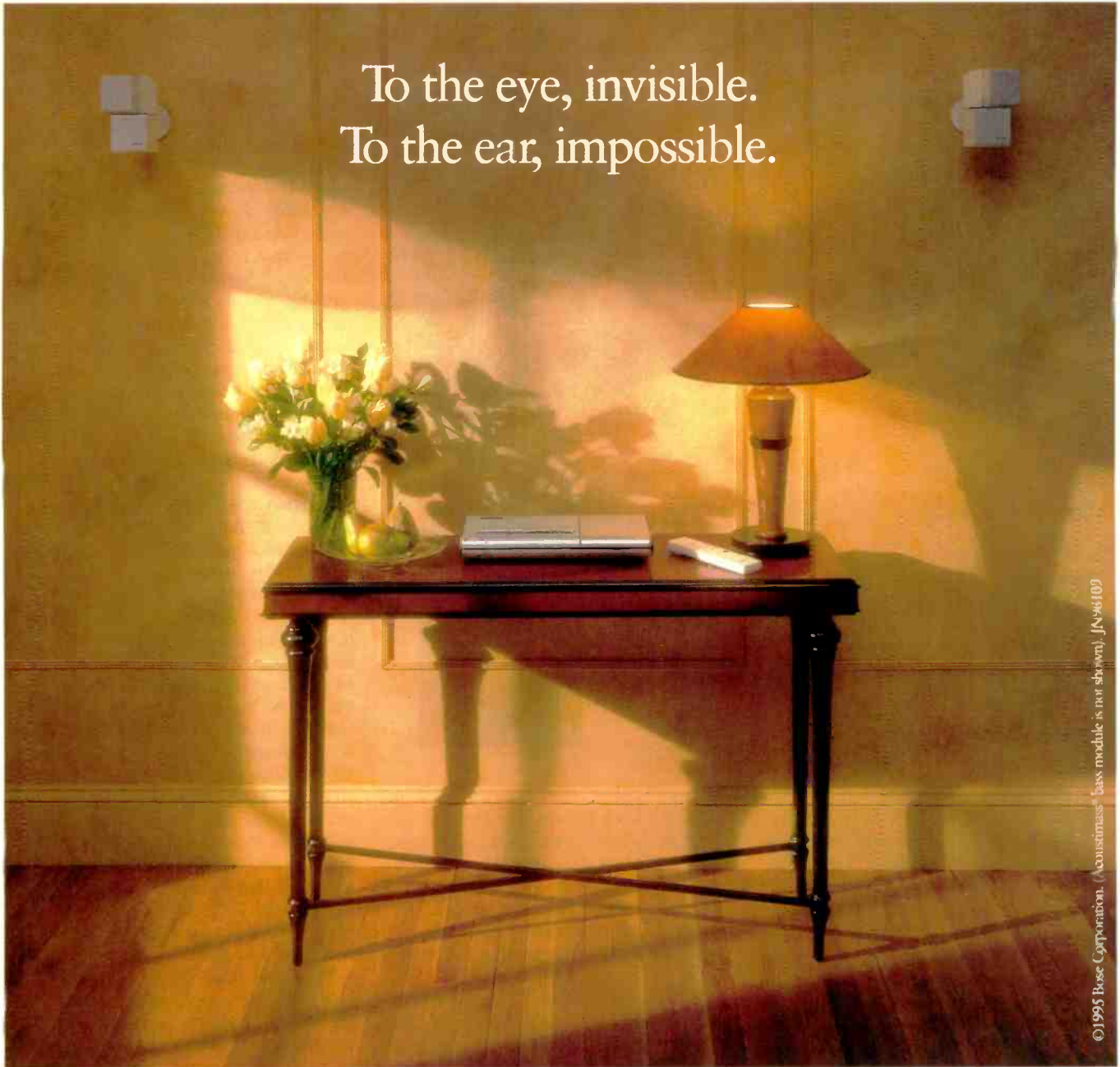
Clearly, once there is a secure method of accomplishing financial transactions over online services, it will be a simple matter for record companies to sell their music directly to you. Why bother to go to a record store and buy a prerecorded disc? Cut out the middleman. Just log on, preview the selections you're interested in, then click on the download button. The company takes your credit-card number and downloads the album's data, complete with cover art, liner notes, videos, and so on. You could burn the data to CD-R or another medium.

But actually, why bother to save the data at all? If the entire library of recorded music is always there, online, 24 hours a day, why not leave it in central storage? If you want to listen to an album or watch a movie, simply click on it and enjoy — you'll be billed later. No more broken jewel boxes, storage-space problems, theft risk, aching back when you move, etc. Clearly, at that point, audio and computers will have indivisibly merged. The true meaning of audio and video digitization will be realized. No LP's, no CD's, no turntable, no compact disc player. Just a computer wired for AOD (audio on demand) and VOD (video on demand). Can you handle it, or is it too radical?

The first computers used analog technology, gears and cog wheels that literally cranked out simple numerical results. Similarly, the first audio technology was analog in nature, and powered by a crank. When those technologies stepped into the modern digital era, their evolutionary paths were destined to join. That transfiguration has begun. It's simply a question of exactly when the technologies will become indistinguishable. That's not a guess, or even a prediction. It is a certainty. □



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## No Static at All: Digital Music Express (DMX)

• BY REBECCA DAY

When I first heard about digital cable "radio" a few years back, I didn't even bother to find out whether my cable-TV company carried it. My local public-radio jazz station is excellent, and it's the only music station I listen to regularly. Even when the cable company started advertising Digital Music Express (DMX) last fall for \$9.95 a month, I tuned it out.

Then, while checking out the mountain of remote controls at a friend's apartment in San Francisco, I came across one for DMX. I asked, with some skepticism, how he liked the digital music service. He loved it, he told me. No DJ's, no commercials, just solid, CD-quality music. He turned it on. Hmm. No static or multipath; the sound was crystal clear. "So how do you know what's playing if there's no DJ?" I demanded. With a "gotcha" grin, he told me to press the VIEW button on the remote and point it toward the DMX box on top of his TV. The message "Retrieving data" appeared in the display panel on the top of the remote, and "Title: Bag's Groove" popped up. "Yeah, but who's . . . ?" Press it again, he interrupted, and "Artist: Duke Pearson" appeared in the display.

I was hooked. How many times had I heard a song I really liked on the radio just to have some distraction prevent me from hearing the title and artist? With DMX, you can get the song and album titles as well as the name of the performer or composer at any time by simply pushing a button. What a concept!

I called my cable-TV company a couple of weeks later to order the DMX service, which is provided to cable operators by Los Angeles-based International Cablecasting Technologies (ICT). The salesperson told me I could install the system myself if I wanted to (I did), so I stopped by the cable company's offices and picked up a cable-TV-like DMX box, an appropriately named DMX-DJ remote with a large LCD window that shows two lines of text, a splitter (to divide the cable feed for DMX and TV), two coaxial cables, and two RCA cables.

Installation was very straightforward. Following the instructions in the DMX owner's manual, I connected the main coaxial cable running from my wall jack to the splitter, and from there I ran one coaxial cable to the DMX box and one to the cable-TV box. Then I ran the supplied RCA cables from the left and right output

jacks on the DMX box to my preamp. No big deal. After everything was hooked up, I followed the manual's instruction to push a couple of buttons on the box to engage an automatic set-up routine. A rotating cursor appeared in the box's LED panel to indicate that the procedure was under way. When the panel went blank, DMX should have been ready for action. But when I turned on my A/V system there was silence. I double-checked all of the connections and ran through the troubleshooting tips in the manual. Still no sound. So I returned the DMX box to the cable company, and they gave me another one. "That never happened before," said the mystified cable-TV technician after he inspected the box.

I connected the new box to my A/V system in a matter of minutes. The manual says to connect the RCA cables from the DMX box to any line-level input, with repeated warnings not to connect them to a *phono* input. I had plenty of line inputs to choose from on my British-made preamp because I had unplugged several source components earlier in the day to move some equipment around. I plugged the DMX cables into the jacks labeled DISC because they were easiest to reach. After the setup routine was complete once again, I turned on my A/V system. *Hummmmm*. Oops — I'd forgotten that the Brits call the phono input DISC! I quickly yanked out the plugs and reinserted them into the line-level A/V input.

With that little snafu behind me, I retired to the couch, selected A/V on the preamp's remote, and settled back for some CD-quality music. When I keyed in a channel number on the DMX remote I immediately noticed an unacceptable hum along with the music. I double-checked the connections, and everything was fine. Suspecting a grounding problem — a fairly common occurrence when a cable-TV feed goes through an A/V system — I paid a visit to my local specialty audio store in search of a solution. The salesman recommended a small black box from Mondial Designs called the Mondial Antenna Ground Isolation Circuit, or Magic for short.

I bought the \$99 device and connected it between the main coaxial cable and the input to the splitter. The device, which also contains a surge suppressor to protect system components against voltage spikes, is designed to electrically isolate the A/V



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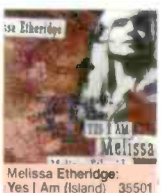
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system from the cable-TV system to prevent ground-induced noise while still maintaining a ground connection that meets electrical code. (Sometimes you have to install *two* devices after the splitter instead, one before each cable box, according to Mondial's president, Tony Federici.) When I fired up the system, the hum was gone, just like . . . well, magic. Now I was ready for some channel surfing.

**Surfin' DMX**

DMX offers thirty channels of music with enough variety to satisfy just about every musical taste. (For even more variety, ICT recently launched a direct broadcast satellite system called DMX Direct, which is expected to deliver 120 channels by the end of the year; right now it delivers about eighty.) You select a channel either by punching in its assigned number on the remote or by tapping the up/down tuning buttons. A sticker on the back of the remote tells what kind of music is found on each channel. The remote has a convenient **LAST** button to call up the previously tuned channel as well as **STORE** and **PRESET** buttons that let you save up to ten favorite channels in memory for instant recall. I don't use the preset function, though, because it's confusing to have to remember, say, that the Blues channel, No. 30, is No. 8 in preset mode.

As I mentioned earlier, to find out what's playing at any time you simply press the **VIEW** button on the remote. The **MORE** button is used to scroll through additional information such as the album title and the name of the artist or composer. You also get a DMX catalog number for the current selection, which is the key to a new home shopping service (it should be available by the time you read this) with an 800 number that listeners can call to place credit-card orders for CD's, videos, and books.

Thankfully, the DMX remote can also operate your cable-TV box — all you have to do is punch in a code that corresponds to the box's manufacturer. In my case, some peculiarities emerged — the DMX **LAST** button, for example, turns my cable box on and off — but I've learned to adjust.

I listen regularly to three DMX channels — Classic Jazz, Traditional Blues, and Classic Rock — and occasionally I check out Lite Jazz, Big Band/Swing, 50's and 60's Oldies, Symphonic, Chamber Music, and ei-

ther Modern or Traditional Country. I'm disappointed in the Folk Rock channel because most of the artists are obscure and it has more of a rock or country flavor than folk. (I'm told that I'd probably like the folk channel carried on DMX Direct better.)

While I don't usually listen to DMX for long stretches at a time, when I have done so there didn't seem to be excessive repetition. That's probably because DMX maintains a library of between 700,000 and 800,000 titles. And despite what many people as-



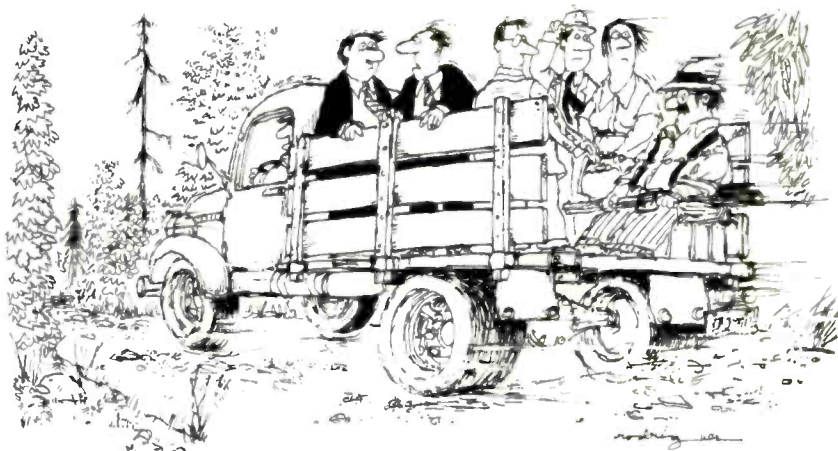
sume, the selections aren't arranged in a "loop" like the music channels offered on airplanes. According to ICT's chairman and CEO, Jerry Rubinstein, eighteen variables determine when and how often a selection plays, and the amount of repetition depends on the channel. The Hottest Hits channel, for example, sees a lot more rebounds than the Great Singers channel. I have observed some oddities and overlap, though. A segue from Bob Dylan's *Subterranean Homesick Blues* to Johnny Horton's *North to Alaska* on the 60's Oldies channel didn't quite work for me, even though both tunes are from the 1960's. And you'll find Dylan on both the Folk Rock and 60's Oldies channels. It pays to scan the channels before settling in with one.

The sound quality of DMX is clearly superior to radio, offering ultra-low distortion, freedom from static and noise, and CD-like frequency response and dynamic range. The program delivery, however, is subject to dropouts — brief periods of silence — when the digital signal transmission is interrupted. Rubinstein says that sun spots can be the culprits, particularly in the fall, causing up to 3 minutes of dropout time a year. Other dropouts are usually the result of problems on the cable provider's end, he says. Once I counted seven dropouts, of 2 to 5 seconds each, over a period of 2½ hours.

DMX is a great source of background music for dinner parties, but its entertainment potential is its biggest asset as far as I'm concerned. Think of the games you can play with DMX: Name that tune, that artist, that album. Try to figure out the title of a song no one knows by listening to the lyrics. Change channels and see who can guess what channel it is.

Warning: DMX can take a toll on your bank account. Monthly subscription costs run anywhere from \$8.95 to \$12.95, determined by the cable company, but what really gets me in trouble is buying all the CD's I decide I can't live without after getting a taste of them on DMX. Not that I'm giving up the radio — I still wake up to it and listen to it in the office and in the car, and I still support public radio. But DMX is definitely a keeper. □

*Digital Music Express,  
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*"You know what, Mister? I don't think we're being taken  
someplace to be in a 'double-blind test.'"*



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## AUDIO Q & A

BY IAN G. MASTERS

### The Subwoofer Connection

**Q** My Dolby Pro Logic receiver does not have a subwoofer output terminal. Is there any other way I could connect a subwoofer without having to replace my receiver?  
KURT JOHNSON  
Folsom, CA

**A** Yes. Virtually all subwoofers these days have speaker-level inputs to which your receiver's main speaker outputs can be connected. And in the case of passive subwoofers, which don't have built-in amplifiers, that's the *only* way to hook them up. In most cases, you feed the signal from the receiver to the subwoofer first, and from there to the main front speakers; whatever cross-over network is needed is in the sub.

Powered subwoofers (those with onboard amplification) accept either a line-level signal — whether from a dedicated subwoofer output or the pre-out signal of one of the front channels — or a speaker-level signal. With some receivers, the easiest way to make the connection is to run cables from the Speaker B terminals to the subwoofer. Be careful, though. Some receivers wire their A and B speakers in series, rather than parallel, to keep the total impedance up. In that case you'll have to make direct parallel connections to the same terminals feeding the main speakers.

### High Current

**Q** When I was looking for a new receiver, the dealer told me I should be less concerned about the output wattage than about whether it had good high-current performance. Would, for example, a 50-watt receiver with high-current capability play louder and better than, say, a 100-watt unit with otherwise similar specifications?  
GARY HOWARD  
East St. Louis, IL

**A** High current capacity is important mainly if the amplifier has to drive a very low-impedance or reactive load, so the answer is, it depends. Few speakers pose problems in themselves for typical amplifiers or receivers, but connecting more than one set in parallel can tax the output stages of many. Since today's amps are essentially constant-voltage devices, dropping the load impedance tends to raise the current demand, and not all amplifiers can handle it. But if you're running a single pair of speakers, and they're within the amplifier manufacturer's specified impedance range, you should have no problems. Note, too, that for a given load impedance, more power also means more current. Although it's by no

means impossible for a 50-watt amplifier to have greater current capability than a 100-watt model, it is unusual. Your best clue is in the power ratings for impedances of 4 ohms or less, if available.

### Speaker Spikes

**Q** My speakers are quite heavy and stand on spikes. In my last house the floor was carpeted, but in my new location the speakers are on a hardwood floor, and I'm afraid the spikes will damage it. Would placing a piece of cork under the spikes to protect the floor make a significant difference to the sound? Or is there another solution?  
MLADEN RADOVANOVIC  
Winnipeg, Manitoba

**A** I imagine that the spikes would eventually go right through the cork and damage the floor anyway. Until that happens, the supposed benefit of the spikes — better physical coupling between the speaker enclosure and the floor, and thus more stable operation — would be defeated by the cork. Not everybody agrees that spikes do much good (they might even make the sound worse by exciting resonances in the wood floor), but any effect is likely to be subtle, and I doubt that it would justify ruining a hardwood floor. Have you tried removing the spikes? Alternatively, you might try applying felt to one side of some pennies and placing them under the spikes (felt down, of course).

### Spinning the Carousel

**Q** I watched with horror as a friend's wife opened their carousel CD changer and proceeded to load discs by moving the carousel tray by hand, backwards and forwards, disregarding the disc-skip button entirely. Could she damage the mechanism by doing this?  
GEORGE HURSTIUS II  
Kenner, LA

**A** She can't be doing it any good, but as long as she doesn't have to force the tray to move, it will probably survive. Still, it can't hurt to suggest to her that ignoring the disc-skip controls *might* cause damage.

### Matching Old Speakers

**Q** My large three-way speakers have served me well for thirty years, but now I would like to add a second pair of speakers at the other end of my 12 x 30-foot living room. I realize I don't need such massive speakers as add-ons, but I'm finding it difficult to locate speakers with the same smooth re-

# How to get a surround sound home theater for just \$99...

Confused about home theater? It's no wonder with all of the hype on the subject. The simple truth is, you don't need an expensive Dolby® or THX® decoder to get great sounding Home Theater. Chase's award winning 5 channel HTS-1 Decoder works with your existing stereo, is easy to use, and even makes "Wireless Home Theater" a reality at last!

By Bob Rapoport

## WHAT IS HOME THEATER?

Movie theater sound systems and soundtracks are set up to provide 5, 6 or even 8 distinct channels of sound. These systems surround you with sound, and recreate the "FEEL" of the movie, putting you in the middle of the action. For most people, it is thrilling. In the last few years, audio manufacturers have come out with expensive and complex multi-channel sound systems which try to do the same thing in your living room at home, hence the term "home theater".

The home video version of the same movie has a stereo soundtrack with only 2 channels of sound, left and right. An additional "surround channel" is recorded "out-of-phase" with the main stereo signal.

## AWARD WINNING DESIGN

At the 1994 Summer Consumer Electronics show in Chicago, the HTS-1 won the Design and Engineering Award for being one of the best and most innovative new products of 1994. This award-winning design from Chase Technologies is a breakthrough for its ease of use, affordability and outstanding performance.



The new award-winning HTS-1 Decoder

Chase has designed a simple and affordable decoder that features "PASSIVE MATRIX" circuitry, avoiding costly and noisy signal processing. The HTS-1 is the only decoder available today that does not require you to buy a new amp for the rear channels, although it has outputs for extra amps as well, so upgrading is easy. It also decodes all the surround sound movie formats, with no noise and no distortion of any kind. As one reviewer put it, "PRETTY NEAT!"

## WHAT IS A "CENTER CHANNEL" AND DO I NEED IT?

One of the speakers at the movie theater is placed behind the screen, in the center. This speaker keeps voices and certain special effects locked on screen. In a home theater system, using a center channel has the same effect, adds impact to the special effects, and helps localize voices. Since the stereo soundtrack does not contain a dedicated center channel, the Chase decoder extracts the sum of the left and right channels, known as the mono signal, and directs it to a center channel output on the decoder. This channel does have to be amplified separately, so Chase makes a special self amplified center channel speaker called the "Dialog". It's built-in 10 watt amplifier has just the right amount of power to amplify the mid-range voice signals and on-screen special effects.

The "DIALOG" powered center channel has a built-in 10 watt amp, is a "Point Source Design", and is shielded so it won't distort your TV picture....\$99



Some people will want to use the speaker in their TV as the center channel, just as they always have.. This works, but because the tv speaker is surrounded by a big cabinet and has a lower power amp, the effect might not be as dramatic as when the Dialog is used.

## THE CRITICS LOVE IT!

Some of the best audio critics in the U.S.A. have raved about the new Chase system:

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WIDESCREEN REVIEW  
MARCH '95

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AUDIO MAGAZINE  
DEC '94

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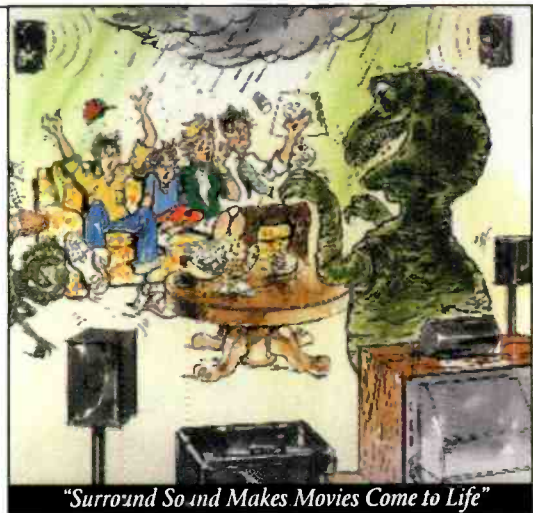
HIGH PERFORMANCE REVIEW  
SEPT '92



The ELF-1 is a perfect "POINT SOURCE" style rear channel effects speaker, clearly out-performing all of the Bi-Polar designs when it comes to localizing off-screen sounds.... just \$99 per pair including brackets.

## HOW CAN AN IN-EXPENSIVE DECODER OUT-PERFORM THE ACTIVE SYSTEMS?

By keeping it simple. Active systems use signal processing to decode and separate the surround and create the center channel. Then they add time delay, and noise reduction, both of which we believe are unnecessary and add a lot of noise and distortion and reduce clarity and detail. By using passive circuitry, the Chase decoder has no noise or distortion, so you hear all of the surround effects clearly. It's full bandwidth design out-performs the filtered, active systems.



## WIRED AND WIRELESS REAR CHANNEL OPTIONS

Chase makes two kinds of speakers for the rear channels. First, the ELF-1, in black or white, comes complete with mounting brackets and is very affordable.

Next, Chase is one of the first companies in the world to make 900 MHz wireless speakers for use as the rear channels. If running wires across your living room is not an option, for a little more money, you can use the Chase WS-5500 wireless system.



AVAILABLE IN BLACK OR WHITE

The WS-5500 is the new 900MHz wireless speaker system from Chase. It offers 100% truly wire-free performance without signal wires or power cords! Chase is the first manufacturer in the world to make "WIRELESS HOME THEATER" a reality, so if you have been waiting for this kind of solution, the wait is over! The system comes with 2 wireless speakers with built-in amps, and a transmitter to broadcast the rear channel signal.

**30 Day in Home Audition.** The best place to evaluate the HTS-1 is in your home. Try the HTS-1 or any Chase product for 30 days, and if you're not satisfied for any reason, return it for a full refund.

Please refer to key code STR111 when ordering.

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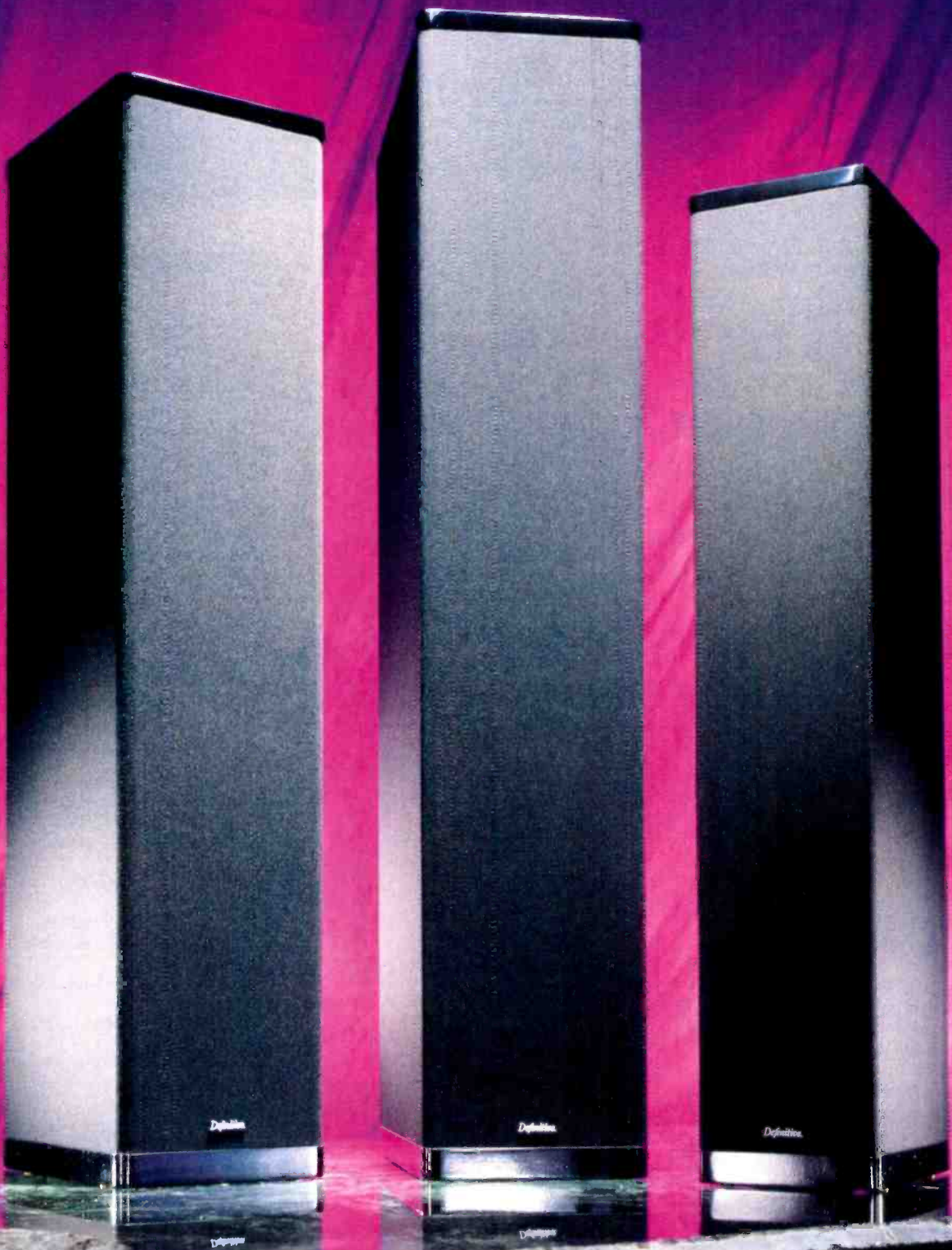


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sponse — I don't want them to clash with each other. Any thoughts? HARRY RUSSELL  
Staten Island, NY

**A** You may never obtain a perfect match, especially given the age of your existing speakers. As with everything else, there are fashions in sound quality, and many older speakers sound quite different from today's products. To obtain the best match, I suggest finding something reasonably close — speakers from the same manufacturer may or may not be a good bet — and then equalizing them to approximate the tonal balance of your existing speakers. This would involve adding not only an equalizer but a second stereo amplifier, but that might be a good idea anyway.

## Razor Treble

**Q** Why is it that when I play a CD on my stereo system the sound is good, but when I play a prerecorded cassette of the same material the treble comes out as sharp as a razor blade? The system is fairly inexpensive, but I doubt that's the problem. What's going on?  
ALVIN LINDSAY, JR.  
Navasota, TX

**A** It's no news that a CD sounds better than a cassette, especially a commercially recorded one. With rare exceptions, the music you buy on tape sounds inferior to what you could record yourself, partly because most prerecorded cassettes use inexpensive tape and partly because they are duplicated at very high speed. The specific razor-like sound quality you describe suggests to me an undecoded Dolby recording (although I would not normally expect sound that unpleasant in such a case). Your inexpensive system may not have Dolby circuitry, or it may be misadjusted; either way, you end up with overly bright sound. If there is no decoder, there's not much you can do. If it's misadjusted, a trip to the service center is probably in order.

## Analog Masters

**Q** I realize that when I see "AAD" on a CD it means that the original master and the intermediate stages were analog and only the final product is digital, and that "DDD" means it's digital throughout. I find that DDD recordings sound much better, but there are still recordings being made that are AAD. Why aren't all CD's today fully digital?  
ADAM MORGAN  
South Haven, MI

**A** Converting a studio to digital recording can be an expensive proposition, and there are still lots of recording companies that have not made the switch. Also, many producers simply prefer to work in the analog domain, even if the final product will be a digital CD. I recently visited a studio operated by one of the digital heavyweights — Sony Music, no less — where the recorder of choice was a twenty-four-track analog deck running at 30 ips with no noise reduction of any kind.

There's no reason an analog master can't have virtually the same response and dynamics as a digital recording — certainly the sound coming out of the above-mentioned studio was spectacular. The muddiness we associate with older analog recordings often stems from signal degradation in the multiple generations following the master, or sometimes from overly aggressive signal processing. But a first- or second-generation analog tape can be excellent. As long as it's transferred to digital early in the chain, the resulting CD can often be just as good as one that started out digitally.

## Tubes and Transistors

**Q** I'm fascinated by the claims for the sonic superiority of vacuum tubes made by some writers (and by the skepticism of others). Would it be advisable to have a power amplifier/preamplifier combination using tubes in one and transistors in the other? If so, is one combination better than the other?  
CESAR F. DIZON  
Quezon City, Philippines

**A** The tube-vs.-transistor debate goes way back and will probably be with us as long as anybody cares to make vacuum tubes. My view is that it is possible to make excellent audio gear using either type of device, but that it is easier, cheaper, and far more practical to use solid-state components. Assuming you do get a piece of tube equipment that meets your performance demands, it should work well with a transistor component, and it makes little difference which is which.

## TV Surround

**Q** I know that all the information for surround sound is contained in the left and right channels, yet in my experience when movies are broadcast the surround doesn't come through. Is there some sort of encoding that can be done at the transmitter so that we could receive surround sound?  
STEVE MARTIN  
Northbrook, IL

**A** As long as the movie was encoded with Dolby Surround to begin with, and the TV station is actually broadcasting in stereo, you should be able to decode the surround information — there's really no way for a TV station to remove the surround encoding from an existing soundtrack. An increasing number of TV programs are also encoded in surround sound. If you're having trouble getting the sound you want, your TV set may be the culprit — quite a few have very limited stereo separation, and the closer a signal gets to mono, the more of it will be directed to the center speaker. Also, some cable-TV systems retransmit everything in mono, regardless of how it was broadcast.

**If you have a question about audio, send it to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.**

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# TECHNICAL TALK

BY JULIAN HIRSCH

## Speaking of Speakers

**T**he weakest link in any audio system is the loudspeaker. Fundamentally, a speaker's role is to reproduce recorded music (or speech), which was originally converted into electrical form in a totally different acoustical environment. Even if we assume that the electrical system is perfect (including the recording and playback medium, now almost exclusively digital and, even if not quite perfect, many orders of magnitude better than the best speaker), we are left with the more or less intractable problem of reconstructing the original sound in its entirety. The most nearly perfect speakers that can be imagined simply cannot recreate the sound field of any concert hall in a different acoustical environment.

All right — so it can't be perfect. Can it sound so real that most people can't tell the difference? Not in any way that I can imagine, although minor miracles can be wrought by digital signal-processing (DSP) techniques. In general, if the listening environment is significantly different from the recording environment, no one would have much difficulty telling that he was not hearing the original live program.

We all know that loudspeakers differ widely in their sound qualities. Most of us have some favorite speakers and probably a greater number that we wouldn't have in our homes on a bet. Surely among those speakers are some that are better than others (depending on how you define "better"). Unfortunately, it is not easy to quantify a speaker's sound quality in any meaningful way.

There is a basic problem with assessing — and measuring — speaker sound. We can control the information going into the speaker (such as test signals or music). But though it has a single, well-defined input, a speaker's output is different at every point in the room (including each of the listener's ears, which is how we experience stereo) and heavily dependent on the physical configuration of the listening environment. How do you get any useful information out of that situation?

In a word, carefully! It is risky to leap to conclusions about a speaker's performance. Although every speaker has liter-

ally an infinite number of outputs into the room, some of which are measurable, and a certain sound character of its own (as modified by the surroundings), each listener's brain also weighs the information reaching it in its own fashion and comes to its own conclusions on the merits (or otherwise!) of the speaker's total output.

Performing a complete set of acoustic measurements on a loudspeaker is a herculean task and ultimately beyond our capabilities. Recognizing that, I have over the years developed a limited series of tests that serve to verify some of the common operational specifications of a speaker (impedance, sensitivity, and so forth) and, to a limited degree, its acoustic performance. And, of course, I *listen*, both before and after making the measurements. Typically, I use a given speaker over a period of several weeks and listen to it with a variety of music. Since there are usually several speakers on hand at any one time, a limited amount of direct

**Unfortunately, it is not easy to quantify a loudspeaker's sound quality in any meaningful way.**

comparison is also involved. I do not have a "standard" reference speaker for this purpose, nor do I think that would be practical, given that the reviewed speakers range from small, inexpensive models that can be held in one hand to some that I cannot lift up and that occupy a large part of the available space. (And there is the problem that after a while one may start to take a particular set of speakers as a *true* reference, against which others, consciously or unconsciously, are judged; no speaker is really good enough for that.)

I have developed a combination of several measurement procedures that give me a good "feel" for a speaker's acoustic performance. By standardizing the test conditions as much as possible, I can make reasonable comparisons between speakers that are no longer available for

listening, and when the manufacturer supplies his own measurement curves (which we request, but rarely receive) we can usually verify that we are both addressing the same acoustic reality.

For years our basic speaker response measurements have been made with a swept-frequency sine-wave test signal, with a superimposed one-third-octave "warble" to minimize the effects of room-boundary reflections on the data. This technique works well at middle and high frequencies but is invalid at low frequencies where room standing waves become appreciable. To get around this problem, we measure the woofer response separately with the microphone close to the driver cone, which effectively gives an anechoic response, unaffected by the room.

Next we overlay the two curves on a light box and adjust them for the best possible overlap (usually over a two- or three-octave range). A tracing of the result is what I call a "composite corrected frequency-response" curve. Although fictitious in a certain sense, this curve is an indicator of the speaker's inherent performance, with a minimum of modification by the room boundaries.

The Audio Precision System One test system gives us another handle on the frequency response of a speaker. Using a special pseudo-random noise signal, it can greatly reduce the effects of room-boundary reflections on the measurement. This "maximum length sequence" (MLS) response is limited to frequencies above 300 Hz, but in a 300-square-foot room it gives a reasonable picture of a speaker's anechoic frequency response (normally measured on-axis at a distance of 1 or 2 meters). Usually (but not always, unfortunately) the MLS and composite response curves have much in common and appear to define a speaker's frequency response about as well as can be done under less than ideal conditions.

Listening is the bottom line of the evaluation process. Although it does not always reveal even some obvious anomalies of the measured response, it is (or should be) the final arbiter of the evaluation process. In the end, the individual who is going to live with the speaker must make the decision, preferably giving more weight to personal experience than anyone else's opinion or recommendation. Test reports may help, but when the time comes to part with your money, the choice is yours to make. □

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*Audio Magazine\*\**

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\*\* Quote excerpted from a review of the **SRS (●)** technology from the April 1992 issue of *Audio Magazine*. The Vivid 3D sound enhancement system won the Retail Vision "Best Product" award in May 1994, and the Innovations award from the International Consumer Electronics Show in June 1994. © 1995 NuReality. All rights reserved. SRS is a registered trademark of SRS Labs. All product names are trademarks or registered trademarks of their respective holders. SR3

# TEST REPORTS



DOCK P. LEUNG

lacquer. The "footprint" of each speaker is remarkably small — less than a square foot. The basic driver configuration consists of a 6½-inch molded polypropylene cone with a butyl-rubber surround and a 1-inch vapor-deposited titanium dome tweeter, both located at the top of the speaker, one set on the front panel, another on the back. A bass vent is near the bottom of the rear panel. The speaker's recessed input connectors, just below the vent, are two pairs of gold-plated binding posts joined by jumper strips. They are compatible with bare wires, lugs, or banana plugs (single or dual). With the jumpers removed, the system can be biwired or biamplified.

Like other bipolar speakers, the M-1090i is designed to produce a nearly omnidirectional pattern of coverage in the horizontal plane, with slightly reduced output to the sides (but much more than one would get from a *dipole* speaker, such as a panel model, whose front and back outputs are out of phase with each other). For best performance, a bipolar speaker should be freestanding, placed at least 18 inches in front of a wall and well away from the side walls (Mirage also recommends using spiked feet if the speakers are to be installed on a carpeted floor). A properly designed and installed bipolar loudspeaker system can create a distinctive sense of space that is a hallmark of the genre, resulting from the slightly delayed reflections from the wall behind it.

Mirage's specifications for the M-1090i include a frequency response of 32 Hz to 22 kHz  $\pm 3$  dB, both on-axis and 30 degrees off-axis, with "usable bass response" ( $-10$  dB) down to 28 Hz. The system's sensitivity is given as 85 dB sound-pressure level at 1 meter (anechoic) or 89 dB in a normal room. (Since the anechoic measurement effectively applies to the output from only one set of drivers, it would be expected to be about 3 dB lower than a room measurement, which would include the outputs of both sets.) The rated nominal system impedance is 6 ohms, with a minimum of 4 ohms. Recommended amplifier power is from 50 to 175 watts per channel.

We installed the Mirage M-1090i

## Mirage M-1090i Loudspeaker System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

**M**irage is the company that first popularized the concept of "bipolar" loudspeakers, which use identical sets of drivers, driven in phase with each other, on the front and rear of the cabinet. The Canadian manufacturer has recently enlarged its family of bipolar speakers with the introduction of three handsomely styled, moderately priced systems.

Heading the group is the M-1090i, a columnar speaker covered on all four sides by a black elastic cloth "sock" grille. The top and bottom surfaces are wood, finished in glossy piano-black

### DIMENSIONS

11½ INCHES WIDE, 45¾ INCHES HIGH,  
9½ INCHES DEEP

### WEIGHT

71 POUNDS

### FINISH

BLACK HIGH-GLOSS (BLACK GRILLE)

### PRICE

\$1,200 A PAIR

### MANUFACTURER

MIRAGE, DEPT. SR, 3641 MCNICOLL AVE.,  
SCARBOROUGH, ONTARIO M1X 1G5

speakers roughly as recommended, although circumstances required them to be several feet in front of the wall behind them (which did not degrade their performance in any way we could detect). The averaged room response of the two speakers indicated exceptionally good bass extension, with the normal response irregularities of a room environment. From about 300 Hz on up, the output was very smooth, sloping gently downward with increasing frequency. The overall change in response from 300 Hz to 20 kHz was about 6 dB.

We measured the front woofer response with close microphone spacing. It was flat within  $\pm 3$  dB from 20 Hz to 1 kHz, sloping downward above 2 kHz. The woofer and room-response curves overlapped over a range of almost three octaves, from below 300 Hz to just over 2 kHz (apparently the crossover frequency to the tweeter). Combining the two responses yielded a composite curve that was flat within  $\pm 3$  dB from 20 to 800 Hz, sloping down smoothly by about 5 dB from there to 12 kHz and rising again by about 6 dB at what appeared to be the tweeter resonance in the vicinity of 15 kHz.

Since these measurements, though consistent with each other and with what we heard, were inevitably influenced by the room environment (as they would be, though perhaps differently, in your listening room), we were interested to see the results of quasi-anechoic measurements using the MLS capability of our Audio Precision System One test system. At 1 meter, on the front tweeter axis, the MLS response decreased above 2 kHz to about  $-5$  dB at 6 to 7 kHz, rising to its original reading at the tweeter resonance peak (13.7 kHz). We measured virtually identical response at 2 meters as well.

The tweeter's horizontal dispersion was typical of 1-inch metal domes, with little change in output, relative to the axial response, below 10 kHz and about a 14-dB drop at 20 kHz at 45 degrees off-axis. Group delay, which is a function of phase linearity, was very uniform from 2 to 20 kHz (less than 150 microseconds variation overall) and clearly showed that the transition from woofer to tweeter was at 2 kHz.

System impedance was essentially as rated, with a minimum of 4.3 ohms at 180 Hz, a bass rise to 13.5 ohms at 63 Hz, and readings in the 6- to 10-ohm range at most frequencies above 500 Hz. Sensitivity measured 86 dB sound-pressure level (SPL) at 1 meter

**The Mirage M-1090i  
loudspeaker had the  
believable imaging and  
airy quality that are  
characteristic of good  
bipolar reproducers.**

with a 2.83-volt input of random noise.

We measured the woofer distortion as a function of frequency, with an input of 4.3 volts (corresponding to a 90-dB SPL output). It ranged from 0.3 to 0.6 percent between 100 Hz and 2 kHz, rising to 2 percent at 70 Hz and 7 percent at 30 Hz. In single-cycle pulse power-handling tests, the woofers bottomed at 600 watts input to the speak-

er's 6-ohm impedance at 100 Hz. At higher frequencies our power amplifier clipped before there was any significant audible sign of distress from the drivers.

Our listening experience with the M-1090i was totally positive and consistent with the test data. It had the believable imaging and airy quality characteristic of good bipolar reproducers, plus a sweet, musical quality that audibly confirmed the smoothness of our measurements. It came as a pleasant surprise to find that the low bass was as audible as it was measurable. Playing test CD's, we established that while 17 Hz and 20 Hz sounded pretty much alike (obviously low in frequency but with enough harmonic content to dilute the effect considerably), 31.5 Hz filled the room with clean, ear-popping bass — a surprising achievement for the modest driver complement (and size) of the pair of M-1090i speakers.

Our final assessment of these speakers was completely favorable. If we had not already been convinced of the advantages of bipolar speakers, this experience would have converted us. At any rate, if you are in the market for new speakers (and are not committed to placing them close to the wall), listen to these, or others of similar design, before making a final choice. You won't regret it. □



# TEST REPORTS



## M&K V-125 Powered Subwoofer

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**A**lthough Miller & Kreisel (M&K) manufactures a full line of loudspeaker systems, the company is perhaps best known for its powered subwoofers. One of the newest among them is the V-125.

The V-125 is relatively large and heavy compared with some of the other subwoofers we have tested recently. Its nominally 12-inch driver (the actual effective cone diameter is about 10½ inches) faces forward behind a removable black cloth grille that covers the entire front of the all-black cabinet. Unlike many other subwoofers, the V-125 is magnetically shielded, enabling it to be used close to a video monitor or TV set. The fully sealed enclosure also contains an amplifier rated at 125 watts output.

In addition to a large heat sink for the internal amplifier, the V-125's back panel is well populated with connec-

tion terminals and controls. This is an unusually versatile powered subwoofer, with RCA-jack inputs for line-level signals from a preamplifier or an A/V receiver's subwoofer output, as well as spring-clip wire connectors for the

### DIMENSIONS

15¼ INCHES WIDE, 18½ INCHES HIGH,  
20¼ INCHES DEEP

### FINISH

BLACK

### WEIGHT

52 POUNDS

### PRICE

\$750

### MANUFACTURER

MILLER & KREISEL SOUND CORP.,  
DEPT. SR, 10391 JEFFERSON BLVD.,  
CULVER CITY, CA 90232

right- and left-channel speaker output signals of a power amplifier or receiver and similar connectors for outputs to a pair of satellite (main) speakers.

Among the controls on the back panel is a toggle switch that reverses the phase of the subwoofer output relative to the main program signal. The manual discusses the procedures for setting this switch, which must be done after the system is set up and operating. There is also a knob that smoothly varies the subwoofer's low-pass filter cutoff frequency between 50 and 125 Hz (with approximate calibrations at 50, 60, 75, 100, and 125 Hz). Another knob adjusts the subwoofer's level to blend properly with the output of the main speakers.

A handy feature, whose use is optional, is a built-in high-pass filter, accessible only through the speaker-level inputs, which excludes program content below about 80 Hz from the main speakers. M&K suggests experimenting with this operating mode, since its effect on the sound quality is related to the bass capabilities and impedance characteristics of the main speakers.

The V-125 has no power switch (although a small red LED on the rear indicates that it is turned on), and M&K recommends that it be left powered continuously. The heat sink becomes only slightly warm in extended operation, and the only clue to the amplifier's continuous power drain is its 2-ampere slow-blow power-line fuse. Presumably the standby power consumption is small enough to have a negligible effect on your electric bill. The V-125 comes, by the way, with one of the most complete subwoofer installation and operation manuals we have seen.

We plotted the V-125's frequency response with close microphone spacing, resulting in an essentially anechoic measurement. A family of curves was generated, one for each of the calibrated low-pass cutoff frequencies, on a single graph. The maximum output occurred at about 60 Hz, sloping down at about 6 dB per octave from there to our lower measurement limit of 20 Hz. At the highest setting of the frequency control (125 Hz), the output was flat within 6 dB from 28 to 125



Hz. The crossover slope, at frequencies above about 100 Hz, was approximately 36 dB per octave. That's an exceptionally steep cutoff, which should aid appreciably in making the subwoofer nonlocalizable by ear.

We measured the distortion of the V-125 with its level set to give a 100-Hz sound-pressure level (SPL) of 90 dB at a distance of 1 meter. The distortion was a minimum of 0.35 percent at

no obvious waveform clipping from amplifier overload, presumably forestalled by M&K's Active Headroom Maximizer circuit.

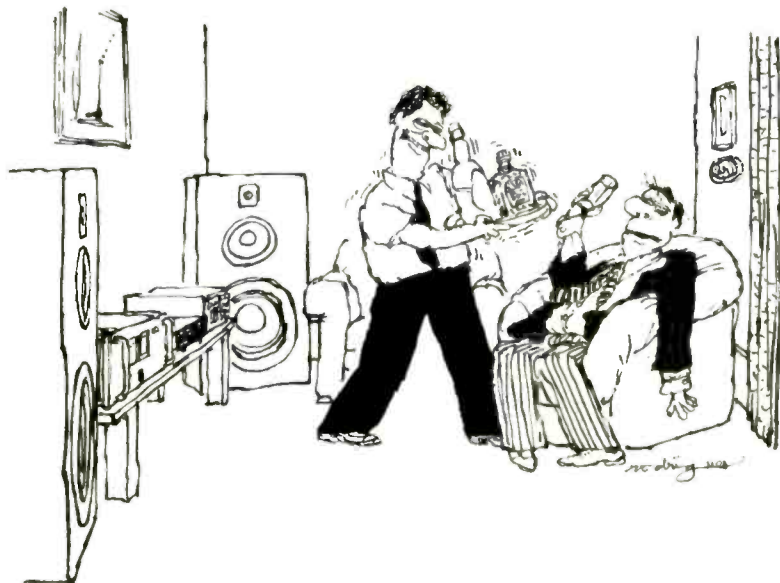
As the crossover control was turned down, the output remained constant below 40 Hz, while the higher frequencies were smoothly attenuated above the selected cutoff frequency. The difference between the two lowest curves (cutoff at 50 and 60 Hz, respectively) was negligible.

We operated the M&K V-125 with a pair of small speakers whose low-frequency response was adequate down to about 80 Hz, so we used that approximate setting of the crossover control. The V-125's control flexibility simplifies its adjustment, although we did not experiment extensively with positioning and polarity switching.

That flexibility makes the M&K V-125 well suited to use in a wide variety of installations. Although its low-frequency "reach" was not quite as deep as that of some subwoofers we have used, its output was audibly strong and clean down to 30 Hz and still useful into the 20's. And few other subwoofers can match its ease of installation, setup, and operation. It is a very appealing choice for anyone seeking the powerful rumble of a high-performance subwoofer at a reasonable price. □

**The M&K V-125 has an unusually steep (36-dB-per-octave) low-pass crossover, adjustable for cutoff frequencies between 50 and 125 Hz.**

70 Hz and remained less than 1 percent from 50 Hz to well beyond the top crossover frequency of 125 Hz. At lower frequencies the distortion (principally odd harmonic) rose to about 10 percent at 25 Hz. Atypically, there was



"No more for me, Jerry. The AM section is sounding better than the FM."

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## Sherwood RV-4050R A/V Receiver

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Today's A/V receivers provide tremendous benefits, but they also tend to be relatively large and expensive and are often too complex for most people to operate effectively. The inexpensive Sherwood RV-4050R takes a different course. It makes no attempt to simulate different hall environments or to dazzle (and often bewilder) us with an array of knobs, buttons, and multicolored displays, many of which would rarely, if ever, be used by the average buyer. But it does have an above-average AM/FM tuner, front-channel power amplifiers rated to deliver 60 watts per channel, and a Dolby Pro Logic decoder. In its Pro Logic mode, the power rating falls to 50 watts per front channel, but since it then operates in a three-channel mode (left, center, right), the total output capability across the front becomes a hefty 150 watts. In addition, the rated output of its surround (rear) channel in Pro Logic operation is 20 watts.

The Pro Logic system also provides the so-called "Dolby 3 Channel"

mode, which extracts the center channel but leaves the surround channel folded into the front left and right — useful for those who have no practical way of placing surround speakers in their rooms. The Dolby Pro Logic system in the RV-4050R includes an automatic input-balance circuit and a random-noise test-signal generator to facilitate balancing the speaker levels.

The RV-4050R's front panel contains a single fairly large knob, resembling the tuning or volume control of a

conventional receiver, and marked VOL/TONE/BALANCE. Although not as densely populated as the front panels of some other A/V receivers, it also contains a number of pushbuttons of various sizes and shapes, all of whose functions are clearly identified.

Instead of the large and colorful display window found on most A/V receivers, however, the RV-4050R's operating readout consists of a 1 x 2¼-inch fluorescent display in the middle of the panel. The principal information shown is the frequency and channel-preset number of a selected AM or FM station or (in small characters) the name of any program source selected by one of the seven large rectangular buttons below the display. Other small characters appear as required to indicate functions that may be activated during operation of the receiver. A horizontal display of one to seven red squares appears below the frequency display. The inputs are identified as FM, AM, VCR1, VCR2, TAPE MONITOR, TV/AUX, and CD. The VCR2 input is through front-panel jacks intended for hooking up the audio and video outputs of a camcorder.

The left portion of the panel contains the power switch, a headphone jack (which silences the speaker outputs when phones are plugged in),

### DIMENSIONS

17¼ INCHES WIDE, 4¾ INCHES HIGH,  
11 INCHES DEEP

### WEIGHT

18 POUNDS

### PRICE

\$270

### MANUFACTURER

SHERWOOD, DEPT. SR, P.O. BOX 428,  
LA MIRANDA, CA 90637-0428

# "This Is The Best \$199 You Can Spend On Yourself."

PC magazine

*SoundWorks* – our amplified speaker system may well be the most exciting product ever designed by Henry Kloss – and the most affordable. Never before has so much high quality, wide-range, natural, "big" sound come from such a small, affordable system. It is ideal for hundreds of applications.



Henry Kloss

*SoundWorks* consists of two satellite speakers (app. 3 1/2" x 3 1/2" x 3 1/2") and a compact, subwoofer cabinet that encloses a 4" woofer, a 3-channel amplifier, equalization and crossover electronics, as well as a control panel.

## The Satellites.

The small satellites are magnetically shielded so they can be used very close to a TV or computer monitor. They contain a remarkable 2" speaker driver with a long-throw/wide-range design that reproduces

*"SoundWorks has the most natural musical timbre."* *The New York Times*

high and mid frequencies down to 150 Hz, without the need for a "midrange" driver. *SoundWorks* comes with satellites finished black, or in "computer-beige." They can be used as is, hung on walls using their back-panel slot, used with their mini-stands, or they can be attached to a computer monitor with our velcro kit (supplied).

*"...head and shoulders above the others..."*  
*MacUser magazine*

## The Subwoofer.

The subwoofer cabinet (a little bigger than a shoe box: 5" x 8" x 9") reproduces only non-directional bass so it can be placed in out-of-the-way places – behind your TV set, under your desk, or in back of furniture. It contains a 3-channel amplifier that's been precisely tailored to match the speaker drivers. Its control panel includes a stereo mini-jack input for connecting to a computer or a



**\$199<sup>99</sup>**

Amplified Subwoofer/satellite speaker system

portable CD player, a "set and forget" bass level control, and connecting terminals for the satellite speaker wires. It also has an input for a 12 volts – so you can plug *SoundWorks* into the cigarette lighter in your car or boat!

## The Sound.

In terms of frequency range, tonal balance, stereo imaging and overall sound, *SoundWorks* compares very favorably with component music systems costing far more. It just doesn't seem possible that a system so small could produce a sound so "big." But it does.

## The Applications.

Because of its small size and price, and because of its magnetically shielded satellites, *SoundWorks* is ideal for use as a multimedia speaker with any computer. It fits easily into smaller rooms – like kitchens, dens, dorms and bedrooms. Its 12-volt capabilities make it perfect for boats, campers and cars. And with our optional carrybag, you can travel with it.

## The Price.

You can buy *SoundWorks* only direct from Cambridge SoundWorks, or at cost-efficient Best Buy stores, for only \$199<sup>99</sup>. We haven't heard a system for anywhere near its price that we think

*"...really amazing...exceptionally good... sounds terrific."*

*Audio magazine*

sounds nearly as good.

## We Eliminate The Risks.

With our 30-day risk-free home audition, you can listen to *SoundWorks* the right way – in your home, with your music. If you aren't happy, return it within 30 days for a full refund. We even reimburse your original UPS ground shipping charges in the continental U.S.

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*Because SoundWorks is so compact, and because it works on 110 or 12-volts, it's perfect for cars, RV's and boats. With our optional carrybag (\$49<sup>99</sup>), it makes an ideal musical traveling companion. You can even play the system while it's in the carrybag.*

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up/down tuning buttons, and two buttons that select the tuning mode and store station frequencies in the channel-preset memory for instant recall. The RV-4050R can store as many as thirty AM and FM frequencies in any order. It also has a presetting feature that automatically sweeps up the FM band and stores the frequencies of the first thirty receivable channels.

Now for that single large knob. It can be rotated continuously through about thirty light detents but no stop. Its primary function is as a volume control. In normal operation, rotating the knob clockwise causes a row of seven red lights to come on sequentially from left to right in the display to show the approximate volume setting.

To the left of the knob are three slender buttons, marked BASS, TREBLE, and BALANCE. If you want to adjust low-frequency response, pressing the BASS button turns the knob into a bass control. Normally, only the center dot of the display will light, showing that the response setting is flat. As you



turn the knob clockwise, the dot moves sequentially to the right, over a maximum of three steps, indicating a bass boost. Similarly, a counterclockwise turn moves the dot to the left (and the bass response down). The actual number of different bass responses is six in either direction. A few seconds after a change is made, the display and the knob return to their normal functions. The treble and balance

adjustments are made in the same manner. The bass control, by the way, produces responses reminiscent of those from a graphic-equalizer band centered at 100 Hz. It boosts or cuts frequencies near that point while leaving the deep bass relatively unaffected. The treble control is conventional, producing shelving responses.

At any time, you can check the bass, treble, or balance setting by pressing the associated button; a few seconds later, the display returns to its normal (volume) indication. Finally, successive operations of the SURROUND button switch the receiver from its two-channel stereo mode to Dolby Pro Logic, to Dolby 3 Stereo, and back to conventional stereo.

Other than the VCR2 and headphone jacks, all the inputs and outputs are on the rear apron. Standard phono jacks are used for the signal inputs and outputs and for the DigiLink connectors, which can join the RV-4050R to other compatible Sherwood components for unified system operation. Spring clips, usable only with stripped wire ends, are provided for all speaker outputs as well as the antenna connections. Antenna inputs are provided for 300- and 75-ohm FM antennas and the furnished AM loop antenna. There is one switched AC outlet.

If you think that the front-panel controls offer insufficient operating flexibility, take a glance at the RV-4050R's remote control. It is actually a system control, also operating compatible Sherwood CD players and tape decks. Although many of its fifty-five buttons are for CD and tape functions, most are dedicated to the receiver.

The remote control is the only means of adjusting the levels of the surround and center channels and switching the level-balancing test signals on or off. It duplicates the functions of all the receiver's front-panel controls while adding such extra features as temporary muting of the audio outputs and a sleep timer, which automatically shuts off the receiver after an adjustable period of 10 to 90 minutes. My chief criticism of the remote control is that all its buttons are the same size and shape, and almost all are the same color (black).

The specifications for the RV-4050R

## MEASUREMENTS

### TUNER SECTION

All data for FM only except frequency response.

<b>Sensitivity</b> (50-dB quieting)	
mono	19 dBf
stereo	35 dBf
<b>Noise</b> (at 65 dBf)	
mono	-73 dB
stereo	-68 dB
<b>Distortion</b> (THD+N at 65 dBf)	
mono	0.17%
stereo	1.4% (mostly pilot-carrier leakage)
<b>Capture ratio</b> (at 65 dBf)	1 dB
<b>AM rejection</b>	65 dB
<b>Selectivity</b>	
alternate-channel	80 dB
adjacent-channel	17 dB
<b>Image rejection</b>	44 dB
<b>Pilot-carrier leakage</b>	
19-kHz	-40 dB
38-kHz	-40 dB
<b>Hum</b> (120 Hz)	-70 dB
<b>Channel separation</b>	
100 Hz	42 dB
1 kHz	52.5 dB
10 kHz	46 dB

### Frequency response

FM	30 Hz to 15 kHz $\pm 0.8$ dB
AM	53 to 2.5 kHz $+0, -6$ dB

### AMPLIFIER SECTION

All data for two-channel stereo operation.

<b>Output at clipping</b> (1 kHz)	
8 ohms	63 watts
4 ohms	90 watts
<b>Clipping headroom</b> (re rated output)	
8 ohms	0.2 dB
<b>Dynamic power</b>	
8 ohms	76 watts
4 ohms	128 watts
<b>Dynamic headroom</b> (re rated output)	
8 ohms	1 dB
<b>Distortion at rated power</b> (60 watts, 1 kHz)	0.035%
<b>Sensitivity</b> (for 1-watt output into 8 ohms)	26 mV
<b>Noise</b> (re 1 watt, A-wtd)	-75.5 dB
<b>Frequency response</b> (20 Hz to 20 kHz) tone controls centered	$+0, -0.8$ dB
<b>Tone-control range</b>	
100 Hz	$\pm 11$ dB
10 kHz	$\pm 10$ dB

# Introducing *Ensemble IV*

## The Most Affordable Sub/Sat Speaker System Ever By Henry Kloss.

*Ensemble IV* is an ultra-compact, very affordable subwoofer/satellite speaker system designed by Audio Hall of Fame member Henry Kloss (founder of AR, KLH and Advent). It maintains the precise octave-to-octave tonal balance of our original *Ensemble* system, which *Audio* magazine said, "may be the best value in the world."



Henry Kloss

It doesn't have quite the deep bass extension as the original *Ensemble*, and it won't play as loudly. But in terms of performance for the dollar, we believe it has no serious rival.

### The Classic *Ensemble* Sound.

We believe the single most important factor in designing a musically accurate speaker is tonal balance. A properly designed speaker should not put any extra emphasis on one octave versus another. Henry Kloss spends an extraordinary amount of time "voicing" his speaker designs for precise, octave-to-octave tonal balance. The result is that *Ensemble IV* has an overall sound very similar to the more expensive members of the *Ensemble* family. What it sacrifices is the lowest half-octave of deep bass, and power handling capability.



*Ensemble IV Home Theater* is identical to the basic *Ensemble IV* system except that it has five satellite speakers instead of two. It's perfect for use in surround sound systems with Dolby Pro Logic®. Price \$379<sup>99</sup>

### Great Sound, Anywhere.

*Ensemble IV's* satellite speakers are small enough to fit in the palm of your hand (4" x 4" x 3 5/8"). And its subwoofer is about the



**\$229<sup>99</sup>**

The *Ensemble IV* Subwoofer/Satellite Speaker system

size of a shoebox (6 1/2" x 8" x 12"). Since the subwoofer can be put in out-of-the-way places—behind drapes, under furniture—*Ensemble IV* can fit into any room, no matter how small. It's perfect for use in apartments, dorms, offices, dens, kitchens and bathrooms.

### The Satellites.

Each *Ensemble IV* satellite incorporates a unique wide-range, long-throw three inch driver capable of reproducing notes down to 150 Hz, without the use of a second driver. Magnetically shielded, they won't distort your TV or computer screen. Each satellite is finished with a scratch-resistant, textured charcoal surface, and comes with a premium metal grille instead of the inexpensive fabric used by many other speakers in *Ensemble IV's* price range. Because of their size, they'll fit just about anywhere. Wall-mounting hardware is included.

### The Subwoofer.

The lowest bass notes are reproduced by *Ensemble IV's* shoe box-sized subwoofer. It uses a remarkable 5 3/4" bass driver with dual voice coils. The driver is mounted in a true acoustic suspension cabinet. It fires into a second "tuned bandpass" cavity within the cabinet which filters out unwanted higher frequencies. The careful engineering of this design allows *Ensemble IV* to combine deep bass response with high efficiency. Henry

Kloss says, "*Ensemble IV* is the smallest and most affordable system I can design for use with any amplifier or receiver and still provide deep, really satisfying bass." Since low frequency bass is non-directional, the subwoofer can be hidden behind or under furniture.

### Factory-Direct Savings.

Cambridge SoundWorks products are available only direct from us, or through cost-efficient Best Buy stores nationwide.

Because of our efficient distribution, you get unbeatable quality and performance for your dollar. After you hear *Ensemble IV*, we think you'll agree that it sounds as good or better than speakers selling for hundreds more. It comes complete with 100' of speaker wire, a wire stripper/cutter, a Hook-Up Guide and our Guide To Surround Sound.



### We Eliminate The Risks.

*Ensemble IV* is backed by our 30-day Total Satisfaction Guarantee. Try it in your home, with your music. If you don't like it, return it for a full refund. We even refund your original regular ground UPS shipping charges.

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are generally typical of today's receivers with respect to its tuner and preamplifier characteristics. Perhaps the most obvious distinction between its specified performance and that of more expensive receivers is that its power ratings are based on a 0.5-percent distortion level, but, as our measurements show, those ratings are quite conservative. Particularly noteworthy is the receiver's strong output

into 4-ohm loads — up almost 50 percent from that measured into 8 ohms.

In addition to its very adequate performance and low price, the RV-4050R's most striking feature is its one-knob control. I consider simplicity without sacrifice of essential performance to be a cardinal virtue. To achieve it at a bargain price is a further indication of good engineering.

I recall testing one other product

with a similar one-knob control system. The Swedish Audio Pro tuner/preamplifier of 1981 was a pioneering effort in this direction, and it worked very well indeed. It had no power amplifier, however, and its price was more than \$1,000 (in 1981 dollars!). Compare that with the Sherwood RV-4050R and its \$270 price, and you may better understand my enthusiasm for the Sherwood. □

## SECOND OPINION

### Sherwood RV-4050R Audio/Video Receiver

**S**herwood's RV-4050R is about as Spartan as an A/V receiver can get. Even the Pro Logic surround-channel delay is fixed at 20 milliseconds, and the surround speakers are connected in series (so you need two to get any surround output at all). It has no music-enhancement processing modes, no connections for a second pair of main speakers, no dedicated subwoofer output, no on-screen display, no S-video connectors, no universal programmable remote control. But considering the RV-4050R's price, all those omissions are reasonable and, except for the subwoofer output, not likely to be missed by most users just starting out in home theater, for whom this receiver is ideally suited.

The back panel is correspondingly simple, with the various audio input connectors conveniently arranged in horizontal array. The video connections for the two rear-panel A/V inputs (there's one on the front panel as well) are fairly well separated from their corresponding audio jacks. The remote control is monotonous in layout and coloration, with the Dolby Pro Logic off button placed rather strangely.

I liked the elegance of the multipurpose front-panel knob. I wish, though, that its volume-control steps were a bit more finely spaced than the approximately 2-dB steps provided. These, in combination with the 2-dB steps for the surround- and center-channel level controls, mean that you may find it difficult to get a really tight (within 1 dB) level match among the speakers in surround operation. Also, the volume indicators in the display were too few in number and too small to be discerned from more than a couple of feet away.

As if to make up for its front- and rear-panel austerity, the RV-4050R really delivers in terms of performance. Its Dolby Pro Logic measurements and sound quality were right up there with what we typically see from receivers priced two to three times higher. The measured surround-channel noise level, in fact, was notably low and gratifyingly below audibility in our listening tests — a distinct improvement over what we've found with many other A/V receivers. A measured 1- or 2-dB advantage here can mean the difference between audible and inaudible noise from the main listening position.

The response deviations for the left and right front channels—caused mostly by a high-frequency rolloff that reaches about 0.5 dB down at 10 kHz—are part of the receiver's basic performance and do not completely disappear when it is switched out of Pro Logic mode. The center channel rolls off more rapidly above 10 kHz, at which point it is down by 1 dB, having passed through the -0.5-dB point at 5 kHz. These response errors were large enough to be barely audible during careful listening tests but are not serious, particularly in light of the typical quality of soundtracks. In fact, the slight rolloffs may serve to reduce harshness when some soundtracks are played back at theater-like levels.

Although the RV-4050R's rated and measured front-channel outputs might seem a little low compared with those of larger — and more costly — receivers, remember that the Sherwood's 60 watts per channel will produce peak sound levels only 3 dB lower than could be obtained from a receiver that delivered 120 watts per channel. That delivered

might be audible at very high volumes, but it would be small and certainly not proportional to the difference in price. In that light, the Sherwood RV-4050R is a genuine and highly recommendable bargain.

— David Ranada

#### DOLBY PRO LOGIC PERFORMANCE

**Frequency response** (tone controls centered)  
left, right ..... 20 Hz to 20 kHz +0.02, -1.01 dB  
center ..... 20 Hz to 18.3 kHz +0.03, -3 dB  
surround ..... 54 Hz to 6.7 kHz +0.07, -3 dB

#### Output at clipping

(channels driven individually)

left, right ..... 60 watts  
center ..... 60 watts  
surround ..... 15 watts

#### Noise (re 1-watt output, A-wtd)

left, right ..... -73.1 dB  
center ..... -75.3 dB  
surround ..... -72.2 dB

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

left, right ..... 0.032%  
center ..... 0.029%  
surround ..... 0.24%

#### Surround decoder input-overload

margins (at 1 kHz)

left, right (re 2-volt input) ..... 1 dB  
center (re 1.414-volt input) ..... 2.75 dB  
surround (re 1.414-volt input) ..... 2.75 dB

#### Surround-channel noise-reduction

calibration error

re Dolby level (247.5 mV) ..... 0 dB

#### Channel separation (100 Hz to 7 kHz)

left output, right driven ..... >55 dB  
left output, center driven ..... >28 dB  
left output, surround driven ..... >37 dB  
center output, left driven ..... >41 dB  
center output, surround driven ..... >39 dB  
surround output, left driven ..... >39 dB  
surround output, center driven ..... >45 dB

# The Critics Love Ensemble Speakers. You'll Love Our Factory-Direct Prices.

*"Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices."*

**Stereo Review**

Audio magazine once said our *Ensemble®* speaker system may be "the best value in the world." And *Stereo Review* said, "It's hard to imagine going wrong with Ensemble." Dozens of critics and thousands of customers have applauded our *Ensemble*, *Ensemble II* and *Ensemble III* speaker systems. Designed by Henry Kloss (founder of AR, KLH and Advent), they became best sellers by offering quality construction and accurate, wide-range music reproduction — at Factory-Direct prices.

## Ensemble

Our current *Ensemble* is an improved version of our original dual-subwoofer/satellite speaker system. It maintains the dual subwoofer design, which allows for maximum room placement flexibility. Placement of bass and high-frequency speakers in a room (and how those speakers interact with the room) has more influence on the sound quality of a music system than just about anything. *Ensemble's* ultra-slim subwoofers give



you more placement flexibility than any system we know of, and are most likely to provide the performance you want *in the real world...in your room*. Having two, compact subwoofers lets you move them around, experiment, and find that placement that gives you exactly the sound you want. This is one of the reasons *Esquire* describ-

ed *Ensemble* by saying "you get 30 days to return the speakers or keep them, but you'll keep them."

## New Woofer And Tonal Balance Controls.

*Ensemble* maintains the tonal balance, frequency range and quality of construction of the original. There are two basic changes.

1. *Ensemble* now uses a new 8" woofer with a very long "throw" for more linear cone excursion and more accurate bass. An integral heat sink provides improved power handling.
2. *Ensemble's* satellite speakers use the same speaker drivers and crossover as the original, but with new midrange and high frequency controls.

The midrange control lets you choose the same output in the key 800-1600 Hz octave as in the original, or you can emphasize it by 2 dB. *Ensemble* satellites



have relatively less output in this range to avoid the "boxy" sound of many speakers. This results in an "open" sound on large-scale symphonic works.

For small-scaled music, the higher output position proves a "warmer" sound.

A three-position high frequency control can subtly increase the system's "airiness," or reduce any tendency towards "edginess."

We believe our *Ensemble* system competes head-on with speakers selling for hundreds more. Available with black-laminate subwoofers for \$629<sup>99</sup>, or with vinyl-clad subwoofers for \$549<sup>99</sup>.

## Ensemble II

*Ensemble II* is an improved version of our best-selling system. It's more affordable than *Ensemble* because it uses one cabinet for both subwoofer speakers. *Ensemble II* maintains the tonal balance, frequency range, power handling and construction quality of the original. But its satellite speakers use the same new tonal balance controls as *Ensemble's*.

*Ensemble II* also has a new flared subwoofer port. The subwoofer cabinet encloses two 6 1/2" long throw woofers mounted in a sealed "acoustic suspension" chamber. They project into a second chamber fitted with the flared port, which provides smoother air flow, eliminating extraneous noise on strong bass notes.

We think *Ensemble II* outperforms other speakers in its category, including well-known models for about twice the price. \$439<sup>99</sup>.

## Ensemble III

*Ensemble III* is our most compact, most affordable subwoofer/satellite speaker system. Its satellite speakers are only 4 1/2" x 6 1/2" x 5" and its subwoofer is 8" x 8" x 15".

Compared to *Ensemble II*, *Ensemble III* gives up a little in power handling, low bass range, and efficiency.

Unlike the "cube" satellite speakers you'll find in most similarly priced systems, *Ensemble III's* satellites are two-way speakers. *Ensemble III's* 6 1/2" woofer uses two voice coils in a cabinet with a flared port for smooth air flow.



With most recordings *Ensemble III* will sound virtually identical to *Ensemble II*. It simply won't play as loud. Its construction quality is normally found only in much more expensive speakers. Price, including connecting wire, cutter/stripper, Hook-Up Guide and Dolby Surround Guide, is only \$329<sup>99</sup>.

## We Eliminate The Risks.

All Cambridge SoundWorks speakers are backed by our 30-day Total Satisfaction Guarantee. Try them in your home, with your music. If you don't like them, return them for a full refund. We even refund your original regular ground UPS shipping charges.

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# TEST REPORTS



BOOK P. LEUNG

## Rotel RB985THX Five-Channel Power Amplifier

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

**R**otel might not be as familiar to the general public as some other brands, but it is well known to serious audiophiles for the quality and value of its comprehensive line of audio products. Although manufactured in the Far East, the company's products are designed and engineered in Great Britain.

The RB985THX five-channel power amplifier is a recent addition to the Rotel product line. As the model number indicates, it is approved by Lucasfilm to carry the THX logo on its panel. Each of its identical amplifier channels is rated to deliver 100 watts into an 8-ohm load, from 20 Hz to 20 kHz, at less than 0.03 percent distortion.

The RB985THX is a fairly large amplifier, whose 35-pound heft puts it into the middleweight class (by my definition, liftable but not something you would like to carry for a distance). Its exterior is all black, with extensive

ventilation slots on the top, bottom, and side surfaces. The five amplifiers, each with four output power transistors mounted on a single heat sink, are operated from a single power supply built around a large and heavy toroidal transformer. Unlike many other power amplifiers, the RB985THX has a well-

filled interior, with several large circuit boards and a notably clean, uncluttered layout.

The amplifier's front panel gives few clues to its special qualities. Aside from the THX logo, a pushbutton on/off switch, and a small, red pilot light, its only visible feature is a vertical row of small LED protection-indicator lamps numbered 1 through 5. A preliminary examination of the amplifier's interior revealed at least fourteen fuses, and there may have been other protective circuits that were not easily identifiable. Our tests were without mishap, however, so we were spared the need to identify or correct any problems.

The RB985THX's rear apron, on the other hand, tells you unequivocally what it is meant to do. Along its lower edge are three groups of multiway speaker-output binding posts (which accept wires, lugs, or banana plugs). Above each group are the corresponding gold-plated input jacks (standard phono jacks). At the left and right sides of the rear panel, the speaker outputs and signal inputs are identified as for the surround and front channels, respectively. In the center of the rear apron is a group consisting of two sets of speaker-output jacks and a single

### DIMENSIONS

17¾ INCHES WIDE, 4¾ INCHES HIGH,  
14½ INCHES DEEP

### WEIGHT

35 POUNDS

### PRICE

\$1,000

### MANUFACTURER

ROTEL OF AMERICA, DEPT. SR,  
54 CONCORD ST.,  
NORTH READING, MA 01864-2699



# In The Mid '70s We Created Home Theater. Now We've Created A New Way To Buy It.



The people who work at Cambridge SoundWorks - including our cofounder Henry Kloss (who also founded AR, KLH and Advent) - have been involved with the concept of home theater from the beginning. In 1969 (years before VCRs and cable TV), Henry Kloss founded Advent, the company that introduced the first home theater audio/video systems - complete with big-screen TVs and digital surround sound. We have had an ongoing relationship with the people at Dolby Laboratories, creators of Dolby Surround Sound, since Henry Kloss introduced the first consumer products with Dolby noise reduction over 20 years ago. And now at Cambridge SoundWorks we believe we have set a new price-to-performance standard for home theater components.



## Surround Speakers

Cambridge SoundWorks makes two "dipole radiator" surround sound speakers. Dolby Laboratories recommends dipole radiator speakers for use as surround speakers. *The*

*Surround* has a very high power handling capacity and is often selected for "high end" surround sound systems. *Audio*, describing a system that included *The Surround* said,

"In many ways the surround sensation was every bit as good as far more expensive installations." **\$399<sup>99</sup> pr.** The smaller *The Surround II* is arguably the country's best value in a dipole radiator speaker. **\$249<sup>99</sup> pr.**

## Powered Subwoofers

The original *Powered Subwoofer* by Cambridge SoundWorks consists of a heavy-duty 12" woofer housed in an acoustic suspension cabinet with a 140-watt amplifier and a



built-in electronic crossover. *Stereo Review* said it provides "deep powerful bass...31.5 Hz bass output was obtainable at a room-shaking level...they open the way to having a 'killer' system for an affordable price." **\$699<sup>99</sup>.**

Our *Slave Subwoofer* uses the same woofer driver and cabinet, but does not include the amplifier or crossover. It can only be used in conjunction with the *Powered Subwoofer*. **\$299<sup>99</sup>.** The new *Powered Subwoofer II* uses a 120-watt amplifier with an 8" woofer. **\$399<sup>99</sup>.**

## Home Theater Speaker Systems

We have assembled a number of home theater speaker systems that consist of center

channel, surround and main stereo speakers. The combination we show here is our best seller. It includes our critically acclaimed *Ensemble* subwoofer satellite speaker system (with dual subwoofers), our *Center Channel Plus* and a pair of our best surround speakers, *The Surround*. You could spend hundreds more than its **\$1,167<sup>99</sup>** price without improving performance.

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Because we sell carefully matched and tested home theater speaker systems Factory-Direct, and through cost-efficient Best Buy stores, you can save hundreds of dollars. We believe the products on these pages represent the country's best values in high performance home theater components. Audio critics, and thousands of satisfied customers, agree. *Stereo Review* said, "Cambridge SoundWorks manufactures loudspeakers that provide exceptional sound quality at affordable prices." *Audio* suggested that we may have "the best value in the world."

## Center Channel Speakers

Cambridge SoundWorks manufactures three speakers for use as center channel speakers in Dolby Pro Logic home theater systems. All three are magnetically shielded so they can be placed near a TV or computer monitor. *Model Ten-A* is a small, affordable two-way speaker. **\$79<sup>99</sup>.** *Center Channel* is essentially identical



to a Cambridge SoundWorks *Ensemble* satellite (but with magnetic shielding). **\$149<sup>99</sup>.** *Center Channel Plus* uses an ultra-low, ultra-wide design that is ideal for placement above (or, with optional support stand, below) a TV monitor. **\$219<sup>99</sup>.**

**CAMBRIDGE  
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BY HENRY KLOSS



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# TEST REPORTS

input jack, all designated for the center channel. All the speaker binding posts are color coded (red, green, blue, or black) to identify their function and simplify installation.

Like some other Home THX-certified components, the RB985THX also has a computer-style DB25 multipin connector on its back panel. If your surround processor or preamp is a Home THX model that also has such a port, you can connect it to the amplifier with a single cable, eliminating the five separate RCA cables that would ordinarily be required. No more double- and triple-checking to insure that inputs and outputs are properly matched — a five-channel home theater hookup actually becomes easier than an ordinary two-channel preamp/power-amp connection.

We tested the RB985THX while driving three channels simultaneously, but since they are identical, we made measurements on only one of them. Driving all five channels to reasonably high levels was not practical for logistical reasons (simply because it's hard to find room for five bulky, heavy, and hot load-resistor assemblies in a relatively limited space).

The standard FTC preconditioning period of 1 hour with the channels dri-

**The Rotel RB985THX is a real powerhouse of an amplifier, able to pump a total of as much as 1,000 watts or more into 4-ohm loads.**

ven to one-third of rated power made the amplifier rather warm, but not uncomfortably hot. Later, when it was driving 4-ohm loads (the lowest load impedance Rotel recommends for use with the RB985THX), its exterior became still warmer, though not dangerously so.

As our test data show, the Rotel RB985THX is a real powerhouse of an amplifier, rated quite conservatively. It easily met or surpassed its specifications, with no external indication that it was anything unusual for a conventional amplifier of its size to deliver (at times) as much as 500 to 1,000 watts into 4-ohm loads. I am quite sure that if sufficient high-power load resistors had been available it would have performed consistently with all five channels operating simultaneously.

Actually, the use of identical amplifiers for all channels is probably overkill for a home theater installation, since unless the surround speakers are quite a bit less sensitive than the front speakers they should never require as much power (and certainly not for enough time to require such a robust amplifier as the RB985THX). Other applications can be imagined, however, in which having five separate high-power amplifier channels available would be handy, especially when the entire package is no larger (and not much heavier) than an ordinary stereo receiver.

Considering what it does and how well it does it, the Rotel RB985THX is an excellent value. Past experience with Rotel products also suggests that it is likely to keep on performing well for a long time. □

## MEASUREMENTS

All measurements made on one channel with three channels driven.

### Output at clipping (1 kHz)

8 ohms ..... 150 watts  
4 ohms ..... 300 watts

### Clipping headroom (re rated output)

8 ohms ..... 1.8 dB

### Dynamic power

8 ohms ..... 160 watts  
4 ohms ..... 312 watts

### Dynamic headroom (re rated output)

8 ohms ..... 2 dB

### Distortion at rated power

(THD+N, 100 watts)

8 ohms ..... 0.045%

### Sensitivity

(for 1-watt output into 8 ohms) ..... 100 mV

Noise (1-watt output, A-wtd) ..... -100.2 dB

### Frequency response

..... 20 Hz to 20 kHz +0.01, -0.1 dB



LOOK P. LEUNG

## Cerwin-Vega Sensurround Powered System 6 Home Theater Loudspeakers

DAVID RANADA • TECHNICAL EDITOR

Cerwin-Vega's large line of home theater speaker systems actually consists of various combinations of relatively few different components. Since each component is available separately, and there is no list-price advantage to buying them by the whole system rather than individually, you can mix and match to your heart's—and wallet's—content. But you can eliminate much of the shopping drudgery by accepting the company's choices in its preselected systems, one of which is the Powered System 6 tested here (\$1,695 total).

Doing duty as the System 6's main front left and right speakers and as surrounds are two pairs of HT-S5 satellites (\$330 a pair). The HT-S5 is a small sealed-box design using a 1-inch polycarbonate-dome tweeter and a 5-inch "midrange" driver. Cerwin-Vega doesn't call the latter a woofer because the low frequencies in the system are handled by an HT-10PWR woofer module and because the HT-S5 itself has a built-in low-frequency

(high-pass) filter with a specified rolloff of 6 dB per octave below 125 Hz. In the home theater context, such a rolloff is a good idea because it reduces the distortion caused by pushing too hard at low frequencies a driver that cannot handle them. Crossover to the tweeter occurs at 7 kHz. Sensitivity is given as 91 dB sound-pressure level (SPL) at 1 meter with a 1-watt input, impedance as 8 ohms.

The satellites' black woodgrain, 6-pound enclosures measure a smallish 6½ x 9¼ x 6¾ inches. All the separate manuals for the speakers in the system include a warning not to "suspend, hang, or wall mount" any of the satellites or the center-channel speaker "with any brackets, cables, chains, or hooks." Instead, they are to be placed on bookshelves or stands, with set-top placement for the center speaker also allowed. The HT-S5's do, however, come with their own wall-mount brackets, which are presumably okay to use as long as you follow the mounting instructions. Amplifier ca-

bles attach via spring connectors to all the speakers in the system except the woofer.

The HT-MDC center-channel speaker (\$235) does not match the satellites either in driver complement or, it turns out, in sound. It does contain a 1-inch polycarbonate-dome tweeter but has two 5-inch cone midranges. It also apparently does not have the HT-S5's deliberate low-frequency rolloff. That is reasonable considering that when the speaker is used in conjunction with a Dolby Pro Logic decoder in Normal mode (as it should be for the HT-MDC), frequencies below 100 Hz in the center channel would ultimately end up being reproduced by the woofer box anyway. Rated sensitivity of the HT-MDC is 90 dB SPL, and its nominal impedance is 8 ohms. Finished like the satellites, in black woodgrain, the 11-pound HT-MDC measures 11½ x 6¾ x 6½ inches.

The most complex component in the system is the HT-10PWR powered woofer module (\$800). It contains an amplifier rated at 100 watts driving a 10-inch, dual-voice-coil woofer with a die-cast aluminum frame mounted in a vented (bass-reflex) enclosure. The vent is on the front of the 55-pound box, which measures 18½ x 13 x 16¾ inches standing up, although it can be used flat on its side as well. Also on the front of the enclosure is the woofer's volume-control knob (which has a maximum dial marking of 11!) with a position-indicating LED, another LED indicating that the internal amplifier "has reached maximum power output and volume should be reduced," and the infrared sensor window for the supplied remote woofer-volume control. Since the handy remote has only two buttons (WOOFER-UP/WOOFER-DOWN), its control codes are prime candidates for programming into one of those universal remotes that come with some VCR's, TV sets, and A/V receivers.

The HT-10PWR's back panel has two input options: line-level phono jacks or speaker-level multiway binding posts. Both input connections have corresponding parallel-connected, loop-through outputs. That means that there is no high-pass filtering on the line-level outputs as there is with some other powered woofer modules. It's not essential in this case because of the low-frequency filtering in the satellites and the splitting-out of center-channel bass that occurs in Dolby Pro

Logic's Normal mode. But the lack of such filtering may make the HT-10PWR a less-than-optimum match for some other speakers. The back panel also has a knob for varying the woofer crossover frequency between 45 and 150 Hz, as well as a polarity-flip switch. AC power enters via a 6-foot line cord with a two-prong plug. A switch sets the woofer for off, on, or automatic operation. When set to automatic, the woofer senses the presence of an audio signal and within 3 seconds turns itself on (power-off timeout is a generous 15 minutes).

Setup was typical for a home theater speaker system — you get lots of practice in wire stripping. The speaker-placement diagrams in the manuals were good guides, though I prefer to have the surrounds more directly to the sides of the listening area than they indicate and to have a wider left-right spacing in the front. We used our normal layout: front left and right speakers on stands away from the walls, center speaker either on a low stand in front of the TV screen or on top of the screen, and the surrounds elevated on high shelves directly to the sides of the main listening position.

Cerwin-Vega's diagrams and the manual's text emphasize corner placement of the woofer module, which happily coincided with where the HT-10PWR measured and sounded best in our listening room. A swept sine wave showed that the woofer delivered usable output down to 25 Hz, though vent noise started to become obvious about an octave higher (48 Hz). The noise was masked by most normal program material, however, becoming apparent only on pipe-organ pedal-solo passages. The low-frequency reinforcement provided by corner placement, in conjunction with the 100-watt amplifier built into the woofer, enabled us to produce very high bass levels on soundtracks without ever lighting the clipping indicator.

You might think that since the HT-S5 satellites' low-frequency rolloff point is given as 125 Hz that the HT-10PWR's crossover setting should be set to that frequency, too. But in our listening room I got the best "join" with the crossover frequency set to its maximum of 150 Hz. Even then there was a slight dip in overall system response at around 200 Hz. A one-third-octave measurement of the HT-S5 satellites' response revealed why that occurred: Placed as we had them, away

from any walls, they actually started rolling off at around 250 Hz. Nonetheless, after careful level-matching of the woofer with the front satellites, I was able to obtain a response that varied only  $\pm 2.5$  dB from below 40 Hz to approximately 2 kHz.

At higher frequencies the satellites had a swaybacked response characteristic, dipping to a minimum of about  $-5$  dB (relative to the level at 1 kHz)

**With the System 6's HT-10PWR woofer module in a corner, we were able to get very high bass levels on soundtracks without ever lighting its clipping indicator.**

and extending over a broad region from approximately 3 to 8 kHz. Such a lower-treble trough is a very common coloration, possibly because it can reduce the harshness characteristic of many pop vocals, which are often recorded using microphones having the opposite characteristic (a lower-treble boost). It also removes some of the natural "bite" of massed classical strings, however, and promotes a general tendency to steeliness and sibilance. All these effects occurred with the HT-S5's but were more audible on

music recordings than on soundtracks. The satellites were also surprisingly directional in the vertical plane for two-driver speakers, and for best sound the front satellites should be placed or aimed as close to ear level as possible.

Pink noise panned across the front speakers plainly showed that the response of the HT-MDC center speaker was distinctly different from that of the satellites. Listening to recordings and making response measurements showed that it was also decidedly better. Its low-frequency rolloff didn't begin until 150 Hz, and its on-axis response above that frequency was an excellent  $\pm 2$  dB up to around 15 kHz, with not a trace of a treble dip. It also exhibited considerably less measurable and audible distortion than the HT-S5 satellites between 150 and 200 Hz. The tonal mismatch of center to satellites resulted in slightly *less* precise imaging in surround operation than in plain two-channel stereo, with just the left and right front satellites operating, when imaging was very good.

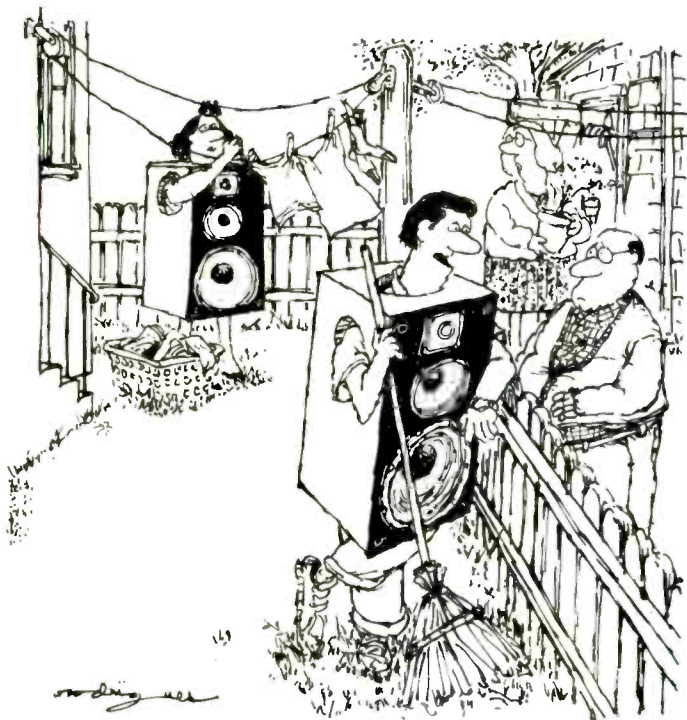
The Powered System 6's overall sound quality was good for its price, aided in no small measure by the fine performance of the HT-10PWR woofer module. But I'd be willing to bet, without testing, that a custom Cerwin-Vega system substituting two HT-MDC speakers for the front two HT-S5 satellites would actually be, at \$1,835 (\$140 more than the Powered System 6), a much better buy. Three HT-MDC speakers reproducing the front channels would yield both a closer sonic match and significantly more neutral sound. □

*Cerwin-Vega, Dept. SR, 555 E. Easy St., Simi Valley, CA 93065*



*"For crying out loud, Vernon, flip the subwoofer polarity switch!"*

# The 11th Annual Rodrigues Cartoon Caption Contest



*"If it weren't for my extra-long-throw voice coil, she'd probably leave me for someone with a bigger magnet."*

**S**ound the trumpets and all salute Douglas W. Alderman, of Novato, California. Dr. Alderman is the winner of the eleventh Rodrigues Cartoon Caption Contest, and his winning entry is printed under the drawing above.

As we have in previous years, in our issue of January 1995 we published a drawing by our regular cartoonist, Charles Rodrigues, and invited readers to submit captions for it. The prize for the one the judges consider to be the funniest is \$100 and the original drawing.

The editors of STEREO REVIEW thank Dr. Alderman and the thousands of others who entered the contest. The quality of the captions submitted this year was unusually high. Entries came from across North America and from such exotic places as Hong Kong; Curitiba, Brazil; and Järna, Sweden.

As in most previous Rodrigues contests, this year the mu-

sical composition mentioned in the most entries was Tchaikovsky's *1812 Overture*. Audio stars Amar Bose, Julian Hirsch, Henry Kloss, and Matthew Polk were mentioned along with Newt Gingrich, Speaker of the House. (Get it?) Many entries mentioned marriage counselors, cumbersome sleeping arrangements, who gets to be the right channel, and making beautiful music together.

We are grateful to our previous winners, who served as judges: Thomas Briggie (Wadsworth, Ohio), Michael Binyon (Weaverville, California), Bruce Barstow (Philadelphia, Pennsylvania), Matthew Mirapaul (Wilmette, Illinois), Marc Welenteychik (Richmond, Virginia), Douglas Daughhete (Birmingham, Alabama), Kelly Mills (Raleigh, North Carolina), Diane Sullivan (Grand Falls, New Brunswick, Canada), Brian Hoffman (New York City), and Ron Haynes (Nashville, Tennessee).

This year's winner, Dr. Alderman, is a dentist and a captain in the Coast Guard at present working in medical administration. He has been a subscriber to STEREO REVIEW for more than twenty years and is a dedicated audiophile who constantly upgrades his equipment. His interests in music are wide, ranging from rock, the Eagles, Abba, and Cher to John Denver. As he grows less interested in pop hits on radio, Dr. Alderman listens to more and more classical music.

A few runners up in this year's contest are printed below. If you find one of these funnier than the winning caption, please don't tell us about it. If your entry is not among the runners up this year, we wish you better luck next time. We will announce next year's contest in January 1996.

— William Livingstone

## RUNNERS UP

*"You're very astute. Most people don't notice that I'm wearing a hairpiece."* — Edward Noroski, Budd Lake, NJ

*"We started out as a console, but we've grown apart over the years."* — Steve Nazor, Riverside, CA

*"I guess it's no big secret. Blanche and I have been out of phase for years."* — Jim Rolando, Missoula, MT

*"On a beautiful day like this we just toss the speaker grilles and go alfresco. Let the neighbors talk."*  
— Roger Vance, Crescent City, CA

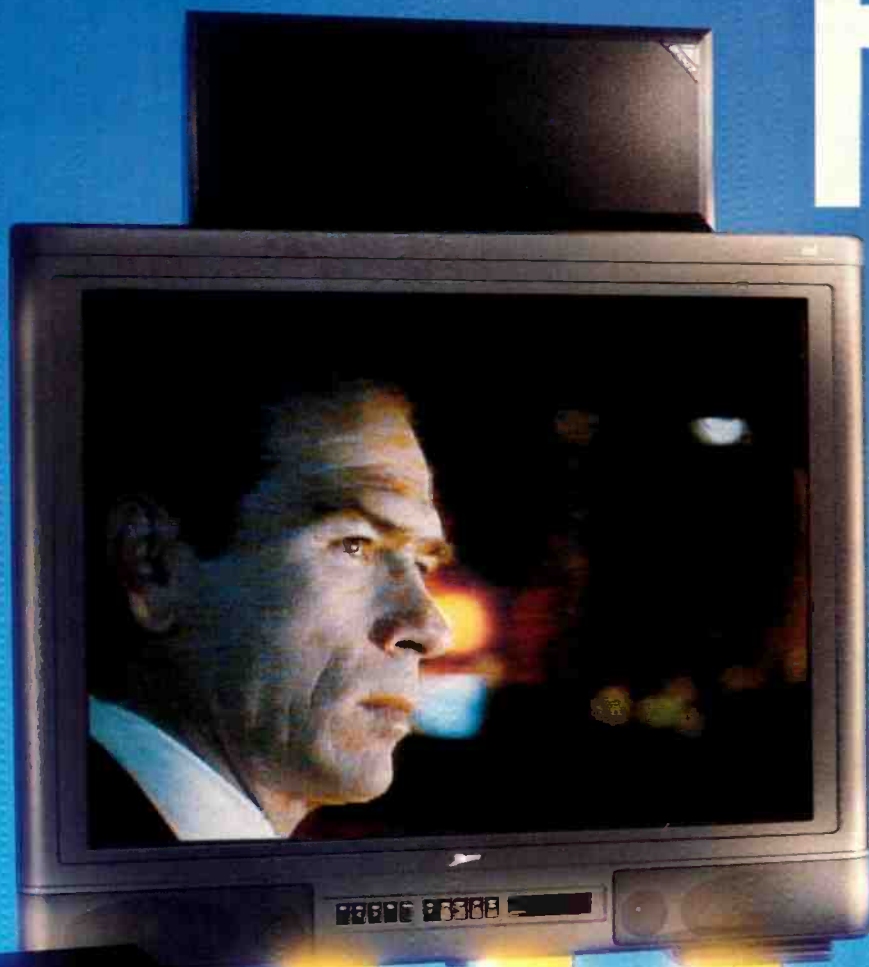
*"We have a spare pair in case you and the wife want to join us for some surround sound later."*  
— Eugene K. Althen, Black River Falls, WI

*"They came with instructions, but I never read those."*  
— Pete Christianson and Jim Gerkin, Scottsdale, AZ

*"And the other thing I don't like about weekends is that the satellites are home from school."*  
— Richard A. Prentice, Charleroi, PA

*"Relax, Fred. Lots of men have occasional problems with impedance. Just look in the Yellow Pages for a therapist who is THX-certified."*  
— Dan Geneen, Appleton, WI

# Home



BY DANIEL KUMIN

# Improvement

## 21 WAYS TO TUNE UP YOUR HOME THEATER

IF YOU LISTEN REAL CLOSE, late at night, you can hear home theaters popping up like mushrooms all over the country. The boom is in full swing as Americans from coast to coast discover the movie, TV, and pure-music delights available from today's best home audio/video systems and media.

Whether you're starting from scratch or tweaking or upgrading an existing setup, there are probably steps you can take to upgrade your home theater performance. That may mean nothing more than fine-tuning what you've already got to extract its best performance, or it could suggest adding or replacing a component or two. However you approach the task, a few moments (or even hours) spent contemplating how to optimize your home theater experience can pay big dividends.

### NO-COST UPGRADES

THERE ARE some potential improvements that won't cost you even a thin one. First and foremost, with home theater sound, as in real estate, the three most important elements are location, location, and location.

**1** **GETTING CENTERED**  
Let's start with the center speaker — assuming your system includes one (if not, see below) — by which we mean a single loudspeaker located smack-dab on top of (or directly below) the video screen, dead center (or, better, *behind* the screen if you're the lucky owner of an acoustically transparent front-projection screen). If your center speaker is anywhere else, move it. Systems that use two center speakers on either side of the screen or, worse, rely on built-in TV speakers as "dual" centers are just plain wrong: Only one thing can be in the center of anything else, and in the case of home theater sound we want a single speaker centered on the screen and as close to it as possible. Center speakers mounted back from the front of the screen, such as an in-wall design or a conventional speaker on a shelf above and behind

the TV are usually poor solutions — too far away and almost always subject to bad reflections from the top of the TV, the walls, and other surfaces.

Most speakers designed for center-channel operation are horizontal-lay-out models that simply sit on top of the video monitor. That's usually the optimal arrangement, but you'll probably get slightly clearer, more defined dialogue and other center-channel sound if you also slide the speaker forward just a bit, so that its cabinet actually overhangs the front of the screen by a half-inch or so. That will slightly reduce reflections from the screen, which have a surprisingly big impact on the speaker's sound.

**2** **FLANKING MANEUVERS**  
Next, the main left-right pair. These speakers should be placed so that their midrange/tweeter axis is no more than

a foot or so higher or lower than the center speaker (lower is usually better). If the flanking speakers are vertically misaligned by more than a foot, sounds that pan across the front will seem to jump around, and the "being there" illusion will suffer. Most floor-standing speakers naturally radiate at a nearly ideal height (if your screen isn't too far off the floor); bookshelf speakers will need stands. If your current stands are too low, replace them or augment them with milk crates — or, of course, a classier solution of your choice.

The left and right front speakers should also be fairly close to the screen edges if that is practical. With a big-screen TV or a medium-size screen in a small room, that may put the speakers almost against the set; with a smaller screen, such as a 25-inch TV at a 10-foot viewing distance, you'll have to "cheat" and put them a couple feet or so away from the screen to get a decent stereo spread. But don't go too far, or you may start to lose integration between picture and sound. Remember that the surround speakers will contribute to the perception of spaciousness, so if necessary err on the side of closer together rather than farther apart — just the opposite of most folks' instincts.

### **3** TRIANGULATION

In many systems you find that imaging and smoothness of panning are enhanced if you arrange the front trio so that all three speakers are almost exactly equidistant from the "sweet spot" in front of the screen. If you think about the geometry a bit, you'll see that that means placing the speakers on the arc of a circle whose center is your nose, pulling the left/right pair inward anywhere from a few inches to a foot or two, depending on room size and viewing distance. It doesn't always work magic, but in many instances I've found that this simple tweak pulled everything together quite dramatically.

### **4** SPACING OUT

Surround-speaker positioning may not be the most important factor overall, but it's frequently the one with the most room for improvement. Ideal placement will vary depending on the type of surround speaker you're using. Dipole surrounds (which I think are quite worthwhile) should be on the

SUBWOOFERS  
USUALLY WORK  
BEST PLACED  
NEAR BUT NOT  
QUITE FULLY  
IN A CORNER.

side walls, roughly even with the listening position, and closer to the ceiling than the floor. That's far from always possible, however, and with direct-radiating speakers (like the compact bookshelf models frequently deployed for surround duty) it may not even be desirable.

Take some time to experiment: Turn off or disconnect the front speakers and play a movie with a lot of ambient sound and several strong surround effects while listening to the surrounds alone. Repeat while trying different arrangements of the surround speakers. Listen for the smoothest, "spaciest" sound — that is, the sound that has the least tendency to "pull" the ear to one or another surround speaker. It's important to try for roughly equidistant placement of the surround speakers from the listening position. Otherwise the "precedence effect" will tend to pull the sound to the closer side no matter what you do — even in a system in which you can balance the outputs of the surround speakers individually.

Some setups to consider trying with direct-radiator surround speakers: on the side walls aimed backward toward the corners, on the floor against the side walls and aimed upward at the wall/ceiling junctions, and on the rear wall splayed outward and upward toward the side-wall/ceiling junctions.

But pretty much anything your ingenuity can devise that works is "right" here; listen carefully, and be creative.

### **5** WOOF, WOOF

Because of the strong influence of room resonance modes and boundary reinforcement on low-frequency smoothness and extension, systems employing outboard subwoofers can benefit greatly from relevant placement experiments. Putting the sub near but not fully in a corner usually works best.

But for the adventurous, here's a potentially useful and instructive subwoofer-placement trick: Put the subwoofer where you normally sit — that is, in the prime listening/viewing position (you'll probably have to move your couch or chair out of the way temporarily). Hook the subwoofer up and repeatedly play a scene or track with relatively steady, deep, and powerful bass. Now move about the room, listening for (and marking) the spots where you hear the smoothest, most extended, yet clearly defined bass, while rejecting the ones where mid-bass boom or thinness are apparent — you'll hear some, trust me.

The best spot you find is where the subwoofer should go permanently when you reclaim your rightful place on the sofa (Barcalounger, whatever). But note that to obtain fully valid results you'll really need to crawl around the room on your back like a beached turtle, so that your head and ears are roughly where the subwoofer would be — standing up drastically changes things, as you can readily demonstrate. I therefore strongly advise that you perform this routine when you are alone and unobserved!

### **6** REFLECTIONS

Before we leave speakerdom altogether, I want to suggest one more experiment. Room reflections play havoc in most audio systems, so anything we can do to control them helps. (Bookshelves, filled with real books, are very desirable, as randomly sized books make excellent diffractors.) In a typical home theater the single most destructive reflection is that of the center speaker off the ceiling to the primary listening position. Try this (you'll need an accomplice): While sitting at the prime position, have your assistant hold a mirror about a foot square (or round) flat against the ceil-



ing and slide it around until you can see the center speaker's tweeter in the mirror with your head in its normal listening/viewing position.

The mirror is now on the ceiling's prime reflector. Mark the spot (non-permanently!) and cover it with a piece of acoustically nonreflective material as big as you can manage — a foot square is okay, 2 feet square is better. The egg-carton-profiled foam-rubber stuff that things like expensive cameras are sometimes packed in is ideal (with the knobby side out, of course), but you can use anything else that might absorb and break up sonic reflections: actual egg cartons, a square

of cardboard painted with adhesive and dusted with styrofoam "peanuts," a flattish chicken-wire cage filled with old sweaters, whatever. I almost guarantee you'll hear a dramatic improvement in dialogue clarity, intelligibility, and smoothness — and cleaner, "deeper" musical sound as well. How to implement a permanently livable absorber/diffractor I leave up to you; you'll probably want to replace your makeshift one with Sonex foam (essentially, the eggy stuff) or a fabric acoustic panel once you've experienced the difference. Ambitious types can repeat this exercise for the left and right speakers as well.

## VIDEO TWEAKS

TWEAKING YOUR PICTURE is a more limited field, but not an empty one. Obviously, the best picture-enhancing move you can make is to buy a bigger, better video display system — but that is far from "free," so we'll pass it by for now. Tuning up the one you already have is highly recommended, however.

### 7 A SCREEN TOO FAR

First is the question of viewing distance: You're probably sitting too far away. Theoretically, to get something even remotely resembling a theatrical field of vision, you need to sit about 6 feet from a 32-inch TV or about 9 feet from a 45-inch rear-projection set. That's too close for most folks, but closer is usually better. Find the closest comfortable position, where the video scan lines are not too obvious, and work from there.

### 8 BACK OFF!

Next, set up the screen itself. Most TV's are set far too bright and with far too much chroma intensity (the "color" control), usually to compensate for bright room light. Try dimming the lights a little (or a lot) and turn both the contrast (or "picture") and color controls down until brightly lit scenes look realistically vivid but not overbearing and garish. Now turn the brightness (or "black level") control down until dim scenes begin to lose their black-to-gray definition, then back up just enough to regain it fully. And if your set has a comb filter in its color decoder (pretty much standard in high-performance models nowadays), try turning the sharpness (or "detail") control all (or almost all) the way down.

You should now be seeing a clearly superior picture relative to what you

started with. For more — much, much more — on monitor setups, buy (or beg or borrow from a friend or a helpful dealer) a copy of the laserdisc "A Video Standard" from Reference Recordings (LD-101), which includes reams of useful information, scores of invaluable video (and audio) test signals and patterns, and lots of worthwhile advice.

### 9 LIGHTING

Another word about room lighting: Less is more. That is why TV production studios are always crepuscular: Dark rooms enable the low-intensity pro video monitors, which are more correct chromatically than most home models, to work properly. Try tweaking your TV for a room with no direct lighting except a 40-watt lamp on either side of the screen (as far apart as possible). With no reflections on the screen, and low but adequate ambient light, you give the set a fighting chance to present its best image.

## LOW-COST UPGRADES

THERE ARE A FEW low-cost home theater refinements that are usually well worth trying. Many more are low-cost relative only to the price, say, of a weekend in Bermuda, but are still highly recommended.

## 10 VIDEO INTERCONNECTS

Though I'm not a strong booster of high-priced designer wire for hi-fi, video interconnects can sometimes make a subtle difference because video's several-megahertz bandwidth represents a stiffer transmission challenge than audio. You don't have to go hog wild, but better video interconnects may give you better performance. If you have a laserdisc player with dual video outputs you can easily A/B wires: Use different cables to connect the outputs to Video 1 and 2 inputs on your TV, and then switch between the two inputs to compare brightness, color definition, and detail. Cost: \$10 to \$50 (and up).

## 11 TO S, OR NOT TO S

The five-pin mini-DIN S-video connectors provided on many modern TV's, laserdisc players, and S-VHS and Hi8 VCR's hold another potential edge. Sometimes (though not nearly as often as people tend to assume) the S-connection will provide a clearly superior picture. It depends largely on the relative performance of the comb filters in the source component and the TV. If your source and video monitor are both so equipped, it's worth making the experiment. But don't be surprised if there's little or no difference, or if, especially with laserdisc players or long cable runs, the S-video connection actually looks worse. That's why you need to look before you leap. Cost: free if a decent S-cable came with your components; \$15 to \$75 for good aftermarket S-cables.

## 12 CLEANING UP

It almost goes without saying that your tape-based sources — VCR's and audio cassette decks — should be cleaned regularly and kept in tiptop order. If you don't already own the proper accessories, see your dealer at once. Cost: \$20 to \$40. If your main VCR has seen heavy service for a year or two with no particular attention, consider taking it to a technician for a thorough cleaning and tune-up. That will cost \$50 to \$75 but can be worth every penny in like-new playback.

## 13 REMOTE POSSIBILITIES

A well-designed, full-system universal or "learning" remote control won't do

a thing for your audio or video reproduction, but it can do a great deal for your own attitude. Some main-system components come with good remotes; many do not. A wide variety of aftermarket models are available: Look for good ergonomic design elements such as well-delineated key groups with varying sizes and shapes to make by-feel operation easy. Many of these re-

motes are preprogrammed with all the codes you'll need, and several feature "macro" capabilities that enable one-touch operations: For example, a single key could be programmed to turn on the system, select the laserdisc input and Pro Logic mode, adjust the volume to your normal listening level, and commence playback. Cost: typically \$30 to \$100.

## NOT-SO-LOW-COST UPGRADES

NOW TO THE FUN PART: buying neat stuff. A home theater offers even more upgrade and add-on opportunities than a straight audio system. Choose well, and you can make big strides in improving audio/video performance.

### 14 CENTER UP

If your system doesn't include a high-performance center speaker, run right out and buy one. Consider a model made to match the sound of your main left and right speakers, if those are "keepers." But if a new center speaker would mark the first step on a long, gradual upgrade path, pick out a top-notch model you like and plan from there. Remember, the center is the single most important speaker for reproducing movie sound. Cost: typically \$150 to \$500.

### 15 GET SURROUNDED

A pair of good dipole (or other specialized-design) surround speakers can truly open your ears on well-produced movie and TV soundtracks. And if your room layout lends itself to proper placement, a spookily realistic experience of sonic envelopment awaits you. There are dozens of excellent surround models, both Home THX-certified and not. Cost: \$250 to \$1,000 a pair.

### 16 BEAM UP

Consumer video's highest-quality source delivers the best picture and sound — and convenience. Yes, laserdiscs are relatively expensive (\$25 to \$45), and rentals are much tougher to find than for videocassettes. And yes, digital videodisc (DVD) is coming — someday. But if you want the peak experience that your home theater can supply right now, laserdiscs are still the way to fly. Virtually all current laserdisc players are "combi" models that double as very good audio CD players as well. Cost: \$400 to \$1,000 and up.

### 17 GET DOWN

If your system sounds great but lacks the bone-activating deep-bass grunt of the best cinemas, an easily integrated powered ("active") subwoofer is the answer. Many powered subs, including some very powerful, extended-bass designs, are surprisingly compact. Cost: \$500 to \$1,200 and up.

### 18 POWER UP

Many a home theater could benefit from additional audio amplification. There are now a huge variety of power amplifiers configured to make augmenting a receiver-based home theater system easy and nearly as many that are ideal for ground-up refits. When it comes to power, the more the merrier. Cost: \$400 to \$1,200 and up.

## NOT-EVEN-REMOTELY-LOW-COST UPGRADES

### 19 THINK BIG

There is no single addition you can make to a home theater that carries more impact than a big screen. Let's face it: The picture dominates our consciousness most of the time, and a big-picture is more, well, dominating. Big-screen TV's have improved significantly in the past five years or so while almost holding the line on price. So before you reflexively choose an under-\$1,000 30- to 32-inch direct-view screen (the most popular choice, and by no means a bad one in terms of performance and value), check out some 40- to 60-inch rear-projection models, especially the new-generation "widescreen" designs that can entirely fill their displays with today's letterboxed laserdiscs and tapes. Such a set will cost two to five times as much, but the difference in impact is immeasurable. Cost: \$2,000 to \$5,000.

### 20 MATCHED SETS

Once you've heard the real thing, it's hard to go back, so the best advice is not to audition the high-end stuff until you're ready to shop seriously. A matched-design five-speaker-plus-subwoofer surround system with plenty of amplifier power is a dramatic thing. There are both Home THX and non-THX systems that truly push the envelope, and many of them are surprisingly livable size-wise. Cost: \$1,800 to \$6,000 and up.

### 21 FLIP ON THE BIRD

RCA's remarkable DSS small-dish (18-inch) digital satellite system — soon to be marketed by Sony, too, and eventually by Toshiba, Panasonic, and a host of others — is impressive. It's not perfect, but it delivers picture and sound that in many respects rival, or even beat, laserdisc. And for those without access to cable, or for whom a big dish is out of the question — well, say no more. In addition, DSS is hard to beat for convenience and variety. It ain't cheap, however (at least, not yet). Cost: \$800 to \$950 installed, plus about \$21 to \$70 per month. □

NO SINGLE  
ADDITION  
CARRIES MORE  
IMPACT THAN  
A BIG SCREEN.

# SHOPPING SMART

**A low-stress guide to buying better**

**BY BERNARD R. KINGSLEY**

**Y**ou've looked at brochures, talked with friends, read articles in *STEREO REVIEW*, and drooled over advertisements. Now you are ready to shop for that new piece of hi-fi equipment. Your biggest fear, at this point, is the salesperson. The fact is, a large number of customers are anxious and unhappy about dealing with sales staff, and the stores know it.

Salespeople are, in the minds of many, slick pitchmen who will push merchandise you don't want so that they can earn big commissions. But unless you plan to shop through a catalog (more and more of us do), you are likely to end up dealing with salespeople, and the experience can be surprisingly helpful as long as you (and they) follow some simple guidelines.

## **Greeting and Qualifying**

Sales staff will begin contact with you by trying to establish a good basis for communication. Only the most inexperienced will ask, "Can I help you?" because the knee-jerk reaction is almost always, "No, I'm just looking." True, you may believe that the sales staff will keep you from exploring the merchandise, but good salespeople will offer to guide you to a range of products you might be interested in. One salesman I met had the perfect answer to "just looking." He

said, "Great. You can *touch* these, too, and really get a feel for what the product can do."

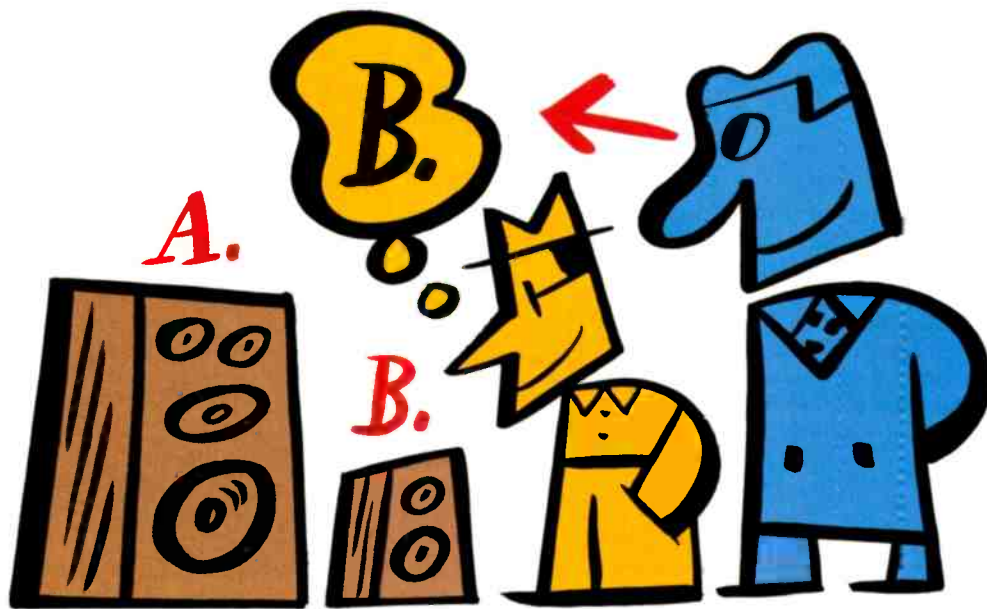
You should know that you were selected by the salesperson in a very unscientific manner. Most stores have an "up" system, meaning that salespeople take turns approaching new customers. Only the busiest stores will allow contact with anybody who happens to be available.

The fact that you have wound up paired with a particular salesperson does not mean you must deal with him, however. If you feel that you and the salesperson just don't hit it off, "shop around" for a different one. You might even ask the manager to assign a salesperson to you after a brief discussion of your needs. That would later offer you the advantage of being recognized as a serious customer.

Successful salespeople try to find out what the customer wants, and you are therefore likely to be asked some questions. The process is called qualifying the customer, and you can help yourself if you are willing to open up a little and disclose certain things.

You might be asked about the kind of music you listen to, the components you have in your system now, and the size of room you listen in. That information reveals both what you need and what you want. Price is tricky. Most customers don't want to disclose their budgets, but you can

ILLUSTRATIONS BY TIM CARROLL



**Successful salespeople try to find out what the customer wants.**

## SHOPPING SMART



**If a component has many more features than similarly priced models, ask where compromises were made.**

save a lot of time if you give a range and ask to see several models within that range.

### Features, Features

Many electronic components are priced according to features (not necessarily quality), and it will help if you give some indication of what your preferences are. The fact is, manufacturers are able to build almost any product to sell at almost any price. An autoreverse cassette recorder with plenty of bells and whistles can be priced at \$49. There is certainly a market for such a deck, but not among people who are serious about sound and construction quality.

Perhaps the biggest frustration salespeople have is that many customers forget quality and concentrate almost entirely on features. Remember to think about both. The whole purpose of buying a high-fidelity component is to get good sound. If a product is loaded with features while competing models at the same price have far fewer frills, you should wonder where compromises were made. There are few secrets to building audio components, and no one manufacturer has a lock on efficient production.

Your listening session should be with music you typically listen to. If the salesperson has done a good job, he or she will already have prepared for that. It's best, of course, to bring your own CD's.

### Objections

Most customers don't buy anything, and usually the salesperson doesn't have a clue as to why. Much of a sales presentation involves finding out just what a customer is objecting to. "I want to look around some more" doesn't tell the salesperson where he failed. Be direct. If you are looking for other brands, different features, or a better price, say so. Such feedback not only helps you focus on your product choice, but it also informs the sales staff, the retailer, and ultimately the manufacturers about what the public's preferences are.

### Negotiating

Negotiating price is more common in other countries, so it comes as no surprise that foreign nationals in the United States tend to haggle as they do in their own countries. What

might surprise you is that they are often quite successful. Don't assume that the price quoted is the final price. Even mass-market stores will discount at times if the purchase is significant (they won't discount that \$49 deck). Stores will discount to keep a customer, to meet a sales budget, or to clear out remaining inventory.

Discounts are more likely to be available at the end of a month (to meet a sales budget), and usually only managers are allowed to reduce price. Discounts can range from 10 to 25 percent on most items. Accessories and speakers may be discounted even more, since they tend to have higher profit margins. Accessories can come into the sale as a bonus, too. If the dealer won't budge on the price, try to get some accessories included. Throwing in a free case of tapes with a tape deck or a set of stands with speakers can improve the value to the customer and thus make a sale.

The key to negotiating is to make it clear that you are ready to buy *now*. Few managers will bargain unless it is certain that you are willing to put money on the table if you are presented with a meaningful discount.

### Making It Long-Term

Electronic equipment has become highly reliable, but everything built by man is bound to break sooner or later. At the time of sale, make yourself familiar with the warranty and the service facilities. If there isn't a service department you should definitely inquire as to how the store plans to



**The key to negotiating is to make it clear that you are willing to buy now.**

handle future problems. Stores with lots of service may not always have the lowest prices, but they may nonetheless offer the best value.

Building relationships with dealers and salespeople can make buying hi-fi equipment much more rewarding. The most successful sales counselor I have ever known was a guy named Frank who seldom looked for customers on the sales floor. It never ceased to amaze me that so many customers came in asking for Frank. Customers knew that they could rely on him to direct

them to good products and to help them later with service problems. Frank was not only successful, he was happy in his job. I bet his customers were happy, too. □

*Bernard R. Kingsley has worked as a sales counselor and sales manager for a number of consumer-electronics retailers.*

# Why you should pay \$349 for this radio.

Obviously, it better not be just another radio. This one isn't. Quite simply, the Bose® Wave® radio gives you sound that's richer, more natural, more lifelike than you've ever heard from a radio. Many people think it actually sounds more like a stereo system. It's no exaggeration to say you have to hear it to believe it.

## Finally, Bose sound from a small radio.

The Wave® radio is from Bose, one of the world's leading makers of audio equipment. A few years ago, we undertook the task of getting Bose-quality sound from a small radio. To do it, we used our patented acoustic waveguide speaker technology. Just as a flute strengthens a breath of air to fill an entire concert hall, the waveguide produces room-filling sound from a small enclosure.

Touch a button and hear your favorite music come alive in rich, lifelike stereo sound—sound that lets you

hear every note the way it's *meant* to be heard. Which is why it's well worth \$349. No matter what kind of music you enjoy, the Wave® radio will truly



increase your listening pleasure. Consider that *Popular Science* honored the Wave® radio with a "Best Of What's New" award. *BusinessWeek* named it a "Best New Product of 1994." And since it's small enough to fit almost anywhere, you can listen in your bedroom, living room, kitchen, or any room.

## Great sound made easy.

In addition to great sound, we built in an array of easy-to-use features no other radio gives you. Operate the radio from across the room with the credit card-sized remote control. Pre-set your favorite six AM and six FM stations and switch between them at the touch of a button. Bring great sound to your favorite recordings by connecting the Wave® radio to your CD or cassette player. Or connect your TV or

VCR to make your favorite programs and movies come alive.

## Enjoy six easy payments and free shipping.

We don't expect you to take our word for how good the Wave® radio sounds. You really have to hear it to believe it. The Wave® radio is available directly from Bose. Use the toll-free number or the coupon to request more information. Or call to try out the Wave® radio in your home for fourteen days, satisfaction guaranteed.

If you love it, keep it. If not, return it for a refund of the purchase price. Call today and enjoy the convenience of six easy payments. We'll even pay the \$15 charge to ship it to your door.\*

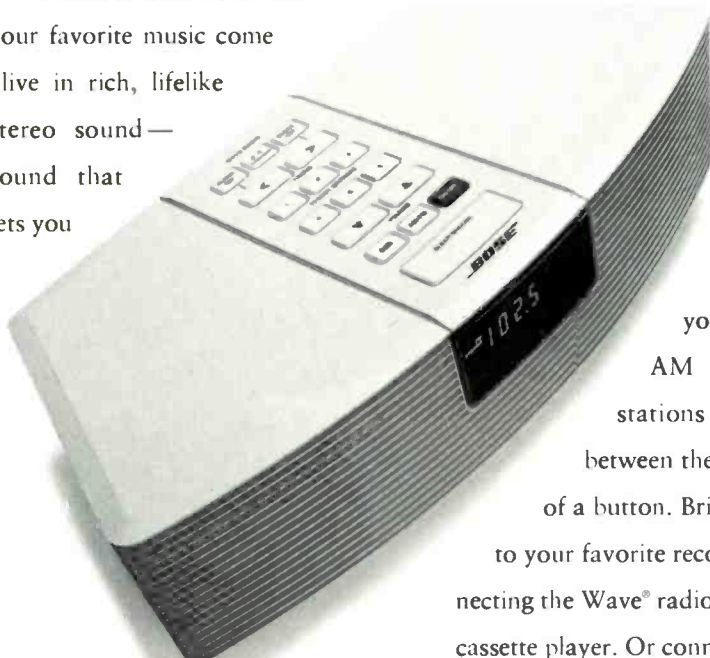
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# THE PATIO

**I**t's hard enough to build a loudspeaker that's able to reproduce the intricacies of music accurately, let alone one that sounds good *and* can be left outside in all kinds of weather. A true outdoor speaker should be able to withstand the effects of rain, wind-blown dust, heat, cold, humidity, salt (in coastal areas), airborne pollutants (in cities), and ultraviolet (UV) rays, not to mention assorted insects, birds, and four-legged critters. In other words, it must be made of materials — like aluminum and special plastics — that resist corrosion and tolerate temperature extremes. Otherwise, driver cones and surrounds will crack or melt, voice-coil formers and other critical components will be thrown out of whack, metal parts will corrode, glues will break down, and enclosures will deteriorate.

Given the challenges of building a speaker that can withstand all the elements in Mother Nature's arsenal, we wondered how many outdoor speakers actually live up to their name. Can you really leave them outside all the time? Even in the winter? We were also anxious to find out how all-weather

speakers stack up in terms of sound quality. To shed some light on these questions, we chose ten models — out of more than a hundred on the market today — and put them through their paces, indoors and outside. The test candidates were selected with an eye toward variety in rated performance, styling, and price — ranging from \$159 a pair to a still-reasonable \$499 a pair.

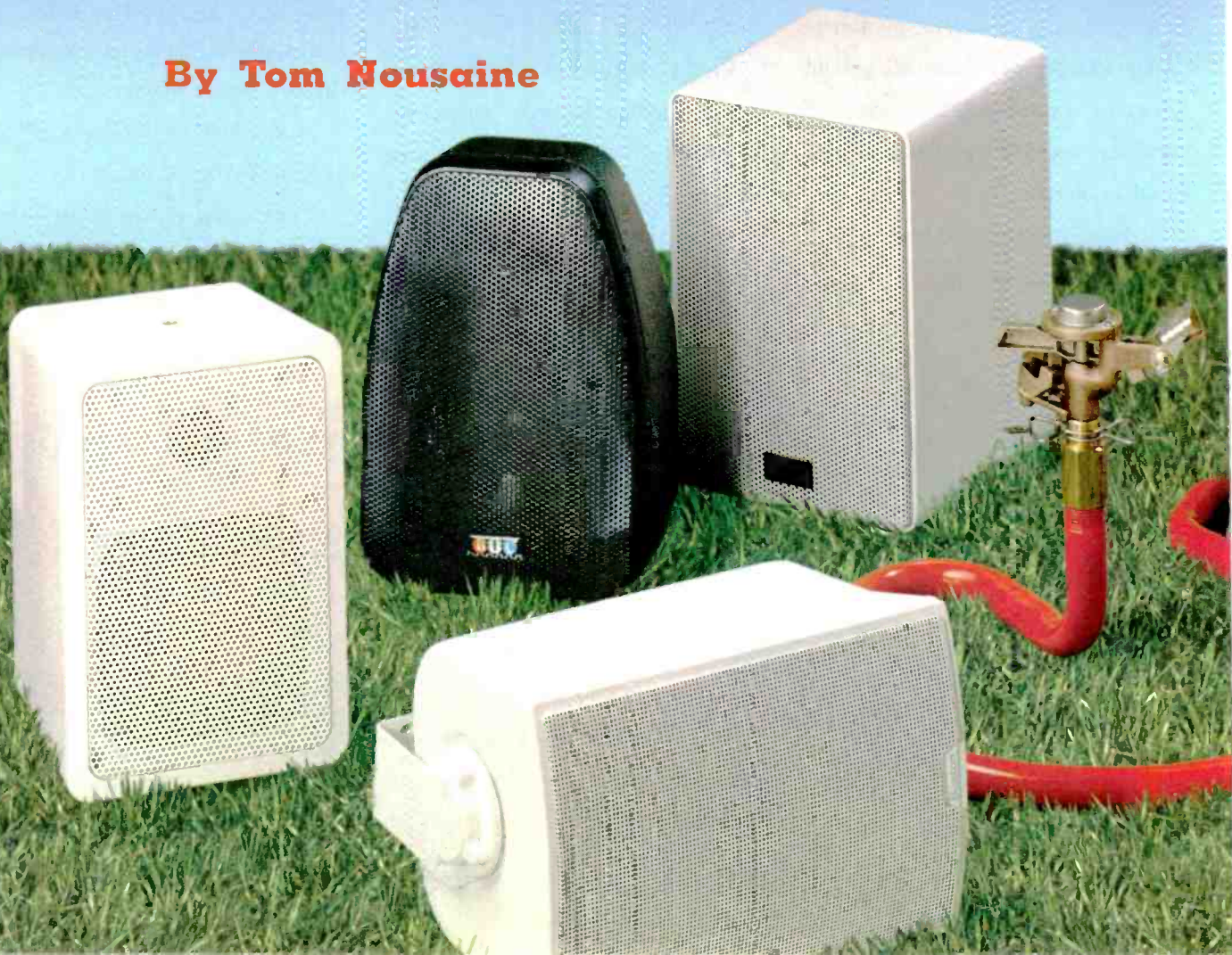
The contenders: B.I.C. America's Adatto (\$159 a pair), Bose's Model 151 (\$299 a pair), the Boston Acoustics Runabout II (\$250 a pair), JBL's ProIIAW (\$330 a pair), the NEAR AEL-1.4 (\$450 a pair), Parasound's Nomad 10 (\$499 a pair), Pioneer's CSL-70E (\$369 a pair), the Polk Audio AW/M5 (\$450 a pair), the Rocktatics Econorock (\$400 a pair), and Sonance's MB20 (\$399 a pair).

All but two speaker pairs were eval-

uated in three phases. Phase One started with inspecting each speaker and performing a knuckle-rap test — simply tapping the enclosure to disclose unwanted cabinet resonances or a ringing grille. Then I set the speakers up in my listening room and measured frequency response (on-axis and 30 and 45 degrees off-axis), sensitivity (at 1 meter with a 1-watt input), and impedance to get a feel for their performance. Measurements were made with the speakers placed both on stands away from the wall and on the floor next to the wall (to gauge the effects of boundary reinforcement on bass response). Of course, I also listened to each speaker pair playing a variety of music ranging from classical to pop to rap.

Phase Two consisted of a battery of frequency-response measurements and listening tests conducted outdoors.

**By Tom Noursaine**

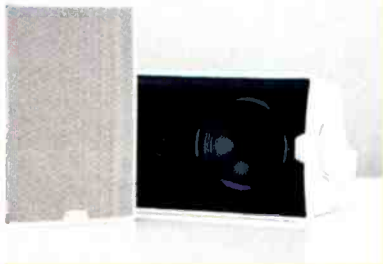


# CHALLENGE

10 speakers for the great outdoors



## THE PATIO CHALLENGE



### BOSTON ACOUSTICS RUNABOUT II

**ENCLOSURE CONSTRUCTION/TYPE:**

paintable off-white polypropylene-resin with epoxy-coated steel grille; sealed

**MOUNTING HARDWARE:** C-bracket supplied

**DRIVER COMPLEMENT:** 4½-inch copolymer woofer with rubber surround, ¾-inch dome tweeter

**SPECIFICATIONS:** bandwidth, 80 Hz to 20 kHz; sensitivity, 90 dB SPL; impedance, 8 ohms; recommended input power, 5 to 50 watts

**DIMENSIONS:** 8¾ x 5⅞ x 6¼ inches (H x W x D)

**WEIGHT:** 5 pounds

**WARRANTY:** 1 year

**PRICE:** \$250 a pair

**MANUFACTURER:** Boston Acoustics, Dept. SR, 70 Broadway, Lynnfield, MA 01940

Eight of the speaker pairs, those meant for wall-mounting, were successively installed 10 feet apart in two locations: directly under a soffit, facing out toward the patio in my backyard, and 3 feet below the soffit and about 6 feet from the ground, so that they were in the middle of the wall. The speakers were mounted on either side of a sliding glass door. The wall to which they were fastened ends in a corner at the right, where it adjoins a 5-foot-long wall (2 feet away from the right speaker position). A wooden-slat privacy fence butts up against the 5-foot wall. Following the manufacturers' recommendations, I placed the other two speaker pairs, the Rockustics Econo-rock and Pioneer CSL-70E, out in the yard. Each stereo pair was spaced 10 feet apart, the Econorocks sitting on the ground and the CSL-70E's elevated on stakes. These two speakers were tested in only one location.

For the listening tests, I was seated 12 feet away on the patio, equidistant from each speaker in the pair under

test. I evaluated the speakers in terms of spectral balance and definition (the ability to play cleanly and sound natural), spatial rendition (or imaging, the ability to locate sounds accurately in space), and dynamics (the ability to play loudly with grace.)

Phase Three involved taking one speaker from each of eight pairs to a local lab, where they were frozen, baked, and sprayed with water in an effort to gauge long-term durability (see "Life Testing" at right for the results). When the torture tests were complete, I compared the frequency response of each environmentally challenged speaker to that of its sibling. We excluded B.I.C. America's Adatto and Parasound's Nomad Ten from this round of testing because the Adatto is not designed to withstand temperature extremes and the Nomad Ten was a preproduction prototype.

### BOSTON ACOUSTICS RUNABOUT II

One of three "indoor/outdoor" loudspeakers from Boston Acoustics, the midprice Runabout II is described as being "ideal for decks, patios, or indoor use." Its 4½-inch woofer and ¾-inch tweeter are housed in a polypropylene-resin enclosure with a paintable off-white finish and an epoxy-coated steel grille. The sealed cabinet is sturdy and acoustically inert. A hard rap on its side returned a dull thunk (and sore knuckles) with no hint of ringing, and when I accidentally dropped one of the speakers onto a cement patio stoop from a height of 8 feet (ouch!), it survived without a scratch. Signals enter the Runabout via a recessed pair of gold-plated binding posts, and the speaker comes with a pair of epoxy-coated-steel C-brackets that accommodate either vertical or horizontal mounting and provide a full 180 degrees of swivel action.

In my listening room, the Runabout II proved to be an excellent-sounding speaker, though it was a bit shy in the bass department. Response was almost perfectly flat from 200 Hz to 20 kHz, even when measured 45 degrees off-axis. As with most speakers that have a small woofer, its low-frequency output was restrained below about 200 Hz, but moving the speakers next to the wall extended output to below 90 Hz. Sensitivity clocked in at a respectable 91 dB. Although Boston Acoustics rates the speaker for 8 ohms, the impedance hit a minimum of 3.6

## LIFE TESTING

There are two ways to predict how well a speaker is going to hold up under direct exposure to the elements. You can stick it outside and simply monitor its performance over a period of time, or you can take it to a laboratory that specializes in "accelerated life testing." If you've got a year or two to spare, the first approach *might* provide a fairly reliable reading on the speaker's resilience. Then again, if you happen to hit an exceptionally mild summer or winter, it might not. That leaves accelerated life testing as the most practical means of evaluating the longevity of outdoor speakers.

Since most of the speakers in our test group are covered by a five-year warranty, we arranged to have one speaker from each of eight pairs (excluding BIC America's Adatto and Parasound's Nomad Ten) subjected to a series of accelerated life tests. Conducted at International Jensen's R&D facility in Schiller Park, Illinois, the tests were designed to simulate five years' worth of intermittent exposure to water and temperature extremes common in the U.S. Each speaker was exposed to four cycles of a 2-hour rain bath (250 cubic centimeters of water per minute for an hour, followed by an hour of play with an 8-watt input). Temperatures were cycled between -20° and 120° Fahrenheit for 8 hours. And, finally, each speaker was "soaked" at 100-percent relative humidity (RH) at 100° F for 16 hours, then dried at 120° F at 20 percent RH for 8 hours.

Although this lineup of tests may have been less stringent than those imposed by some of the manufacturers themselves — we didn't do UV, dust, or salt-spray tests, for example — I was impressed when the post-test frequency-response measurements for all eight models turned out to be *identical* to the measured responses of their uncooked siblings. Furthermore, none of the battered speakers looked any different. No fading, cracking, peeling, or rusting.

Beyond the rigors imposed by harsh weather, another factor that's guaranteed to affect the longevity of all-weather speakers is incoming power. It's all too easy to pump too much juice into a pair of outdoor speakers because it's hard to gauge actual volume levels outside. That's why it's always a good idea to stick fairly close to the recommended amplifier power limits. — T.N.



ohms, so avoid wiring a couple of Runabouts in parallel unless you're sure your amplifier can handle a 2-ohm load.

Installing the Runabout II's outside was easy: I secured each bracket using two drywall screws and locked each speaker into place by tightening the plastic twist-grip-capped screw on each end of the bracket. Of all the mounting systems supplied with the test candidates, I found the Runabout's brackets to be the easiest to use.

Out on the patio, the Runabout II's high-quality delivery remained largely intact — even with the response anomalies introduced by wall/soffit reflections. And, as with most of the speakers in the test group, midwall mounting was superior to soffit mounting, reducing colorations significantly. Low-frequency response was adequate down to roughly 60 Hz, and the sound remained clear and articulate with only moderate vocal colorations. The overall presentation was "alive" and possessed a true hi-fi feel, with great balance and excellent detail. Of course, real bass was pretty much absent, so orchestral recordings sounded somewhat thin.

The Boston Acoustics Runabout II lives up to its indoor/outdoor label, providing excellent sound quality both

on the patio and in the living room. My only complaint: the one-year warranty seems a bit skimpy.

#### BOSE MODEL 151

**B**eyond temperature extremes and direct exposure to rain, Bose's Model 151 "environmental" speaker is also rated to withstand the ultracorrosive effects of salt water. Its 4½-inch full-range driver is housed in a tough polypropylene cabinet with a painted stainless-steel grille and two recessed binding posts in the rear. While the enclosure is acoustically solid — my knuckle-rap test returned a nice dull clunk — I got the grille to ring slightly with a firm whack. The only mounting provisions are a pair of threaded inserts on top of the speaker's cabinet; two different brackets are available as options.

In my listening room, the Model 151's response sloped downward from around 300 Hz and extended out to about 12 kHz measured on-axis. The bass was pretty thin until I moved the speakers next to the wall, which extended response down to roughly 100 Hz. Off-axis response began rolling off above 8 kHz at 30 degrees and above 3 kHz at 45 degrees. Sensitivity registered a healthy 91 dB. Impedance drooped to a minimum of 3.7 ohms.

While you could use simple wire straps or L-brackets to mount the 151's, I used Bose's optional SM-1 bracket assembly (\$44 a pair). I affixed each bracket to the wall behind my patio using a couple of drywall screws. Then I fastened a curved fixture to the top of each speaker cabinet using the supplied machine screws. Finally, I slipped the speaker fixture into the wall bracket and used another pair of machine screws to tighten things down. (The bracket has a dozen screw slots, which allow you to adjust the angle of the speaker.) The installation was pretty straightforward, although I had to fiddle a bit with the last two screws to get them in.

Outside, the Bose 151's proved to be less sensitive to placement than most of the other test candidates. In other words, when I moved them from the soffit to the midwall position, the changes in measured response weren't as dramatic as they were with most of the competition. Sound quality was smooth and easy, particularly at the midwall location — which, by the way, is where Bose recommends mounting the speakers. Vocals were only slightly colored, and saxophones



#### POLK AUDIO AW/M5

##### ENCLOSURE CONSTRUCTION/TYPE:

black or white polymer with plastic grille; sealed

**MOUNTING HARDWARE:** integral pivoting bracket

**DRIVER COMPONENT:** 6½-inch mineral-injected polyolefin woofer, 1-inch dome tweeter

**SPECIFICATIONS:** bandwidth, 50 Hz to 23 kHz; sensitivity, 91 dB SPL; impedance, 8 ohms; recommended input power, 20 to 125 watts

**DIMENSIONS:** 13¼ x 8¼ x 9 inches (H x W x D)

**WEIGHT:** 9 pounds

**WARRANTY:** 2 years (can be extended to 5 years by mailing warranty card to Polk)

**PRICE:** \$450 a pair

**MANUFACTURER:** Polk Audio, Dept. SR, 5601 Metro Dr., Baltimore, MD 21215

#### BOSE MODEL 151

##### ENCLOSURE CONSTRUCTION/TYPE:

black or white molded polypropylene with stainless-steel grille; vented

**MOUNTING HARDWARE:** none supplied; optional SM-1 surface-mount bracket (\$44 a pair) and FM-1 flush-mount marine bracket (\$99 a pair)

**DRIVER COMPONENT:** 4½-inch Kevlar-composite full-range with silicone-coated rubber surround

**SPECIFICATIONS:** bandwidth and sensitivity not given; impedance, 4 ohms; recommended input power, 10 to 80 watts

**DIMENSIONS:** 6 x 9 x 6 inches (H x W x D)

**WEIGHT:** 4½ pounds

**WARRANTY:** 5 years

**PRICE:** \$299 a pair

**MANUFACTURER:** Bose Corp., Dept. SR, The Mountain, MA 01701-9168



and trumpets were only a tad squeaky. Although overall sound quality was not quite hi-fi, it was still very satisfying. Imaging from my preferred patio seat was better than with any other speaker in the group, most likely a byproduct of the 151's relatively directional radiation pattern. The 151's also exhibited excellent dynamic control — that is, no buzzing or rattling under normal operating conditions.

In the final analysis, the Bose Model 151 was the most versatile speaker of the lot. Between its compact size and marine rating, you should be able to use it just about anywhere without reservation.

#### POLK AUDIO AW/M5

**P**olk Audio's AW/M5 is the all-weather version of the company's M5 home speaker. The wedge-shaped polymer enclosure housing its 6½-inch woofer and 1-inch tweeter is described as impervi-

# THE PATIO CHALLENGE

## SONANCE MB20

### ENCLOSURE CONSTRUCTION/TYPE:

paintable black or white ABS plastic with painted stainless-steel grille; sealed

**MOUNTING HARDWARE:** plastic nail hanger supplied; optional MB Swivel Mount ball-joint bracket (\$130 a pair) and MB C Mount bracket (\$88.75 a pair)

**DRIVER COMPLEMENT:** 6½-inch polypropylene woofer with treated urethane surround, 1-inch polycarbonate dome tweeter

**SPECIFICATIONS:** frequency response, 65 Hz to 20 kHz  $\pm 3$  dB (anechoic); sensitivity, 89 dB SPL; impedance, 8 ohms; recommended input power, 5 to 75 watts



**DIMENSIONS:** 13 x 8¾ x 8½ inches (H x W x D)

**WEIGHT:** 8¼ pounds

**WARRANTY:** 5 years

**PRICE:** \$399 a pair

**MANUFACTURER:** Sonance, Dept. SR, 961 Calle Negocio, San Clemente, CA 92672-6202

that is paintable and available in black or white. Incoming speaker wires are secured by a pair of spring-clip connectors on the back of the cabinet. While the MB20's sealed cabinet appears solid, the ol' knuckle test produced a hollow knock — and a metallic ring (courtesy of its steel grille) when I rapped harder. A nail-hanger mounting plate with two slotted screw holes is supplied.

In my listening room, the MB20's output extended down to about 50 Hz and exhibited an upward-sloping characteristic that flattened out off the main axis. Although its response curve was fairly uniform, it didn't fall within the  $\pm 3$ -dB window specified by Sonance. Sensitivity measured 86 dB, and impedance reached a minimum of 7.1 ohms, making the MB20 suitable for parallel hookups.

The supplied nail-hanger plate provides a simple yet effective mounting system, although I wouldn't trust it to hold the speakers during a hurricane. First I secured the plate to the back of the speaker using two screws. Then I simply hung the speaker on a couple of screws I had put in the wall. There was one minor complication: I had to enlarge the "nail" holes slightly, which probably wouldn't have been necessary if I had used a nail or a different type of screw. Optional mounting brackets are available from Sonance if you want a more permanent installation or need a bracket that lets you aim the speaker's output.

Although its output was plagued by interference patterns (mostly from side-wall reflections) in both the soffit and midwall locations, the MB20 sounded as good outside as any other

ous to water and UV-resistant to prevent fading, cracking, and warping. The woofer is on a sloped baffle above the tweeter, but the speaker can also be mounted with the tweeter on top or horizontally (in a corner). The sealed enclosure is totally inert. Knuckle raps were greeted with a dull thunk, and the press-fit plastic grille never uttered a peep. The cabinet has spring-clip speaker-wire connectors around back, and its integral pivoting bracket accommodates just about every imaginable mounting scenario.

Indoors, the overall sonic character of the AW/M5 was smooth and extended. Low-frequency output fell off quickly below 100 Hz but was extended to around 60 Hz when I moved the speakers next to the wall. Sensitivity was 87 dB. Falling on the low side of Polk's 8-ohm rating, impedance bottomed out at 4.8 ohms.

The AW/M5's integral mounting bracket is clever and relatively easy to install as long as you check out the manual beforehand. After removing two plastic pegs to separate the bracket from the enclosure, I fastened the bracket on the wall next to my patio using a couple of screws. Then I reunited the cabinet and bracket by inserting the plastic pegs back into their respective holes — a task that requires a light touch and a little patience because you have to line up the pegs (on the back of the cabinet) while holding the speaker against the wall.

From under the soffit above my patio, the AW/M5's sounded decent, but reflections from the side wall and soffit muddled things a bit. Vocal coloration, for example, was noticeable but not overwhelming. The speakers sounded better with midwall mounting

and better still (read: most natural) when I simply set them on the patio with their backs to the wall. Vocals were cleaner, and bass was stronger and tighter. Although the AW/M5's were able to play satisfyingly loud in all of the positions, they could be pushed only so far before rattles and buzzes materialized, most noticeably on a jazz track featuring bowed string-bass lines.

Thanks to its flexible mounting bracket and generally clean sound, Polk's AW/M5 speaker can be used virtually anywhere — inside or out.

### SONANCE MB20

The MB20 is one of five "indoor/outdoor" speakers available from Sonance, the company best known for its extensive line of in-wall speakers. It packs a 6½-inch woofer and a 1-inch tweeter in a "water-resistant" ABS-plastic enclosure



**ENCLOSURE CONSTRUCTION/TYPE:** black or white die-cast polypropylene with painted metal grille; vented

**MOUNTING HARDWARE:** none supplied; optional MTC-8 L-bracket (\$20 a pair),

### JBL PRO III AW

MTC-2 angled swivel bracket (\$69 each), and MTC-3 ceiling bracket (\$99 each)

**DRIVER COMPLEMENT:** 5-inch polymer-laminate woofer, 1-inch titanium-dome tweeter

**SPECIFICATIONS:** bandwidth, 65 Hz to 27 kHz; sensitivity, 87 dB SPL; impedance, 4 ohms; recommended input power, 10 to 100 watts

**DIMENSIONS:** 9¼ x 6¼ x 5½ inches (H x W x D)

**WEIGHT:** 4¾ pounds

**WARRANTY:** 5 years

**PRICE:** \$330 a pair

**MANUFACTURER:** JBL, Dept. SR, 80 Crossways Park West, Woodbury, NY 11797

## ROCKUSTICS ECONOROCK

### ENCLOSURE CONSTRUCTION/TYPE:

crushed stone and resin; sealed

### MOUNTING HARDWARE:

none supplied

### DRIVER COMPLEMENT:

coaxial 8-inch polypropylene woofer with rubber surround and 1-inch polycarbonate tweeter

### SPECIFICATIONS:

frequency response, 65 Hz to 20 kHz  $\pm$ 8 dB; sensitivity, 92 dB SPL; impedance, 4 ohms; maximum input power, 70 watts

### PRICE:

\$400 a pair

### DIMENSIONS:

16 x 14½ x 9 inches

(H x W x D)

### WEIGHT:

21¾ pounds

### WARRANTY:

5 years

### MANUFACTURER:

Rockustics,

Dept. SR., 15400 E. Batavia Dr.,

Aurora, CO 80011



speaker in the lot except Boston's Runabout II. Bass extended down to 50 Hz, but it was a bit boomy and not quite as natural-sounding as the rest of the spectrum, which was clean and well balanced for the most part. Vocal colorations were minimal, and there was plenty of musical detail. Interestingly, when the MB20 was driven into overload, distortion invaded male and female vocals well before the woofer protested.

The Sonance MB20 is billed as an indoor/outdoor speaker, but it really performs best outdoors.

## JBL PROIIIAW

The ProIIIAW, the outdoor version of JBL's ProIII minispeaker, has a professional, bullet-proof look about it — a look that suggests it could survive a fall from the top of the Sears Tower. Designed to "withstand the rigors of the outdoor environment," the matte-black polypropylene cabinet houses a 5-inch woofer and a 1-inch tweeter. The spring-clip connectors on the back of the cabinet have such a tight grip that you can actually swing the speaker around by the cables (don't try this at

home). A small port on the speaker's baffle has an internal screen to keep those pesky bugs out. The knuckle test produced only sore knuckles, thanks in part to the thick rubber gasket that separates the metal grille from the enclosure. No mounting hardware is provided, although JBL offers three optional brackets.

Indoors, the ProIIIAW's response was smooth and nicely balanced out to 20 kHz measured on-axis. Bass fell off quickly below 200 Hz without wall reinforcement. Moving the speakers next to the wall filled the gap down to about 100 Hz. Sensitivity was 90 dB, and impedance hit a low of 3 ohms.

JBL didn't provide any mounting hardware, so I simply hung the speaker on a hook screw — definitely not a permanent mounting solution.

Like most of the other speakers in the test group, the ProIIIAW sounded best when it was mounted midwall, which greatly minimized the colorations produced by soffit reflections. Overall, the speaker was quite clean sounding, delivering a tight center image and lots of detail. Of course, there was no bass to speak of, but it was able to play very loudly without breaking up.

JBL's ProIIIAW is a very flexible speaker that should find a home in most outdoor applications.

## ROCKUSTICS ECONOROCK

Now for something really different — a speaker that looks like a prop from the set of *The Flintstones*. Set by itself on the patio, the Econorock doesn't look quite like a real rock (its perforated "grille" is plainly visible), but I'm sure its crushed-stone and resin exterior will fool plenty of people when it's in a garden or among shrubs. Described as

"weather and waterproof," it's one of fifteen all-weather speakers available from Rockustics, a company specializing in rock-like outdoor speakers that sell for \$300 to \$1,800 a pair. The Econorock has an 8-inch coaxial driver and is designed to sit directly on the ground. Speaker-wire connections are handled by a stripped pair of wire pig-tails that protrude from its base. Contrary to the manufacturer's claim that one Econorock weighs less than 10 pounds, the samples I tested weighed about 19 and 21 pounds, respectively. These rocks are solid, so I gave my battered knuckles a rest.

Sitting on the carpeted floor of my listening room — a sight to behold — the Econorocks played down to 60 Hz with authority. Low-frequency reproduction was smooth and natural, making the Econorock the best bass performer of the test lot. Even so, pipe-organ recordings were still out of the question. On-axis response exhibited considerable roughness above 1 kHz — most noticeable was a large peak at 3 kHz. Sensitivity was below spec at 87 dB, and impedance dropped to 3.8 ohms at its lowest point.

Although most Econorock owners have the speakers professionally installed, any reasonably handy person should be able to handle the job. Rockustics even provides an 800 number for technical support. Other than joining bare wires together and burying or hiding the speaker cables, installing the rocks requires nothing more than picking the best-sounding location for each speaker.

The Econorock's low-frequency performance was nearly the same on the grass as it was on the carpet — robust down to 60 Hz. There was also a peak at 3 kHz, and the response was pretty uneven overall. Still, the col-

## NEAR AEL-1.4

### ENCLOSURE CONSTRUCTION/TYPE:

black, white, or beige (special order) high-density polyethylene with plastic grille; vented

### MOUNTING HARDWARE:

optional U-bracket (\$40 a pair) and hanging bracket (\$32 a pair)

### DRIVER COMPLEMENT:

5¼-inch aluminum-alloy woofer with rubber surround, 1-inch titanium inverted-dome tweeter

### SPECIFICATIONS:

bandwidth, 48 Hz to 25 kHz; sensitivity, 90 dB SPL; impedance, 4 ohms; maximum input power, 150 watts

### DIMENSIONS:

14 x 8 x 5 inches (H x W x D)

### WEIGHT:

12 pounds

### WARRANTY:

5 years

### PRICE:

\$450 a pair

### MANUFACTURER:

New England Audio Resource (NEAR), Dept. SR, 12 Foss Rd., Lewiston, ME 04240



# THE PATIO CHALLENGE

## PARASOUND NOMAD TEN

**ENCLOSURE CONSTRUCTION/TYPE:** black or white glass-filled polypropylene with painted steel grille; sealed

**MOUNTING HARDWARE:** integral ball-joint swivel bracket



**DRIVER COMPLEMENT:** 6½-inch polycarbon woofer with rubber surround, 1-inch soft-dome tweeter

**SPECIFICATIONS:** frequency response, 36 Hz to 20 kHz ±2.5 dB; sensitivity, 89.5 dB SPL; impedance, 8 ohms; maximum input power, 120 watts

**DIMENSIONS:** 12¼ x 8¾ x 8 inches (H x W x D)

**WEIGHT:** 8¾ pounds

**WARRANTY:** 2 years

**PRICE:** \$499 a pair

**MANUFACTURER:** Parasound, Dept. SR, 950 Battery St., San Francisco, CA 94111

orations were subdued out of doors, so the rocks sounded fairly open and clear. But when they were driven hard, the high frequencies sounded pinched and squawky. On the plus side, there was no buzzing or rattling, even when I pushed the rocks way beyond their recommended 70-watt limit.

I was pleasantly surprised by the Econorock's performance — especially at the low end.

### NEAR AEL-1.4

**T**he folks at NEAR (New England Audio Resource) take the outdoor speakers they make very seriously — so seriously that they have been known to attract attention at Consumer Electronics Shows in recent years by playing a speaker while it's completely submerged in a clear barrel filled with water. The AEL-1.4, one of six all-weather speakers from NEAR that range in price from \$318 to \$1,200 a pair, teams a 5¼-inch woofer (the same one used in the water demo) and a 1-inch tweeter in a high-density polyethylene enclosure with a pair of binding posts on its back panel. When subjected to the knuckle-rap test, the cabinet emitted a slightly hollow thunk but the plastic grille was silent. No mounting hardware is supplied, but NEAR offers optional brackets.

Indoors, the AEL-1.4's output was rather lackluster in the bass department, with rolloff starting at 300 Hz. When I moved the speaker next to the wall, however, its output extended down to about 60 Hz. At the other end of the frequency spectrum, response began rolling off gently above 8 kHz. Sensitivity was 89 dB, and impedance hit bottom at 3.7 ohms.

I secured the AEL-1.4's to the wall behind my patio using the optional U-

bracket (\$40 a pair) — a task that involved fastening the bracket to the wall using drywall screws and the bracket to the cabinet using two supplied machine screws, one on each side. The hardest part of the job is keeping the 12-pound speaker steady during installation, so as not to deform the soft-metal bracket.

Outside, the AEL-1.4's response was affected by the same interference

### PIONEER CSL-70E

**ENCLOSURE CONSTRUCTION/TYPE:** paintable black or white Lexan with stainless-steel grille; sealed

**MOUNTING HARDWARE:** ball-joint swivel bracket supplied; optional CPL-SS36 garden stake (\$45 a pair)

**DRIVER COMPLEMENT:** 4½-inch woofer with rubber surround, ¾-inch tweeter (both made of graphite-reinforced polypropylene)

**SPECIFICATIONS:** bandwidth, 75 Hz to 22 kHz; sensitivity, 88 dB SPL; impedance, 8 ohms; recommended input power, 10 to 150 watts

**DIMENSIONS:** 10¼ x 5½ x 8½ inches (oval, H x W x D)

**WEIGHT:** 5½ pounds

**WARRANTY:** 5 years

**PRICE:** \$369 a pair

**MANUFACTURER:** Pioneer Electronics Technology, Dept. SR, 1800 W. Holt Ave., Pomona, CA 91768



patterns that plagued all of the test speakers. Vocal colorations were fairly strong at the soffit location but improved when the speakers were placed midwall. Depending on my listening position and the program material, the image sometimes wandered from side to side. Low-frequency performance was above average for the test group, and the AEL-1.4's were able to play very loud with excellent impact, although the presentation got hard and metallic as the speaker approached its power-handling limits.

### PARASOUND NOMAD TEN

**P**arasound's Nomad Ten is the flagship in a new five-model series of "surround/outdoor" speakers that range in price from \$120 to \$499 a pair. Described as "completely weatherproof and ideal for patio or pool installations," it combines a 6½-inch woofer and a 1-inch tweeter in a glass-filled polypropylene enclosure with a pair of gold-plated binding posts on its back panel. Unfortunately, the Nomads we received were preproduction prototypes, so they didn't have the integral ball-joint bracket that will appear on the final version, which should be in stores by now. A rap of the knuckle on the side of the cabinet returned a soft, hollow clunk.

Indoors, the Nomad Ten's measured response rolled off below 200 Hz and had a 12-dB peak at 12.5 kHz. Bass response dipped down to about 50 Hz when I moved the speakers next to the wall. Sensitivity was 87 dB, and impedance fell to 6 ohms.

Since Parasound didn't provide any mounting hardware, I used a bracket from one of the other speakers to secure it to the wall outside. On the patio, the Nomad Ten had the best bass response after the Econorock, but it tended to lapse into fuzzy distortion when played loudly enough to overcome traffic noise. There was also some vocal coloration, and detail was below average compared with the competition. But the Nomad Ten's biggest sonic limitation outdoors was in the dynamics department. That would not be a problem, however, if the speaker were used indoors for surround duty in a home theater setting.

### PIONEER CSL-70E

**F**rom Pioneer Electronics Technology, a division of Pioneer that specializes in speakers, comes the oddly styled CSL-70E, which looks like a prop from the set of

## USING SPEAKERS OUTSIDE

**W**here you put outdoor speakers has a big effect on performance. The tests I conducted showed that wall-mounting a pair of speakers about 10 feet apart and 6 feet from the ground provides decent lateral coverage for a relatively large area. But while mounting a pair of speakers out in the open can provide surprisingly clean reproduction, it can also produce dead spots — which might be a welcome thing at parties.

Soffit-mounting is the option most people find appealing because it puts the speakers up and out of the way and shields them from direct rain and sunlight. But from a sonic standpoint, it has its problems. Sound reflected from the overhang can create strong interference patterns. And the closer the speaker is to a corner, the more interference. In my backyard, the combination of reflections off the soffit and the nearby wall produced response errors on the order of  $\pm 15$  dB. The result: Singers often sounded like they had colds, and saxophones and trumpets sounded squeaky.

Another interesting sonic condition materialized in my patio listening tests. The aluminum siding on neighboring houses created a slap-echo effect. At one point, synthesizer thwacks “walked” over to the neighbor’s place and back. One way to avoid this problem is to place the speakers out in the yard, facing away from the Joneses.

The other general problem with outdoor speakers is that it’s *really difficult* to get decent bass outside. Our tests revealed that soffit and midwall mounting provided significant bass reinforcement (usually above 60 Hz), but that effect was usually muddled by a huge boost around 200 to 300 Hz. Even the Rockustics Econorock, with its 8-inch woofer, was pretty much out of the bass game by 60 Hz. The moral to this story: Outdoor speakers can sound acceptable with a good deal of rock and pop music, but you can forget about pipe-organ music or gut-thumping rap.

Despite these sonic maladies, I was pleasantly surprised at how good many of the patio-challenged speakers sounded. All were able to play loudly enough to be easily heard, and their sound, more often than not, was surprisingly clean. — T.N.

the 1960’s TV show *Lost in Space*. Part of the six-model Garden Speaker series, with prices ranging from the \$299 to \$2,000 a pair, the speaker is touted as being “totally weatherproof and waterproof” and ideal for use in bathrooms, saunas, and other high-humidity environments. It squeezes a 4½-inch woofer and a ¾-inch tweeter into an oval enclosure made of Lexan (an extremely hard plastic). The cabinet, which passed the knuckle test with no hint of resonance, is equipped with a pair of gold-plated binding posts and a removable ball-joint-type swivel bracket.

In my listening room, the CSL-70E’s response was somewhat erratic and rolled off quickly below 300 Hz. Moving the speakers next to the wall helped bass response somewhat. Response was strong beyond 20 kHz, but there was considerable roughness in the midband. Sensitivity was 88 dB, and impedance hit an easy-to-handle 7.6 ohms at its lowest point.

In addition to the standard swivel bracket, Pioneer supplied the optional CPL-SS36 garden-stake mounting posts (\$45 a pair) with my review samples, and I chose that mounting method for this evaluation. Using the garden stake is a piece of cake once you figure out how to bolt it onto the speaker cabinet (the instruction manual is a bit hard to follow). Once that’s done, you simply scope out the best-sounding locations and slam the stainless-steel stakes into the ground.

The CSL-70E’s open-yard response exhibited a “floor-bounce” notch at 300 Hz and considerable reinforcement around 125 Hz. Response at 100 Hz was down 10 dB compared with midband frequencies. Sonically, there was zero bass, but the overall presentation was amazingly open (bass response would improve with soffit or wall mounting). Although vocals sounded reasonably natural, the speaker’s overall tonal balance was too jangly, squawky, and tinkly for my tastes. On the other hand, it did play quite loud without distorting.

### B.I.C. AMERICA ADATTO

**B**y far the cutest — and least expensive — speaker of the test lot, B.I.C. America’s Adatto is a “weather-resistant” model that combines a 4½-inch woofer and a 1-inch tweeter in an ABS plastic enclosure with a painted steel grille, spring-clip speaker-wire connectors, and four well-placed nail hooks. Right up front,



### B.I.C. AMERICA ADATTO

**ENCLOSURE CONSTRUCTION/TYPE:** ABS plastic composite with painted steel grille; vented

**MOUNTING HARDWARE:** integral nail hooks

**DRIVER COMPLEMENT:** magnetically shielded 5¼-inch woofer with rubber surround, 1-inch polyamide-dome tweeter

**SPECIFICATIONS:** bandwidth, 70 Hz to 20 kHz; sensitivity, 88 dB; impedance, 8 ohms; recommended input power, 5 to 50 watts

**DIMENSIONS:** 9 x 6¼ x 6 inches (H x W x D)

**WEIGHT:** 4¾ pounds

**WARRANTY:** 1 year

**PRICE:** \$159 a pair

**MANUFACTURER:** B.I.C. America, Dept. SR, 883 E. Hampshire Rd., Stow, OH 44224

the company recommends bringing the speaker inside during temperature extremes and avoiding direct exposure to water. The knuckle-rap test produced a slightly hollow sound with no ringing.

In my listening room, the Adatto exhibited the kind of upward-tilted response curve that’s common among small-woofer/small-cabinet speakers. Off-axis response was excellent, suggesting that the Adatto could be pressed into duty as a surround speaker. Sensitivity was 88 dB, and impedance hit a low point of 4.4 ohms.

Outside, since no mounting bracket was involved, I simply hung the Adattos from a couple of screws in my wall. No fuss, no muss — just be sure to take these babies down when the high winds kick up.

From the soffit position, the Adatto played down to 65 Hz or so — surprising for such a small speaker — but it was a real boomer. Midwall placement got rid of most of the boom, however. In the higher frequency range, horns sounded squeaky and vocal colorations were evident. □

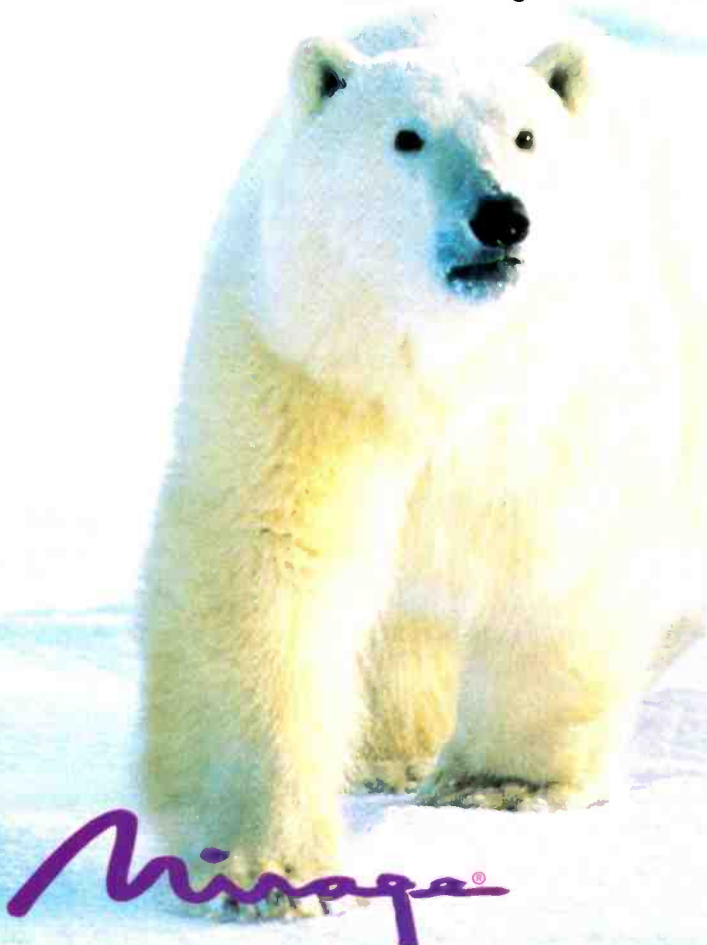
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# Choosing a CD Player

## HOW TO SELECT THE IDEAL PARTNER

By Edward J. Foster

**S**electing any piece of audio electronics is a personal affair, but I suspect that it is more personal when choosing a CD player than when choosing other components. (I'm purposely excluding loudspeakers from the argument, even though choosing one is unquestionably subjective, because speakers are not strictly "electronic" devices.) The problem with finding the right CD player is that there are few hard facts to work with. When you're shopping for an amplifier, you can focus on the numbers — rated power, distortion, noise, and so on — but CD specifications are so similar that they seldom serve as the basis for selection.

Today, CD players are bought largely because of what they do for you — that is, on their lineup of features — rather than on how good they sound because, by and large, they all sound pretty good. This consistency of performance stems mainly from the development of relatively low-cost digital-to-analog (D/A) converters capable of the sort of linearity and dynamic range that once required careful tweaking during manufacture to achieve.

That's not to say that there are no quality differences

among CD players or that a \$99 toy will sound as good as an esoteric player going for ten times as much. But the sonic differences in the middle ground — the region that most of us mine — are subtle, to say the least. In this area, selection usually becomes nine parts features to one part specs. So, what do you look for when selecting the ideal CD partner?

First, examine your lifestyle. Are you the kind of person who plays discs from beginning to end and selects each one individually as the spirit moves you? If so, a changer could be more of a hassle than a blessing; single-disc players are faster and easier to load and unload than changers and are usually a darned sight quieter in operation. But if you're the organized type who chooses a full evening of music the moment you return from work, a multidisc CD changer is the obvious choice.

You can put away any concern that a CD changer requires settling for inferior sound. Sure, any particular changer may or may not match the sound quality of a topnotch single-disc player, but there's no technical reason why it couldn't . . . or shouldn't. Once a changer loads a disc into playing position, it operates no differently from the typical single-



The Technics SL-PD987 five-disc carousel changer (\$250) has an ID Scan mode, which previews the loudest passage of each song on a disc for 10 seconds, and a pitch control with a  $\pm 12$ -percent range.

# Choosing a CD Player

disc system. And if you take comfort in numbers, you'll be happy to know that in this country changers outsell single-disc players by a substantial margin. You'll be in good company if you choose one! So the question now becomes, which type of changer makes the best mate for your lifestyle? There are four candidates to choose from. In order of historical debut, they are: the magazine or cartridge changer, the carousel, the "stocking" changer, and the consumer "jukebox."

## Magazine Options

Pioneer introduced the six-disc magazine changer many years ago, and it remains the most popular for automotive use. If you have one in your car, you may want to stick with the format at home simply for the convenience of swapping magazines between car and living room. Of course, the two will have to use compatible magazines; some accommodate six discs, some ten.

Changer magazines make it easy to categorize music by "type" — country music in one, for example, hard rock in another, background in a third, and so on. You can leave the discs in the magazine and pop the one that suits your mood into the changer. That makes for fast and easy loading . . . once the discs are in the magazine. Therein lies one of the negatives of the magazine format: Loading and unloading CD's is a bit of a hassle. If you're not the type to organize your music collection and keep the discs loaded, there's little point in choosing this kind of changer. If you do keep the discs loaded, you'll need a spare magazine for every half dozen discs in your "active" collection, and that can add a buck or two a disc in costs.

Magazine changer mechanisms usually take longer to swap discs than a carousel or "stocking" mechanism, al-

though they're certainly faster than a single-play machine. That brings up a second consideration regarding this type of changer. With many magazine changers, playing a single disc is a nuisance: you have to find an empty magazine (or at least an empty slot in one) and load the disc before you can play it — not exactly instant gratification!

If you're the impatient type, check out a "6+1" changer from JVC or Kenwood. These have a single-disc tray as well as a six-disc magazine, so you get the best of both worlds. Although you're generally limited to six or ten discs per magazine, Pioneer has players that handle two (PD-DM802) or three (PD-TM3) six-disc magazines at once — great for parties.

Some magazine changers feature multimagazine memory. Once you've "told" the player which discs are in a particular magazine — and even which tracks of which discs are your favorites — it recognizes that magazine whenever it's loaded and recalls your programming preferences. Of course, the player has no way of knowing if you've changed discs in a magazine, so the system works best for those with a stable lifestyle.

## Calling All Carousels

If organization isn't your forte, you may be happier with a carousel changer. Judging by the numbers, Americans aren't all that organized, because carousels are the most popular type of CD changer in this country. You'll find a wide selection of carousels that handle five discs (in some cases six) at a time. The CD's are placed in wells on a rotating platform, or "carousel," which spins about to load the one you want. A few carousels load from the top, but the disc tray on most of these changers slides out of the front panel.

**Kenwood's DP-M5570 "6+1" changer (\$230) has a six-disc cartridge and a single-play drawer for on-the-fly operation. It features dual 1-bit D/A converters and a twenty-track program memory.**



**Onkyo's DX-C320 carousel changer (\$330) has a platter that accepts six discs. You can change three discs without interrupting playback and store a forty-track playback sequence in memory.**



**Fisher's DAC-2403 Studio 24 changer (\$300) uses a vertical carousel that holds twenty-four CD's. The company recently introduced a sixty-disc version of the changer called the Studio 60 (not shown, \$500).**





It's duck soup to place discs into a top loader, and the disc-clamping mechanism in this type of player can be designed to hold the disc more securely than the mechanism found in many drawer-type front loaders. Aficionados of top-loading carousels take that loading characteristic as a sign of quality. The problem is, you can't stack other system components on top of these changers, which may preclude using them in your setup.

Front-loading carousels are undoubtedly the most popular CD players on the market. Carousels swap discs faster and more quietly than most magazine changers, and some permit you to load and unload all but one of the discs while playing the lone survivor. One-disc-at-a-time listening is almost as convenient as with a single-disc player, and, although carousels don't categorize discs in groups the way magazine players do, some (for example, the Sony CDP-C745) let you indicate your track preferences for a number of discs and store them in memory. When the tables of contents of these discs are next read, the mechanism "knows" your favorite selections.

A few years ago, Nakamichi introduced its first MusicBank changer, which used what the company calls a "stocking" mechanism (no, you don't wear it; you "stock" CD's in it). MusicBank sort of bridges the gap between magazine changers, carousels, and single-disc players. Discs load as they do in a single-disc system — you place them on a tray, one at a time. The mechanism then swallows the discs and stores them inside on a mechanical elevator that is functionally equivalent to a nonremovable magazine. The elevator holds up to six discs while a seventh is on the tray. That gives a MusicBank changer the playing time of a 6+1 magazine changer without your having to buy any magazines. Nakamichi's mechanism (which is also used in McIntosh's MCD7008) is faster and quieter than conventional



In addition to holding your fifty favorite CD's in two "rolling racks" behind its front panel, the Pioneer PD-F51 changer (\$615) can play other CD's through its single-disc slot.



Meridian's elegant Model 506 player (\$1,495) uses a nonmagnetic disc-clamping mechanism to minimize vibration and has both optical and coaxial digital outputs. A Meridian System Remote is included.



Besides a six-disc magazine and a single-disc tray, JVC's XL-GM800TN changer (\$850) boasts a graphics decoder and such karaoke features as a vocal-replacement mode, a key shifter, and mike inputs.

magazines and loads more easily, too, though not as easily as a carousel.

### Jukebox at Home

If controlling five, six, or seven discs at a time doesn't imbue you with a sense of power, if not even Pioneer's three-magazine changer can tame your appetite, you're a candidate for the CD jukebox — the true megachanger. Think of it! Fifty, a hundred, two hundred, three hundred discs at your beck and call! Mind-boggling, isn't it? Compared with such systems, Fisher's twenty-four-disc DAC-2403, or Studio 24, seems puny . . . until you check out the equally puny price (less than \$300). Fisher also recently introduced the sixty-disc DAC-6015 Studio 60, which lists for \$499.

If there's a trend in this relatively new area, it seems to be toward a consolidation at a 100-disc capacity, although Pioneer's PD-F51 is a 50-disc player (actually, it holds fifty-one discs), Denon offers a 200-disc system, dubbed the DN-1200F/C, and C4 (Custom Computing of Carson City) has a 300-disc monster, the No-Touch 300. Once you go beyond a hundred discs, prices rise dramatically, into the \$4,000 to \$5,000 range. You can even

pay a lot for a 100-disc changer — NSM's Model 3101 lists at over \$4,000, while Proceed's CD Library tops five figures! In the more reasonable \$1,000-or-less range, 100-disc players are available from several companies. Pioneer offers the \$565 PD-F904 and the \$740 PD-F1004, which features an on-screen graphical interface. Kenwood has the \$450 DP-J1070 and the \$650 DP-J2070, which can be connected to a computer to streamline entering disc information. Sony has the \$700 CDP-CX151 and the \$1,000 CDP-CX100 and plans to introduce the \$600 CDP-CX153 this September. And 101-disc systems are available from Aiwa, the \$650 DX-C100M, and JVC, the \$1,000 XL-MC300.

With some of these systems, you can daisy-chain multiple

# Choosing a CD Player

changers together and increase capacity further. And even a 100-disc system will handle all the CD's in many people's music collections, so think of all the storage space you could save. Jukeboxes are great for custom installations, where they can flood every room of your home with music that you can select from a huge library. Some are easier to program and operate than others; the same holds true for disc loading. When making an investment of this magnitude, it's obviously wise to comb the turf thoroughly.

Many CD player features are so nearly ubiquitous that you can take them for granted: the ability to program the system to play specific selections on a disc or discs in the order you want to hear them; random playback of all the pieces on a disc, in a magazine, or on a carousel (or of only those you've committed to the player's memory); wireless remote controls that put everything at your fingertips. Others, like synchronized copying to a cassette deck, are common but by no means

universal and usually require "compatible" components (that means, "made by the same folks"). If you regularly tape from CD's, you may wish to look into CD players that offer a Peak Search function. Peak Search locates the highest signal level on the disc and helps you set the recording level to accommodate it. Intro Scan, another common feature, plays the first few seconds of each selection and can be useful if you don't know the name of the song you want but you can recognize the tune.

Some players have digital outputs — via either fiber-optic or coaxial cable — which are necessary only if you want to use an external D/A converter or plan to make digital dubs to DAT, DCC, or MD. And then there are those players that let you assign names to your CD's, which then appear in the display during playback — a dubious feature in my book. A good salesperson can help guide you through the thicket, but only you can decide what you really want from your CD partner. □



One of three 100-disc changers offered by Sony, the CDP-CX100 (\$1,000) has a Custom File memory that lets you assign a title, preferred volume level, and track-delete list to each disc.



The D/A converter in the California Audio Labs DX-1 player (\$595) is on the same board as the transport circuit to shorten the signal path and help isolate digital processing from the analog output stage.

## THE LASERDISC CONNECTION

If you've been bitten by the home-theater bug, there's another possibility you should investigate: the "combi-player." Combi-players have a large platter that handles both CD's and laserdiscs. That makes a lot of sense since both types of disc are optical and are read by a laser pickup. There are a number of combi-players on the market from a number of companies including Denon, Kenwood, Marantz, Panasonic, Pioneer, and Yamaha. My list is not all-inclusive by any means; even some of the more esoteric companies are now making combi-players.

Some combi-players automatically switch from Side A to Side B on laserdiscs, which is great for couch-potato videophiles. With others, you have to get up and flip the disc manually. Most systems

Yamaha's CDV-870 laserdisc/CD combi-player (\$749) features a proprietary S-Bit Plus 1-bit digital-to-analog conversion system, an on-screen menu system, and ten forward and reverse speeds.



can play only one CD at a time; others are the functional equivalent of a five-disc carousel. Soundwise, there's no reason a combi-player can't be equivalent to a standard CD player, but some are noticeably slower to respond to commands and can be less convenient to use in terms of programming and track selection. —E.J.F.

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# Collectibles

20 MOVIES YOU'LL WATCH MORE THAN ONCE

BY STEVE SIMELS

**T**he millennium approaches and civilization seems to be crumbling about our ears, but for people who like to collect movies this is a genuine Golden Age. The reason? Home video, of course.

It's never been easier to collect movies at affordable prices. Facing apparently insatiable consumer demand, the major studios are emptying their vaults of older films at a pace that would have seemed astonishing ten years ago. And even the biggest of recent blockbusters now routinely have their prices slashed within weeks of their initial appearance in video stores. For movie fans with VCR's or laserdisc play-



Johnny Depp as Ed Wood

ers or, even better, surround-sound home theaters that put you in the middle of the action (subwoofers rule!), these are heady times indeed.

But Sturgeon's Law — that 90 percent of everything is crap — manifestly applies as much to movies on video as to anything else. So what's worth collecting, as opposed to renting once and forgetting? The following suggestions, in no particular order, should provide a good place to start — flicks famous and

not so famous, both recent and (occasionally) not so recent, available on tape and (often) laserdisc — because all of them richly repay repeated viewing.

**DEAD RINGERS**

Jeremy Irons is astonishing as twin gynecologists on a slow downward spiral into madness in horror specialist David Cronenberg's most accomplished work to date. Watch it once for the acting and then again to marvel at the trick photography. [Media]

**A FISH CALLED WANDA**

Small-time thieves (Kevin Kline, Jamie Lee Curtis) fall out over a jewel heist, then get involved with a befuddled English barrister (John Cleese). Result: the funniest film of the Eighties. [MGM/UA, tape and disc]

**HEATHERS**

Nice girl Winona Ryder falls for homicidal Christian Slater in this wicked satire of contemporary teen mores. With a pre-*Beverly Hills 90210* Shannen Doherty in the role she was born to play — Homecoming Queen from Hell. [New World tape, Image disc]

**THE PLAYER**

A murder mystery, a black comedy, and a poison-pen letter to Hollywood. director Robert Altman's

brilliant comeback film has a script that approaches the cleverness of *Citizen Kane* and more delicious celebrity cameos than you can shake a stick at. [New Line, tape and disc]

**TOP SECRET!**

Newest Batman Val Kilmer plays (brilliantly) a Sixties teen idol in this who'd-have-think-it

parodistic cross between a cold war thriller and an Elvis musical from the folks behind *Airplane*, *Hot Shots*, and the *Naked Gun* movies. Hilarious. [Paramount, tape and disc]

**MIRACLE MILE**

A young trombone player gets the ultimate pay-phone wrong number — an Army missile silo operator calling with a 60-minute warning of nuclear apocalypse. Haunting, funny, and weirdly moving, courtesy of writer/director Steve DeJarnatt. The most



Robert DeNiro in *Raging Bull*

regrettably overlooked film of the Eighties. [HBO]

**THE FRESHMAN**

Matthew Broderick, as an NYU film student, meets Marlon Brando (doing a great sendup of himself as *The Godfather*) in this enchanting farce from writer/director Andrew Bergman. Sublime moment:

Bert Parks singing the Miss America song to a komodo dragon. [Columbia/TriStar, tape and disc]

**THE REF**

A crook on the lam (comedian Denis Leary in a sensational star turn) makes hostages out of a seriously dysfunctional yuppie couple — or is it the other way around? One of the handful of first-rank Nineties comedies so far, and co-star Judy Davis seems to have inherited Blair Brown's role as the Thinking Person's Sex Symbol. [Touchstone, tape and disc]

**ROBOCOP**

The most original special-effects extravaganza of the last decade, director Paul Verhoeven's half-man/half-machine movie is also (no kidding) a





PHOTOFEST

**Woody and Mia in *Shadows and Fog***

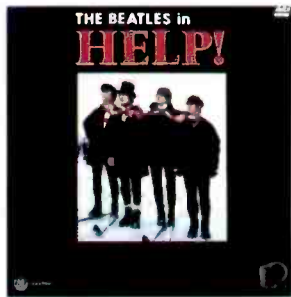
pointed critique of capitalism run amok. Sensitive conservatives, of course, can just ignore all that and groove on the titular hero (Peter Weller) blowing away the bad guys. [Orion tape, Image disc]

**DARKMAN**

A pre-*Schindler* Liam Neeson is a masked avenger in director Sam Raimi's endlessly inventive live-action comic book. It's everything the *Batman* movies should've been, but weren't. [MCA, tape and disc]

**HELP!**

The Beatles' second film jettisoned the pseudo-documentary approach of *A Hard Day's Night*



for a riotous comic surrealism worthy of the Marx Brothers. And the musical sequences are still better than anything MTV has ever aired. [MPI tape, Criterion disc]

**GIMME SHELTER**

This 1969 documentary look at a Rolling Stones tour that went horribly wrong is more than just a cool concert film with great sound. In fact, it's closer to a rock-and-roll Greek tragedy with art direction by Hieronymus Bosch. (ABKCO, tape and disc)

**THIS IS SPINAL TAP**

Rob (Meathead) Reiner's mock documentary on the decline and rise of a clueless English heavy-metal band remains one of the sharpest insider parodies ever made. Plus, you can play Spot the Celebrity Guests for what

**Liam Neeson (right) in *Schindler's List***



UNIVERSAL PICTURES

seems like forever. [Columbia/TriStar tape, Criterion disc]

**GOODFELLAS**

A life in the mob, courtesy of director Martin Scorsese, with amazing ensemble acting — by Robert DeNiro, Joe Pesci, Ray Liotta, Paul Sorvino, and a host of others — plus visual sequences that will take your breath away. [Warner Bros., tape and disc]

**SCHINDLER'S LIST**

A wrenchingly powerful film on a daunting subject (the Holocaust) by a filmmaker (Steven Spielberg) nobody had previously pegged as anything more than a gifted showman. On some level I still can't believe he brought it off, but there's not a minute of it that isn't superlative. [MCA, tape and disc]

**SHADOWS AND FOG**

Woody Allen, as a quintessential Little Guy, on the run from nameless figures of oppression in a beautifully photographed soundstage evocation of Eastern Europe in the Twenties. Think Kafka with better jokes — much, much better jokes, like a cameo by Madonna. [Orion tape, Image disc]

**ED WOOD**

Tim Burton's celebration of everybody's favorite cross-dressing Z-movie director is, among other things, a sweetly funny ode to total artistic failure. Martin Landau, as the dying Bela Lugosi, is so good he should have gotten his supporting-actor Oscar at the wrap party. [Touchstone, tape and disc]

**PLAN 9 FROM OUTER SPACE**

And while we're on the subject, here's the real Ed Wood's masterpiece(?). Clearly, the greatest flying-saucers-on-strings movie of all time. [Rhino tape, Lumivision disc]

**RAGING BULL**

Still the pinnacle of DeNiro and Scorsese's ongoing collaboration, this riveting bio-pic on the weird, savage life of fighter Jake LaMotta isn't just the best boxing movie ever made — it's one of the best American movies period. [MGM/UA, tape and disc]

**RED ROCK WEST**

Unemployed schmo Nicholas Cage drifts into a desert town and gets mistaken for a hitman in director John Dahl's elegant homage to film noir. Dennis Hopper, as the real killer, adds yet another portrayal to his extensive gallery of memorable screen psychos. [Columbia/TriStar, tape and disc]

**and a few classics to consider . . .**

**ALEXANDER NEVSKY.**

Restored version of the Eisenstein/Prokofiev landmark. [BMG, tape and disc]

**BEAUTY AND THE BEAST.**

Jean Cocteau's surrealist fairy tale. [Homevision tape, Criterion disc]

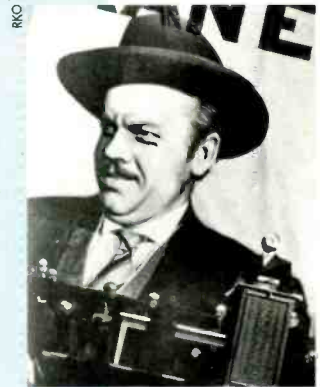
**THE BRIDGE ON THE RIVER KWAI.**

David Lean's World War II epic. [Columbia/TriStar, tape and disc]



**CHILDREN OF PARADISE.**

The French *Gone With the Wind*. [Homevision tape, Criterion disc]



**CITIZEN KANE.** Orson Welles, and enough said. [Turner tape, Criterion disc]

**THE GODFATHER SAGA.**

An American family. [Paramount]

**NAPOLEON.**

Abel Gance's silent masterpiece. [MCA, tape and disc]



**STAGECOACH.**

John Ford's Old West, never better. [Warner Bros., tape and disc]

**YOJIMBO.** Akira Kurosawa's Samurai western. [Homevision tape, Criterion disc]

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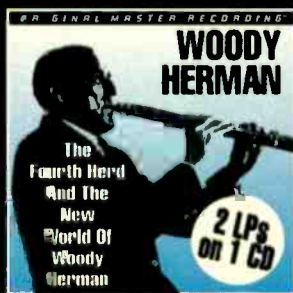


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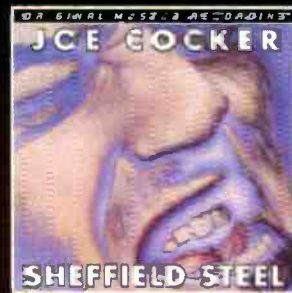
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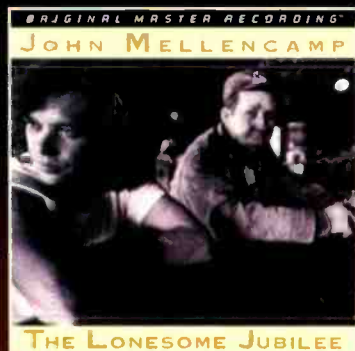


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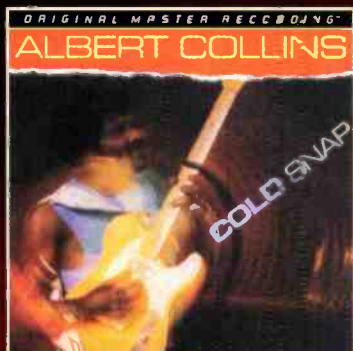


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# BEST OF THE MONTH REVIEWS

STEREO REVIEW'S  
CRITICS CHOOSE  
THE OUTSTANDING  
CURRENT RELEASES

## The Tokyo Quartet Plays Debussy And Ravel

**T**he Tokyo String Quartet recorded the Debussy and Ravel quartets in the late 1970's for CBS, and in 1983 the foursome, by then with the American Peter Oundjian as first violin, participated in an Angel recording of Ravel's *Introduction and Allegro*. All three of those works are included in the quartet's superbly played and beautifully recorded new RCA Victor CD.

The Debussy performance is a revelation. The Tokyo players give us the requisite refinement and color, but they add a muscularity and forthright rhythmic impetus that send a welcome gust of fresh air through the proceedings. The opening bears out Debussy's *très décidé* ("very decisive") indication for the first movement, telling us that we are in for a real listening experience. The following *assez vif* ("pretty lively") movement is delightfully prickly, and the slow movement is both poignant and dramatic, reaching its peak at the quasi-recitative for viola. There is passionate urgency in the finale, the *très modéré* ("very moderate") marking notwithstanding.

Ravel's feline aspect is brought to the fore in the opening movement of his quartet. It all feels like velvet, even in the spiky second movement and certainly throughout the slow movement, until the cello recitative breaks in and paves the way for a gorgeously fierce finale.

While the two quartets were recorded at Princeton University in 1992 and 1994, the Ravel *Introduction and Allegro* goes all the way back to a 1988 New York studio taping. The work is a display piece for the pedal harp, and harpist Heidi Lehwalder is front and center here, with superstars James Galway (flute) and Richard Stoltzman (clarinet) as her woodwind collaborators. The result is sonically ravishing — crystal clear in texture without ever sounding brittle. For me this CD is unalloyed pleasure from start to finish.

David Hall

**DEBUSSY:** String Quartet

**RAVEL:** String Quartet; *Introduction and Allegro*

Lehwalder, Galway, Stoltzman;  
Tokyo String Quartet  
RCA VICTOR 62552 (65 min)

CHRISTIAN STEINER/BMG CLASSICS



## Elvis Costello, Cover Boy

**L**eave it to Elvis Costello to do the cover album thing the right way. Usually, when a pop star resorts to an album of hand-picked favorites it signals a soft spot in the artist's career, and the songs are unfailingly obvious and familiar (thereby minimizing the risk of a flop).

Costello's just-released "Kojak Variety" is different. For one thing, he's so prolific that the album sat on the shelf for five years, waiting for a brief break in his creative output. He didn't choose a bunch

of easy marks, either. The best-known song here, from a rock fan's perspective — well, it's a tossup between *I Threw It All Away*, a track from Bob Dylan's countrified "Nashville Skyline" album, and *Days*, a Kinks single from their glorious, pastoral British period (the best-known song, period, is probably Ray Noble's pop standard *The Very Thought of You*). From there, though, "Kojak Variety" gets really obscure.

But Costello's not just being perversely anticommercial; he's simply picked songs that mean something to him. His choices amplify his recurring obsessions: the mutual hurt in the unending war between the sexes, a supplicant's need for reassurance that a lover won't leave or betray him, the overriding sense that love is a pitched battle that makes losers of us all. Actual-

# BEST OF THE MONTH REVIEWS

ly, the vintage relics he's chosen could pass for lost outtakes from "This Year's Model" based on their titles alone: *Pouring Water on a Drowning Man*, *Running Out of Fools*, and *Must You Throw Dirt on My Face*, a Louvin Brothers country song that he turns into a Memphis-style soul ballad by drawing out the inherent pain beneath the surface.

Another aspect of "Kojak Variety" that's consonant with the Costello persona is its sheer, hard-charging sense of edge-driven fun. Costello loves old blues-spined rockers like Little Willie John's *Leave My Kitten Alone* (recorded but never released by the Beatles, except on bootlegs) and Little Richard's *Bama Lama Bama Loo*, and he approaches them here in a style reminiscent of the old Who coinage, "maximum R&B." *Hidden Charms*, a Willie Dixon number recorded by Howlin' Wolf, is taken at a shuffle tempo, with cheesy underwater organ effects enlivening the sense of some smooth-talking hepcat paying homage to his main squeeze.

The album opens with a suitably perverse choice, *Strange*, an obscurity by R&B madman Screamin' Jay Hawkins.

Costello leaves in the take's false start (now, is that any way to begin an album?), which serves as a tip to the barnstorming fun and games that await the intrepid listener. Another strong, offbeat selection is Fifties hipster Mose Allison's *Everybody's Crying Mercy*, whose blanket putdown mirrors Costello's own dry, curmudgeonly world view.

Rockers have been doing records like this one since Bryan Ferry's "These Foolish Things" in 1974; in fact, these days they're glutting the market. But "Kojak Variety" is something special: oxymoronic as it sounds, it's the most original album of covers ever made.

Parke Puterbaugh

## ELVIS COSTELLO

### Kojak Variety

*Strange*; *Hidden Charms*; *Remove This Doubt*; *I Threw It All Away*; *Leave My Kitten Alone*; *I've Been Wrong Before*; *Everybody's Crying Mercy*; *Bama Lama Bama Loo*; *Must You Throw Dirt on My Face*; *Pouring Water on a Drowning Man*; *The Very Thought of You*; *Running Out of Fools*; *Payday*; *Please Stay*; *Days*  
WARNER BROS. 45903 (54 min)



VICTORIA MICH/EMI

## Rattle's Subtle Liszt

Simon Rattle — now *Sir* Simon to you, fella — has always been something of an enigma to me. For years the British press praised him as the greatest thing to happen to the symphony orchestra since the invention of the valve trumpet, and I would play his recordings and find my attention flagging after 5 minutes. But with his new dream recording of Liszt's *A Faust Symphony*, I finally get it. In his debut recording with the Berlin Philharmonic, Rattle elicits the notoriously temperamental band's best playing on disc since the death of Herbert von Karajan.

The *Fantastics* found the Faust legend irresistible, and it inspired Liszt, archest of arch-Romantics, to write his orchestral masterpiece: Bartok ranked *A Faust Symphony* "among the outstanding musical creations of the nineteenth century." It is quite unusual, if not unique, for a programmatic work, in that it does not try to convey the story of Goethe's drama in musical language but rather evokes the personalities of the three protagonists: Faust in tense, complex, turbulent lines, Gretchen with aching tenderness, and Mephistopheles in a scherzo marked *allegro vivace, ironico*.

Dynamically, this is about as subtle and nuanced a performance as one could hope for. The brass has never bloomed more thrillingly, and the strings maintain an ideal inner clarity even at the most agitat-



TIM RENT/WARNER BROS.

Elvis Costello: a tribute to Telly Savalas?



ed moments, yet there is a judicious sense of balance throughout. This is a piece that all too easily slips into bombast, and it is a measure of Rattle's brilliant musicianship that the delicate passages for solo winds and strings in Gretchen's movement are just as exciting as the Mephistophelean sound and fury. The live

recording, made in the Berlin Philharmonic last year, has breathtaking immediacy and beguiling warmth. *Jamie James*

**LISZT:**

**A Faust Symphony**

Seifert; Berlin Philharmonic, Rattle cond.  
EMI 55220 (69 min)

## Linda Ronstadt Comes Home

Ever since the early Seventies, Linda Ronstadt has been one of popular music's most versatile singers, distinguishing herself first as a compelling interpreter of the singer/songwriter period and going on to record albums of rock and soul, country and folk, adult contemporary, classic pop standards, mariachi music, and even opera. Yet her biggest influence is as a big-voiced California country rocker, and in the Nineties a number of country females, including Trisha Yearwood and Martina McBride, have cited Ronstadt as an inspiration for both her emotional depth and her tonal purity.

With her new album, "Feels Like Home," Ronstadt returns to the country-accented folk and rock she premiered in 1974 with "Heart Like a Wheel." Her exceptional soprano has deepened and taken on additional colors since then, and her

phrasing has gotten more adventurous. Producer George Massenburg goes a tad over the line here with a gauzy, over-orchestrated version of Neil Young's *After the Gold Rush*, where Ronstadt is joined in trio vocals by Emmylou Harris and Valerie Carter, but on the whole "Feels Like Home" is her best album in many years.

The biggest surprise of the record is a mandolin/bluegrass treatment of Tom Petty's *The Waiting*. Sung full-tilt, as opposed to Petty's more subtle reading of the lyrics, the song seems less a quiet declaration of joy and release than a shout-it-to-the-world exaltation. While "Feels Like Home," titled after Randy Newman's hymn of thanks for a loving relationship, is a bit too reserved and low-key in its choice of material (the closest Ronstadt comes to a cut-loose, rock-out rave-up is on Matraca Berg's *Walk On*), it's an inordinately pretty record, from Ronstadt, Harris, and Claire Lynch's magnificent harmony vocals on the A.P. Carter country-folk offering *Lover's Return* to the poetry of David Olney's *Women 'Cross the River* to the ongoing sense of loss on *The Blue Train*, previously recorded in a less pristine, more aching version by Maura O'Connell. Guest instrumental performances by fiddler Alison Krauss, mandolinist David Grisman, and slide guitarist Roy Rogers add yet another level of superior musicianship.

Aside from merely making good music, though, Ronstadt has done something else with this album — she's taken herself out of the "inspiration" class and made herself a contender again. Welcome back, songbird. *Alanna Nash*

**LINDA RONSTADT**

**Feels Like Home**

*The Waiting; Walk On; High Sierra; After the Gold Rush; The Blue Train; Feels Like Home; Teardrops Will Fall; Morning Blues; Women 'Cross the River; Lover's Return*  
ELEKTRA 61703 (40 min)

**Ronstadt: a contender again**



ROBERT BLAKEMAN/ELEKTRA

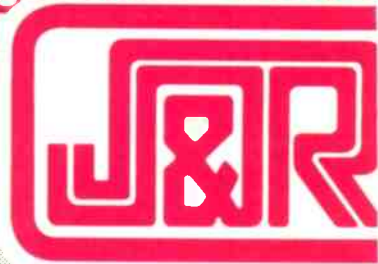


**POPULAR**

- **BILL HALEY & HIS COMETS:** *Rock the Joint! The Original Essex Recordings 1951-1954*. SCHOOLKIDS 1529. Long-out-of-print singles predating Haley's move to Decca and his *Rock Around the Clock* success.
- **GEORGE JONES:** *Sings the Hits of His Country Cousins*. RAZOR & TIE 2064. The great country singer's 1962 covers album, featuring *Peace in the Valley*.
- **JIM MORRISON/THE DOORS:** *An American Prayer*. ELEKTRA 61812. From 1978, a posthumous poetry and music collaboration now fleshed out with three bonus tracks, including new music by the surviving Doors.
- **THE REIVERS (Original Motion-Picture Soundtrack)**. COLUMBIA/LEGACY. From the 1970 Steve McQueen film, the score that garnered John Williams his first Academy Award nomination.

**CLASSICAL**

- **BERLIOZ:** *Symphonie Fantastique; L'Éléonore; Les Nuits d'Été; La Mort de Cléopâtre; Roman Carnival Overture; other works*. Soloists: London Symphony, BBC Symphony, New York Philharmonic, Boulez. SONY SM3K 64103 (three CD's). Recordings conducted by Pierre Boulez from 1968 to 1977.
- **DEBUSSY:** *La Mer*.
- **RESPIGHI:** *Pines of Rome; Fountains of Rome*. Chicago Symphony. Reiner. RCA VICTOR 68079. "Living Stereo" recordings from 1959 and 1960.
- **MAHLER:** *Symphony No. 9*. Columbia Symphony Orchestra; Walter. SONY SM2K 64452 (two CD's). Part of Sony's Bruno Walter Edition, this set includes a "talking portrait" of the conductor and a "working portrait" drawn from his rehearsals for this 1956 recording of the monumental Mahler Ninth.



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- Spotlight on June Christy ... CAP 28535
- Spotlight on Mel Torme ... CAP 89941

**Receivers**



**Teac AG-V1050**  
Remote A/V Stereo Receiver  
•100-watts per channel •6 audio inputs, 2 video inputs •Motorized volume control •Headphone jack •Quartz PLL synthesized tuner with 30-station memory  
\*Mir. List Price \$319  
**\$149.95** (TEA AGV1050)

- Sherwood RX-1010 \$99.95
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- Sherwood RX-4030R \$159.95
- Technics SA-GX190 \$179.95
- JVC RX-317 \$179.95
- Technics SA-GX390 \$219.95

**Receivers**



**Sherwood RV-6030R**  
Surround Sound Receiver  
•105 watts per channel front •Surround mode 75 watts per ch x 3, 24 watts per ch rear •Dolby Pro Logic with digital processor •AM/FM tuner with 30 presets •Unified remote control  
\*Mir. List Price \$610.00  
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- Sherwood RV-5030R \$249.95
- Technics SA-GX490 \$249.95
- Technics SA-GX690 \$329.95
- JVC RX-815V \$399.95
- Technics SA-TX1000 \$799.95

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**RCA CD-1051M**  
Compact Disc Player  
•Midi size •9-key remote control •2 digit LED display •2x oversampling •Dual 16-bit D/A converters •20 program memory •1 year parts & labor warranty  
\*Mir. List Price \$169.95  
**\$89.95** (RCA CD1051M)

- Teac PD-D880 \$139.95
- Technics SL-PG450 \$149.95
- Sherwood CDC-5030R \$149.95
- Magnavox CDC74517 \$149.95
- Technics SL-PD787 \$169.95
- JVC XLM-415 \$219.95

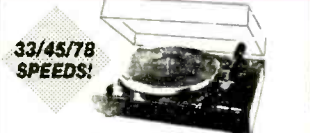
**Mini Audio Systems**



**Aiwa NS-X2700**  
Mini Component System  
•16 watts per channel •Vocal fader for Karaoke •Super T-Bass •AM/FM tuner with 32-presets •CD player •Double cassette deck •3-way speakers •Remote control  
\*Mir. List Price \$400  
**\$219.95** (AIW NSX2700)

- Craig HS-2001 \$129.95
- RCA RP8593 \$199.95
- Panasonic SC-DH30 \$219.95
- JVC MX-C33 \$359.95
- Denon D-200 \$749.95
- Aiwa NSX-5200 CALL

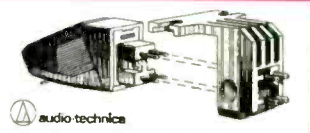
**Turntables/Equalizers**



**Thorens 180**  
3-Speed Belt Drive Turntable  
•33, 45, 78 r.p.m. •Automatic shut-off & auto-retract •Synchronous motor •Adjustable anti-skating •External power supply •Includes Stanton cartridge  
\*Mir. List Price \$429.95  
**\$299.95** (THN 180)

- Teac P-595 \$89.95
- Aiwa PXE850 \$119.95
- Technics SL-BD22K \$129.95
- Teac EQA-110 \$69.95
- Teac EQA-220 \$89.95
- Technics SH-GE70 \$189.95

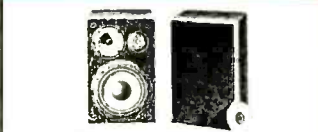
**Phono Cartridges**



**Audio Technica DR950**  
Universal Mount Phono Cartridge  
•Fits both standard & P-mount systems •Linear contact stylus •10-30,000Hz frequency response •Tracking force: 1-1.6 grams  
Was \$69.95  
**\$29.95** (AT DR950)

- Audio Technica PT300 \$19.95
- Audio Technica PT600 \$24.95
- Stanton 500ALMP \$36.95
- Stanton 680ELMP \$79.95
- Ortofon CCPR0 Kit \$89.95
- Ortofon CCE-Kit \$99.95

**Loudspeakers**



**Yamaha NSA-636**  
3-Way Speaker System  
•Acoustic suspension design •8 inch woofer •Ferro-fluid cooled midrange & dome tweeter •Power rating: 10-140 watts •8 ohm impedance  
\*Mir. List Price \$175  
**\$99.95/pair** (YAM NSA636)

- Technics SB-LX50-BK \$119.95
- Aiwa TS-W5 \$149.95
- JBL Pro III \$149.95
- Recoton W-410 \$199.95
- Recoton W-440 \$199.95
- Pinnacle AC-650 \$199.95

**Loudspeakers**



**Design Acoustics PS-1010**  
Bookshelf Speakers  
•3-way •10" woofer •Woofer faces downward, producing excellent bass in a compact enclosure •Point Source design provides an exceptional, lifelike stereo image •Black or oak  
\*Mir. List Price \$639.95  
**\$349.95/pair** (DA PS1010-BK, DA PS1010-OK)

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- Cerwin Vega L7 \$169.95
- Celestion MP1 \$269.95
- Bose 301-III \$318.00
- JBL 4312-BK \$499.95
- Cerwin Vega AT15 \$599.95

**Cassette Decks**



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3 Head Cassette Deck  
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\*Mir. List Price \$499  
**\$329.95** (AIW ADS950)

- Teac V-375 \$74.95
- Aiwa AD-F450 \$149.95
- Teac R-550 \$159.95
- Technics RS-BX501 \$199.95
- Technics RS-DC10 \$329.95
- Teac V-8030S \$799.95

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**Teac W-515R**  
Dual Cassette Deck With Auto-Reverse  
•Deck #1 features auto-reverse playback •Dolby B •Normal & high-speed dubbing •Continuous playback  
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**\$89.95** (TEA W515R)

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- Technics RS-TR373 \$179.95
- JVC TDW-309 \$199.95
- Sherwood DD-6030C \$199.95
- Technics RS-TR575 \$229.95
- Teac W-6000R \$429.95

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•2MB RAM •80 column x 25 row display •QWERTY keyboard  
•Includes MS-DOS Lotus 1-2-3 data communications, phone book memo editor with outline database, world time & stopwatch Pocket Quicken, cc. Mail Remote & more  
**Our Low Price \$679.95** (HP F1061A)  
**Atwater 901** .....\$24.95  
•Middle East Translator English French Arabic & Hebrew  
**Franklin MWD-440** .....\$49.95  
•Dictionary/Thesaurus w/BOOKMAN cartridge slot  
**Franklin SM-1000** .....\$99.95  
•Speaking Spanish Master  
**Sharp YO-370CP** .....\$99.95  
•128K Electronic Organizer  
**Casio SF-7900** .....\$119.95  
•6 1/2 S. Databank, \*28K  
**Sharp ZR5000FX Zaurus** .....\$599.95  
•Personal Digital Assistant with modem

## Hi-Fi Stereo VCRs



**Sony SLV-720HF VHS Hi-Fi Stereo Recorder**  
•4-heads •Digital auto tracking •Tape stabilizer •VCR Plus+ programming •Cable mouse remote •Auto head cleaner •8-event/1-month timer •Remote with shuttle control  
**Mr. List Price \$549.95**  
**Our Low Price \$299.95** (SON SLV720HF)  
**Samsung VR8704** .....\$229.95  
•4-heads, 8-event/1-month programmable  
**JVC HR-J610** .....\$274.95  
•4-heads, 1-year/8-event, remote  
**Sony SLV-620HF** .....\$279.95  
•4-heads, shuttle control, 8-event/1-month  
**Panasonic PV-4561** .....\$299.95  
•4-heads, VCR Plus+ universal remote  
**JVC HR-VP618** .....\$329.95  
•VCR Plus+, 4-heads, jog/shuttle control  
**Sony SLV-770HF** .....\$349.95  
•4-heads, Cable Mouse™ system

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•S-video input •180-channel cable ready  
•Remote control •450 lines of horizontal resolution •AV input •Variable audio output  
**Mr. List Price \$699.95**  
**Our Low Price \$399.95** (JVC AV26BM4)  
**Panasonic CT-20S12** .....\$299.95  
•20" Stereo TV/Monitor, universal remote  
**Panasonic LX-H170** .....\$329.95  
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**AudioSource AMP One Power Amplifier**  
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•Left/ right output level controls •Separate high & medium level inputs (for direct connection of CD players)  
**Mr. List Price \$349.95**  
**Our Low Price \$249.95** (ASO AMPONE)  
**AudioSource EQ-8/II** .....\$99.95  
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**AudioSource EQ-11** .....\$119.95  
•Graphic Equalizer, tape to tape dubbing  
**AudioSource EQ-12** .....\$199.95  
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**AudioSource SS Five** .....\$299.95  
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**AudioSource SW Four** .....\$399.95  
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**AudioSource SS5001** .....\$399.95  
•Home Theater Complete Add-On Package

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**Gemini CD9000 Dual CD Player**  
•Perfect for the DJ •18-bit with 8 times oversampling •Pitch control •Effects •19" rack mountable •110/220 volts for worldwide use  
**Mr. List Price \$1375.00**  
**Our Low Price \$799.95** (GMI CD9000)  
**Ness UL36** .....\$29.95  
•Pin Spot Light, includes lamp, bracket  
**Ness MB012** .....\$37.95  
•12" Mirror Ball  
**Gemini PMX-15A** .....\$109.95  
•Scratchmaster Disco Mixer  
**Gemini MB-460** .....\$179.95  
•Disc Speaker, 15" woofer each  
**Audio Technica AM400** .....\$199.95  
•DJ Mixer, voice changer  
**Gemini PMX-3000** .....\$254.95  
•DJ Mixer, EQ, 2-phonos/5-line

## Maxell Audio/Video Tape



**Maxell R-120DM Digital Audio Tape**  
•Metal particle tape with exclusive binder system •Micro-smooth tape surface •High precision housing for greater dependability  
**Our Low Price \$11.98/2-pk.** (MAX R120DM 2PK)  
**Maxell UD35-90** .....\$7.49  
•Open Reel, 7, 1800 ft each  
**Maxell XLI160-5ANV** .....\$7.99  
•High Bias Cassette, 25th Anniv. Pk (inc 1-FREE) 6-pk  
**Maxell XLI15-90-3+1** .....\$7.99  
•Premium High Bias Cassette, (inc 1-FREE) 4-pk  
**Maxell MXS100/SPK** .....\$14.95  
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**Maxell T-120HG/4-PK** .....\$9.95  
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•Lightweight, volume & balance controls  
**Sennheiser HD-320** .....\$59.95  
•Supraural, lightweight, dual plugs  
**Sennheiser HD-340** .....\$79.95  
•Supraural, for portables & home stereo  
**Koss Pro4AA** .....\$89.95  
•Studio Pro Headphones, closed-ear  
**Sennheiser HD-520II** .....\$99.95  
•Open Ear, Cancellative  
**Sennheiser HD-560II** .....\$149.95  
•Circumaural, tuned bass ports, dual plugs

## Cameras



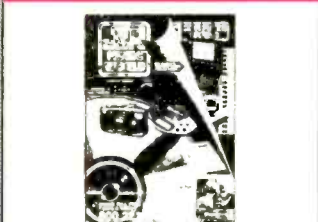
**Nikon One-Touch Zoom Kit**  
**35mm Camera with 38-70mm Power Zoom**  
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•Includes case, Kodak Gold film & lithium battery  
**Our Low Price \$149.95** (NKN ONETZKIT)  
**Minolta AF-101R** .....\$49.95  
•Compact Autofocus, auto flash, red eye reduction  
**Olympus Infinity Mini** .....\$99.95  
•Ultra-Compact Weatherproof, 35mm 1/3 lens  
**Olympus SuperZoom 3000** .....\$229.95  
•Compact Zoom, weatherproof  
**Olympus IS-10** .....\$369.95  
•Compact Zoom Lens Reflex SLR  
**Minolta Maxium 400si Kit** .....\$399.95  
•Easy-to-use SLR w/35-70mm lens  
**Nikon N90s** .....CALL  
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JVC XLH415TN	6 CD MAGAZINE CHANGER	189
KENWOOD DPM-5570	6+1 CD CHANGER REMOTE	189
SONY CDP-C445	5 CD CAROUSEL CHANGER	219
TECHNICS SLPD-887	5 CAROUSEL CD CHANGER	169

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DENON DRW-660	DUAL DECK	199
KENWOOD KXW8070S	DOLBY <sup>®</sup> S DECK	229
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YAMAHA KXW-282	DOUBLE CASSETTE DECK	249



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CERWIN VEGA L-78	Top Rated	169
CELESTION MODEL 300	SPECIAL BUY	



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 • 2 1/2" Voice Coil  
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JBL LC-310	3 Way Floorstanding	249
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**24 CD/DUAL DECK REMOTE MINI SYSTEM**  
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 • 8" 3 Way Bass Reflex Speakers  
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# POPULAR MUSIC

**NEW RECORDINGS REVIEWED**  
**BY CHRIS ALBERTSON,**  
**FRANCIS DAVIS, PHYL GARLAND,**  
**RON GIVENS, ROY HEMMING,**  
**ALANNA NASH,**  
**PARKE PUTERBAUGH, AND**  
**STEVE SIMELS**

**TERRY ANDERSON**

**You Don't Like Me**

ESD 81012 (39 min)

**Performance:** Rip this joint!  
**Recording:** Low-fi that works

**T**erry Anderson wrote *Battleship Chains* for the Georgia Satellites and later co-wrote most of Satellite frontman Dan Baird's superb 1993 solo album. His own solo debut is very much in the same vein — gutsy, lyrically amusing Stones-ish guitar rock, not at all profound but an absolute delight nonetheless. Recorded more or less as a one-man show in the artist's low-tech home studio, "You Don't Like Me" reveals that Anderson can do a mean imitation of Mick Jagger and Keith Richards (often in the same song, as in the addictive *Weather or Not*), and there's nary a track here where the roar of overdubbed guitars is less than impressive. Basically, it's "Exile on Main Street" without the angst, and one of the best records I've heard this year. **S.S.**

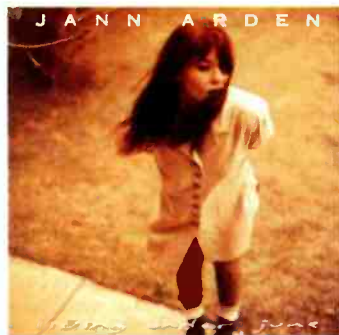
**JANN ARDEN**

**Living Under June**

A&M 540 248 (43 min)

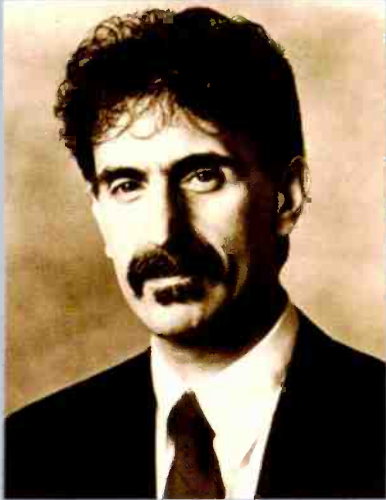
**Performance:** Impressive  
**Recording:** Very good

**T**hirty-two-year-old Canadian Jann Arden's second album, "Living Under June," has already reached double-Platinum status and won three Juno awards at home, and with good reason. Arden, a singer-songwriter with a strong pop sensibility, crafts smart, provocative songs about complex human relationships and sings them in a wise, knowing soprano that suggests a less histrionic Ann Wilson or a more grounded Julia Fordham. Whether writing turbulent songs of romantic love (*Looking for It [Finding Heaven], Could I Be Your Girl*), addressing a cad of a suitor (*Insensitive*), or reporting the rigors of apartment living (the title song), Arden is usually nothing short of exquisite. She makes up for her one misstep



## Perfectly Frank

**T**he late Frank Zappa wore many hats during his career — composer, bandleader, satirist, guitarist, anticensorship crusader — but he won my heart in particular for perhaps the greatest album title of all time, "Weasels Ripped My Flesh." So I am gratified to report that virtually all of Zappa's recorded output (nearly sixty albums, including "Weasels" from 1970) has just arrived on CD, courtesy of Rykodisc. All were remastered by Zappa himself before his untimely death in 1993, and most feature revamped artwork by the original designer, Cal Schenkel. Pick hit: "We're Only in It for the Money," in a cleaned-up version of the original 1968 mix (the first CD reissue featured updated rhythm tracks that most fans disliked). **S.S.**



GREG GORMAN/RYKODISC

— a duet with the lachrymose Jackson Browne on *Unloved*, a song only the writer should sing — with the extraordinary *It Looks Like Rain*, a retro-torch song to burn a hole in the sky. **A.N.**

**ALEX CHILTON**

**A Man Called Destruction**

ARDENT 1507 (37 min)

**Performance:** Party music  
**Recording:** Fine

**S**emioticians, deconstructionists, obfuscators, and other make-work specialists of the rock-critic trade will either poo-poo "A Man Called Destruction" as trivial entertainment or fall all over themselves trying to explain what Alex Chilton is really signifying with the message-free rhythm 'n' rock he's now purveying. Those folks would save themselves a lot of worry lines if they'd just put on the record and have some fun for a change. Because the implicit message of this album is, simply, that message music sucks — that several decades of progressive rock and politically correct roll have produced an indulgent school of pretension that's derailed rock from its gloriously anarchic origins.

Somewhere outside this circus stands Alex Chilton, playing his guitar and singing in time-tested Southern fashion. He's back on the Ardent label, scene of his youthful

triumphs and tragedies with Big Star, and this is his strongest solo work to date. He's into the New Orleans R&B groove thing more than ever, and the six Chilton originals here offer solid proof of creative renewal. The three songs that close the album flat-out groove: *You're Lookin' Good*, *Don't Know Anymore*, and *Don't Stop*. Chilton's best straightforward rocker since, well, ever. Strewn amid all that is an eclectic batch of covers ranging from boss R&B by the likes of Chris Kenner and Jimmy Reed to more eccentric fare like the falsetto-filled Jan and Dean hit *New Girl in School* and, best of all, a hilarious Italian beat-music tune of early-Sixties vintage about what it means to be a rebel (*Il Rebelle*).

In short, the entire album is danceable (in an old-school style), loose, funny, and alive. Get it while it's hot. And the hell with P. J. Harvey. **P.P.**

**GEORGE DUCAS**

LIBERTY 28329 (36 min)

**Performance:** Stylish  
**Recording:** Very good

**B**oy, how things have changed in Nashville! Used to be, if you had any higher learnin', like Whispering Bill Anderson, you kept it to yourself, lest somebody think you'd gotten above your raisin'. But these days George Ducas, one of Music City's

more noteworthy young hat acts, lays it out plain in his bio: "BA in Economics, Vanderbilt University."

Don't hold that against him, even if you've already figured he doesn't look quite at home in that cowboy hat. Texas born and California cured, Ducas has a knack for writing good, clear lyrics (none of that cheesy word-play stuff) and music that authentically harks back to Bakersfield and 'kicker Texas towns in the Fifties and Sixties. On his latest album Ducas marries his self-possessed vocals with ten cross-generational songs he co-wrote with Nashville tunesmiths. At their best they evoke the retro-rock and honky-tonk of contemporary hillbilly Dwight Yoakam (*Kisses Don't Lie, It Ain't Me*) and suggest what Buck Owens, Roy Orbison, and Ernest Tubbs might have sounded like performing in the Nineties.

With the help of producer Richard Bennett (Steve Earle, Emmylou Harris), Ducas forges a hip guitar-and-pedal-steel-washed California shuffle sound, switching into dance-hall (not line-dance) mode for *Tear-drops* and paying homage to classic weepers on *My World Stopped Turning*. There's a touch of attitude here, to be sure. But hey, where would Yoakam (skinny legs and all) be without it? Ducas is one newcomer worth watching. *A.N.*

#### CLIVE GREGSON

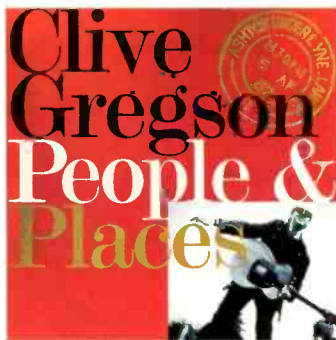
##### People & Places

COMPASS 4227 (62 min)

Performance: Underwhelming

Recording: Fine

Clive Gregson used to front a terrific little pop-punk outfit (Any Trouble) that made two terrific albums on the lamented Stiff label. But since he was kind of geeky looking and wrote a lot of fairly petulant stuff about his lucklessness in love, he got typed as a junior Elvis Costello, and that was the end of that. Later, Gregson did yeoman service in Richard Thompson's touring band, and since then he's made a series of increasingly folky records, often with fel-



low Thompson alumnus Christine Collister. Unfortunately, this latest installment finds his fire pretty much out. Gregson remains an expressive singer, and he still gets off a good line or two (see *Mary's Divorce*, a song from the husband's point of view which I wanted to like more than I actually did). But the overall impression left by "People & Places" is just a sort of generic wistful melancholy. Wait for some New Wave obsessive to reissue those Any Trouble albums. *S.S.*

#### GUIDED BY VOICES

##### Alien Lanes

MATADOR 123 (41 min)

Performance: Great

Recording: Awful

The members of Guided by Voices have some of the best fake English accents in the history of rock-and-roll. Never mind that they're really from Dayton, Ohio, and fronted by a fortyish high-school teacher. Listening to the twenty-eight songs on "Alien Lanes" one can hear traces of the Move's reedy vocals and great guitar sound, 10cc's wise-ass attitude, the Soft Boys' punk-psychodelic fancies, the Kinks' jaded romanticism, and the Rutles' profundity.

But GBV albums really don't resemble anybody else's, and that's both a blessing and a curse. At their best they upend the whole idea of what a record ought to sound like. The songs are over when they're over, whether that's 2 minutes or 18 seconds, and they're spliced together so that the flow of melodic hooks never lets up. And the group's use of cheap recording equipment gives them a unique sonic personality that matches the cut-and-paste songwriting. Still, "Alien Lanes" sometimes carries things too far — GBV really didn't need to record one song while the garbage truck was going by, to dub scratchy-record noises on another, or to leave in all the obvious tape glitches. It may be time for them to sell out just a little and make a real record; Lord knows the songs are worth it. *Brett Milano*

#### THE HIGH LLAMAS

##### Gideon Gaye

DELMORE 007 (55 min)

Performance: Smile!

Recording: Shimmering

Sean O'Hagan, formerly of the Irish band Microdisney, is the driving force behind the High Llamas. "Gideon Gaye" is a fanciful excursion into realms of late-Sixties pop at its most ambitious, when the sky was the limit and the musical imagination of a gen-

eration seemed boundless. O'Hagan — who sings and plays guitar, piano, organ, glockenspiel, and Moog synthesizer — unabashedly derives his principal inspiration from the Beach Boys' resident genius, Brian Wilson and his never-completed orchestral-pop masterwork "Smile." (Note: Capitol Records is slated to issue a boxed set of the "Smile" sessions; keep your fingers crossed, everybody.)

The album title is a pun on one of the song titles, *Giddy and Gay*. Those two words, "giddy" as in playful and "gay" in its original meaning, describe the ornate musical sand castles O'Hagan has constructed with the High Llamas. In some places, especially *The Goat Strings*, the group's inspiration comes almost too close to the original for comfort. But for most of its nearly hour-long length, "Gideon Gaye" is a near-perfect evocation of a pop nirvana



that few have been able to reach. This is an album for the head (and headphones); put it on and let the music carry you off into a maze of enchantment. *P.P.*

#### CHRIS ISAAK

##### Forever Blue

REPRISE 45845 (40 min)

Performance: More variety

Recording: Good

Retro-rockabilly, Roy-Orbison-worshipping balladeer Chris Isaak returns from the relative failure of "San Francisco Days" with an album that keeps his trademark dreamy blue mood intact while veering somewhat out of the sameness that marred that last record. The songwriting in "Forever Blue" never really gets completely off the ground, but Isaak offers some badly needed tempo changes this time out, and David Lynch isn't ready to pop out of the opening strains of every cut. *Change Your Mind* may sound like the hallucinations of somebody going down in a heroin overdose, but *Somebody Cryin'*, *Believe*, and *Don't Leave Me* pretty much play it straight. After that, it's an odd bag. The title song could have been recorded in the 1920's, and *Goin' Nowhere*, without the quasi-American Indian war dance, might have been a contender for either the Beatles or the Stones, which is a feat in itself. Odd factoid: Gracing *Graduation Day* is a delicate electric-guitar solo from one John Morgan, a nineteen-year-old Navy seaman Isaak heard noodling in a guitar shop and recorded on a weekend pass. Who says miracles never happen? *A.N.*



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Ducas: college-grad cat in the hat

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**ELTON JOHN****Made in England**

ROCKET/ISLAND 526 185 (53 min)

**Performance: Decent recent Elton****Recording: Glossy**

What does Elton John have against rock-and-roll these days? More power to him for becoming one of the more likable adult/contemporary acts around, but recent pickings have been slim for those of us who always thought that *The Bitch Is Back* is a better song than *Candle in the Wind*.

"Made in England" is something of a comeback for John, at least when compared

with the smarmy *Lion King* soundtrack. The fact that most of the songs have one-word titles tips you off that this one's meant to be a big statement, and the tunes are indeed his strongest in a long while. Bernie Taupin's lyrics all relate to real life for a change, and Paul Buckmaster's string arrangements lend some welcome "Madman Across the Water" overtones. The twelve-string driven *Please* and diehard-pop number *Pain* both prove that Elton's not out of steam just yet, and the title track is a melodic strut that harks back to his Seventies heyday. On the other hand, songs like *Cold*,

*House*, and *Belfast* are the kind of maudlin ballads that have clogged up too many of his recent albums. And the opening *Believe* comes across as an obvious attempt to write his own version of John Lennon's *Imagine*. It does work, but *I Wanna Hold Your Hand* is still a better song. *Brett Milano*

**KOERNER, RAY & GLOVER****Blues, Rags & Hollers**

RED HOUSE 76 (52 min)

**Performance: Remarkable****Recording: Vintage but excellent**

Back in the early Sixties Koerner, Ray & Glover were the first white American kids to do authentic (or what was billed as authentic, anyway) folk blues. This album, originally released on a tiny audiophile label and then picked up by the fledgling Elektra in 1963, was a bona fide underground classic — for a while, a copy of it seemed to be in at least one dorm room at

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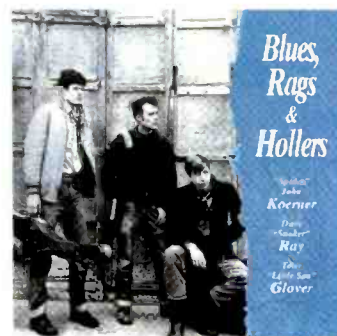
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every college in America. For this reissue (it's been out of print for over twenty years) the original stereo master has been used for the first time (Elektra thought the separation was too wide), and songs originally cut for reasons of LP length have been restored. Back when this was new, I thought it was kind of dry and academic sounding, at least vis-à-vis the real thing. In retrospect, however, these guys not only knew what they were doing but also brought a great deal of their own personalities to a style of music they clearly loved a lot; you can hear the fun they're having, and it's infectious. An extremely welcome return. *S.S.*

**ANNIE LENNOX****Medusa**

ARISTA 25717 (47 min)

**Performance: Don't rush right out****Recording: Very good**

On the follow-up to "Diva," ex-Eurythmic Annie Lennox's solo debut, the queen of the funny hair and clothes goes traditional, recording an entire album of covers, or, as she puts it, "a selection of songs I have been drawn to for all kinds of reasons." While this record isn't as techno-heavy as what Lennox did with the Eurythmics, it's closer to the sound she got with guitarist-keyboardist-producer Dave Stewart than the barrage of synths and drum machines that characterized "Diva."

Lennox takes some real chances on "Medusa," reprising, for example, the Persuaders' *Thin Line Between Love and Hate*, on



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which she achieves something luminous, especially with a wild and passionate harmonica sound dancing around the melody. But on several songs, such as *No More "I Love You's"* and a ridiculously ornate and pompous remake of *A Whiter Shade of Pale*, she's simply too mannered to produce much emotional response. And her version of Paul Simon's *Something So Right* is too chanteusey for consumption outside a Liza Minnelli supper-club performance.

That said, Lennox does credible covers of the Temptations' 1969 hit, *I Can't Get Next to You*, and Neil Young's *Don't Let It Bring You Down*. Just don't expect too much of her excursions into R&B/funk, especially *Take Me to the River* and *Train in Vain*. A whiter shade of pale, indeed. *A.N.*

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Performance: Strong  
Recording: Very good**BELLY**

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SIRE/REPRISE 945833 (45 min)

Performance: Artful  
Recording: Very good

There's a family-tree connection between these two albums in that Tanya Donelly, the leader of Belly, used to be a member of Throwing Muses, among the earliest (and still the best) of the female-fronted alternative bands. In *Bright Yellow Gun*, the opening track on the Muses' "University," singer Kristin Hersh confesses, "I've got nothing to offer but confusion." Maybe so, but confusion has never sounded so deliriously bracing. The album is like an out-of-control amusement-park ride; you've got no choice but to strap in and go with it, leaning this way and that in response to Hersh's emotional force fields and forward-thrusting tempos. From the controlled fury of *Start* to the mystical seaside evocations of *Crabtown*, "University" is an entrancing record — one that takes great pains to encode life's strangeness in a musical context shot through with excitement and wonder.

On the strength of "King," Belly is getting the same sort of attention claimed by the Breeders last year. Donelly takes a kitchen-sink approach that is artful and interesting; it's not as diamond-hard as Throwing Muses, but the sensibility is just as keen. Some of the tracks here are better if just absorbed than if studied at close range, while others are out-and-out killers. *Red* unfolds in sections: a sweetly sung, waltz-like threnody, a martial guitar-and-drums-fueled blow-out, and an even faster uptempo bit that resolves the whole brief, dazzling suite. Donelly's crystalline soprano cuts through it all, alternately conveying vulnerability and determination on such tracks as *Seal My Fate*, which moves from a sweet, strummy alterna-folk melody to a lively, full-bore band assault. Overall, Belly gets high marks for their mood-drenched songcraft, and Donelly arguably possesses the purest voice of any of the female bandleaders currently making waves on the alternative side of the dial. *P.P.*

JAZZ **GARY BARTZ****The Red and Orange Poems**

ATLANTIC JAZZ 82720 (59 min)

Performance: Inspired  
Recording: Very good

Since the late Sixties, alto saxophonist Gary Bartz has demonstrated eclectic taste, but whether he aimed his horn at R&B, the classical world, or whatever was

going around at the time, the fundamental ingredient in his mix was jazz. "The Red and Orange Poems" is all jazz, an album of characteristic diversity that may well be his best to date. With tasteful tinctures by trumpeter Eddie Henderson and French-hornist John Clark (both of whom solo with gusto) and strong foundations by pianist Mulgrew Miller, bassist Dave Holland, and drummer Greg Bandy, Bartz is radiant. Energy and creativity so permeate this release that I recommend it as the perfect disc to play for skeptics who think the contemporary jazz scene is on a treadmill. To some extent, it

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# QUICK FIXES

## THE BEST OF FRANKIE AVALON

VARESE SARABANDE 5594 (44 min)  
If this spawns a Vol. 2 — say, “The Best of Frankie’s Beach Movie Years” — then Nietzsche was right: *God is dead.* S.S.

## THE BAD EXAMPLES

Kisses 50¢  
WATERDOG 9501 (37 min)  
Chicago’s smartest pop rockers — still the closest thing we have to a homegrown version of Squeeze — return with another fab collection of heartfelt, tuneful musings on issues large and small (and, come to think of it, a more consistent album than anything Squeeze has done in years). Pick hit: *A Mindless Pop Song*, which is assuredly anything but. S.S.

## 500 NATIONS

(Original Motion-Picture Soundtrack)  
EPIC 66990 (65 min)  
Peter Buffett’s impressive score for the TV miniseries *500 Nations* succeeds admirably in conjuring up the white man’s view of the life and times of Native Americans. It’s very Hollywood, and if it recalls *Dances with Wolves*, that’s probably because Buffett worked on that film as well. Excellent sound, too.

William Livingstone



## ROBYN HITCHCOCK

Invisible Hitchcock  
RHINO 71840 (70 min)  
Long-overdue reissue of Robyn Hitchcock’s equivalent of the Who’s “Odds and Sods” — which means it includes a hard-to-find EP plus various rare B-sides and other ephemera, all of it vastly entertaining and sui generis. This guy’s so good the British should nationalize him. S.S.

## HYPERACTIVE

Inner Strength  
HUSNOCK 6002 (40 min)  
Brilliantly played and produced punk-metal-hiphop-reggae-jazz fusion from an integrated band from the wilds of New Jersey. Think the Red Hot Chili Peppers with a real groove and a better singer — indie rock rarely comes as eclectic, accomplished, or impassioned as this. A major find. [\$12 postpaid from MJN Productions, 9 Morton Court, Lawrenceville, NJ 08648.] S.S.

## THE MANHATTAN TRANSFER

Tonin’  
ATLANTIC 82661 (52 min)  
Another (yawn) covers album, this time centered around Top-40 fare from the Sixties, with special guests like Frankie Valli (who shows up for a Four Seasons remake). Mostly overproduced and charmless, with numerous demerits for a desecration of Brian Wilson’s sublime *God Only Knows*, rendered here with all the unctuous show-biz insincerity of Joe Piscopo’s Frank Sinatra imitations. S.S.



## THE METERS

Anthology — Funkify Your Life  
RHINO 71869 (two CD’s, 144 min)  
All the hits and more by the instrumental combo (including Art Neville of the you-know-who Brothers) that was to New Orleans what Booker T and the MG’s were to Memphis — the most influential cats around. Great stuff, assembled with Rhino’s usual care. S.S.

## MOBY

Everything Is Wrong  
ELEKTRA 61701 (47 min)  
Because this new album from the over-celebrated dance/trance maven is unusually wide-ranging stylistically (New Age noodling, a bona fide punk song complete with guitars), some people are hailing it as a breakthrough into a whole new genre. Personally, I think it’s more like Mike Oldfield without the laughs. S.S.

## MUSICA ANIMA WITH PATRICK STEWART

The Complete Four Seasons  
AMERICAN GRAMAPHONE 801 (51 min)  
Including recitations of the poems originally published with Vivaldi’s most popular composition was a bad idea. Not only have the poems lost a lot in translation, but the portentous delivery of Patrick Stewart (a.k.a. captain of the Starship You Know What) doesn’t help a bit. A recording only trekkies could love. W.L.

## MUSIC FOR A BACHELOR’S DEN IN HI-FI

DCC 079 (44 min)  
Like the cover says, “15 seductive selections” from the Golden Age (late Fifties, early Sixties) of audiophile make-out music. Among them: Martin Denny’s kitschily exotic *Quiet Village*, Jackie Gleason’s nostalgic *Theme from “The Honeymooners.”* and Nelson Riddle’s actually quite brilliant *Theme from “Route 66.”* Loads of fun. S.S.

is. But with sax players like Bartz, Joshua Redman, James Carter, and Ivo Perلمان around, there is indeed a light at the end of the evolutionary tunnel. C.A.



## ERROLL GARNER

Magician/Gershwin and Kern  
TELARCHIVE 83337 (76 min)  
Performance: Glorious Garner  
Recording: Ears will be pleased

When Erroll Garner surfaced in the Forties he didn’t sound like anyone who had come before him. The Garner style still creeps up in the playing of the current generation, but no one has managed to recapture the full flavor. Garner was a prolific recording artist whose extraordinary creativity was refreshingly spontaneous; when he sat down at the piano (usually on a stack of telephone directories) the magic poured forth with such ease and precision that second takes were rarely needed.

A new Telarchive CD combines two albums previously released on Garner’s own Octave label: “Gershwin and Kern” and “Magician.” According to the notes, these tracks date back to the Seventies (Garner died in 1977), but something tells me that the Gershwin/Kern tribute was made in the previous decade. That, of course, is of little consequence to the average listener. What really matters is that these recordings are once again available, that the CD is filled to the brim, and that careful attention has been paid to the sound quality. C.A.

## DIZZY GILLESPIE

The Complete RCA Victor Recordings  
RCA/BUEBIRD 66528 (two CD’s, 129 min)  
Performance: Seminal  
Recording: Okay

This collection of seminal bebop belongs in every jazz record library, and I envy anyone hearing it for the first time. In addition to material recorded under Gillespie’s name in the late Forties (big band as well as small group), it also offers delightful examples of his embryonic work of the late Thirties with Lionel Hampton and Teddy Hill, plus a 1949 Metronome All Stars session on which Miles Davis and Fats Navarro join Gillespie in the trumpet section (Charlie Parker and Lennie Tristano are also on hand). My own favorites among these recordings are George Russell’s *Cubano Be* and *Cubano Bop*, actually a groundbreaking two-part work for big band that sought and found a common element in Chano Pozo’s Cuban chants and Stravinsky’s *Rite of Spring*. A young Johnny Hartman’s Perry

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**JOE HENDERSON**

**Double Rainbow: The Music of Antonio Carlos Jobim**

VERVE 527 222 (63 min)

Performance: Bossa with brains  
Recording: Excellent

The news that I find this collection of Antonio Carlos Jobim songs the most satisfying of Joe Henderson's three Verve albums should be tempered by the news that I

found his earlier tributes to Billy Strayhorn and Miles Davis lacking in vitality (a minority opinion, to be sure). The dilemma facing the tenor saxophonist and his producers is that (apparently) he no longer writes, and garden-variety standards fail to provide him with as much gristle as his own structurally inventive originals used to. Although composer homages like this one strike me as only a short-term solution, I have to admit that Henderson and Jobim prove to be a surprisingly good match. Bossa nova can be bland, but Henderson avoids the trap by digging into those Brazilian rhythms in-

stead of attempting to glide over them the way most jazz soloists do.

Henderson's solos are both lilting and brainy, and this material allows him to display his lovely flute-like altissimo to extremely good advantage (as might be expected, there are token nods to Stan Getz). There are two different rhythm sections here; the one with coproducer Oscar Castro-Neves on guitar may be more idiomatically suited to the task at hand, but Henderson taps a deeper vein of lyricism in the company of Herbie Hancock, Christian McBride, and Jack DeJohnette. *F.D.*

**NICHOLAS PAYTON**

**From This Moment**

VERVE 527 073 (67 min)

Performance: Remember the name  
Recording: Good

None, is the latest neo-bopster to find a home at a major label courtesy of Wynton Marsalis. As with so many of today's new stars, the big spotlight may be catching him prematurely; he has yet to find his own style, and there are rough spots here and there on this debut album. But "From This Moment" is a fine start nevertheless and bodes very well indeed. Payton's varied influences give him prepossessing versatility; there are flashes throughout of Miles and Dizzy, but he can also go farther back, as on *Taking a Chance on Love*, which he gives a decidedly Roy Eldridge-ish treatment that brings out the Garner in pianist Mulgrew Miller. The youthful sextet features guitarist Mark Whitfield and vibist Monte Croft, with Miller steering a rhythm section completed by bassist Reginald Veal and drummer Lewis Nash. Seven of the twelve tracks are originals, revealing Payton's considerable talent in that area as well. Reserve a place for him. *C.A.*

Payton: a fine start



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# CLASSICAL MUSIC



**NEW RECORDINGS  
REVIEWED BY ROBERT  
ACKART, RICHARD FREED,  
DAVID HALL, JAMIE  
JAMES, GEORGE JELLINEK,  
ERIC SALZMAN, AND  
DAVID PATRICK STEARNS**

**BARRIOS: Music for Guitar**

David Russell  
TELARC 80373 (70 min)  
**Performance: Charming  
Recording: Excellent**

**W**onderful "primitive" art — I'm thinking of the Frenchman Henri Rousseau or the American Grandma Moses — is rarer in music than in the visual arts, but it occurs. Agustín Barrios Mangoré, born in Paraguay in 1885, was a guitar virtuoso who spent his life touring in Latin America and creating a body of charming and idiomatic music that has recently had a big revival. The charm and the romantic qualities are made up in about equal measures of naïveté and sophistication. Barrios wrote this music for himself to play, and it was meant to please and astonish. It does both.

Glasgow is about as far as you can get from Paraguay and still be on the same planet, but these grateful and elegant little pieces are neatly turned by David Russell, who, indeed, hails from Scotland. His technical brilliance is breathtaking, and there is a certain reserve in his playing that gives these pieces a rather Classical feel and keeps the kitsch from the door. Even without extracting the last ounce of sentiment and showmanship, he makes a good case for this music. *E.S.*



**BEETHOVEN: Piano Sonatas No. 15 ("Pastorale"), No. 17 ("The Tempest"), and No. 26 ("Les Adieux")**

Gerhard Oppitz  
RCA 61969 (65 min)  
**Performance: Bracing  
Recording: Vivid**

**W**e've already had complete recordings of the piano music of Brahms and Grieg from Gerhard Oppitz, and this new disc looks like the start of an integral survey of the Beethoven sonatas. If so, it may well prove to be a stimulating one. While

the Oppitz recordings that I've heard in the past have struck me as the work of an unquestionably skilled player who didn't bring much to the music in the way of fresh illumination or enlivenment, he exhibits an altogether different level of involvement in his Beethoven. There are humor and fantasy in the "Pastorale," brilliance to burn in "The Tempest," and an uncommonly successful combination of these qualities in the way he conveys the imagery of "Les Adieux."

The impact of this hour-plus with Beethoven is cumulatively bracing. Oppitz seems to be having the time of his life immersed in music he really cares about and understands. The vivid recording, occasionally tending toward brittleness, seems perfectly matched to both the exuberance and the depth of these provocative, richly enjoyable performances. *R.F.*

**BORODIN: String Quartet No. 2**

**STRAVINSKY: Three Pieces for String Quartet**

**SHOSTAKOVICH: String Quartet No. 3**

Lafayette String Quartet  
DORIAN 90203 (72 min)

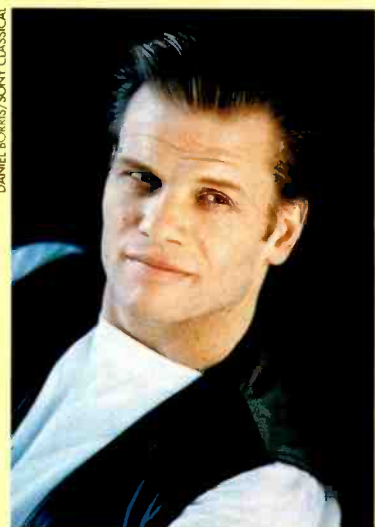
**Performance: Caring  
Recording: Very good**

**J**udging from the way they carry off this cannily chosen all-Russian program, I'd say that the four young women who make up the Lafayette String Quartet — currently based in Victoria, British Columbia — will bear careful watching over the next few years. The cello opening of Borodin's popular D Major Quartet sounds a bit tentative for my taste, but the performance gains strength and cohesion as it moves along through the sprightly scherzo, the ever-popular nocturne, and a neatly turned and spirited finale. The Lafayette players negotiate the complex rhythms and colors of the acerbic, even gnomic 1914 Stravinsky pieces with aplomb and gusto.

The Shostakovich Third Quartet, from 1946, provides the greatest substance in the program. Its five movements run the gamut from in-your-face clowning to unrelenting tragedy, with echoes of the Seventh and Eighth Symphonies as well as of the "dances of death" elements in the E Minor Piano Trio. The mournful quasi-passacaglia fourth movement is one of the composer's major chamber-music achievements. The whole work is performed here with deep compassion and understanding. Add in the first-rate sonics (from the Troy, New York, Savings Bank Music Hall), and to me this CD is worth its weight in gold. *D.H.*

**G R E A T D A N E**

DANIEL BORRIS/SONY CLASSICAL



**Baritone Bo Skovhus**

**T**he "three tenors" may still be the hot item for light classical entertainment, but in the more serious song literature the baritone is definitely having his day. After the success of the American Thomas Hampson, the Russians Dmitri Hvorostovsky and Sergei Leiferkus, and the German Wolfgang Holzmair comes a young Dane, Bo (recently shortened from "Boje") Skovhus, who's been signed by Sony Classical to an exclusive contract to record lieder. His first Sony CD, "Eichendorff-Lieder," released earlier this year, contains settings by Wolf and Korngold of poems by the nineteenth-century German Joseph von Eichendorff. A second CD, of Schubert lieder, is scheduled for June release.

But even baritones have their lighter side, and Skovhus's can be sampled in a new recording of Lehar's operetta *The Merry Widow* on Deutsche Grammophon, where his Count Danilo is paired with soprano Cheryl Studer's "widow." Skovhus makes his Tanglewood Festival debut this summer in Orff's *Carmina Burana*.



**BRAMHS: Symphony No. 4; Handel Variations (orch. Rubbra)**  
 Cleveland Orchestra, Ashkenazy  
 LONDON 436 853 (71 min)  
**Performance: Heartwarming**  
**Recording: Exemplary**

The recording of Vladimir Ashkenazy's Cleveland Brahms cycle was stretched out over a three-year period (1990-1992), and this latest installment has turned out the best. He has the tempos just right in the Fourth Symphony, beginning at the very first bars, where he communicates a fine sense of lift and momentum. There is no laboring in the denser portions of the first-movement development, and there's a splendid work-up to the movement's climactic ending. The Cleveland strings are in gorgeous form in the slow movement, and its ensemble woodwind passages have a fine bite and body. The scherzo could use a touch more pizzazz, but it is by no means sleepy. The passacaglia finale packs a tremendous wallop. Of the various digital recordings of the Brahms Fourth, this is one I can really live with.

The 1938 orchestration by the British composer Edmund Rubbra of Brahms's Op. 24 Variations and Fugue on a Theme by Handel will sound more than a bit *outré* to those who have grown up on the marvelously pianistic original, but, on its own colorful terms, it does work (and it's considerably less garish than Schoenberg's orchestration of the Op. 25 Piano Quartet). Ashkenazy has recorded the Handel Variations in the original, and that knowledge informs his treatment of the orchestral version. This is a fine disc — go for it! *D.H.*

**CHOPIN: The Four Ballades; Two Waltzes; Nocturne in F Major; Three Mazurkas; Two Etudes**  
 Murray Perahia (piano)  
 SONY 64399 (61 min)  
**Performance: Excellent**  
**Recording: Superb**

After spending two years or so undergoing treatment and surgery for an injury to his right hand, Murray Perahia has resumed his recording activity for Sony with a stunning Chopin collection. The dozen pieces on this disc may well add up to this pianist's finest hour in any recorded repertoire so far. He seeks to achieve a new level of vitality in embracing the sheer physicality of the music — its rich colors and rhythmic inventiveness — as well as its more subtle expressive nuances.

The big items here are the four ballades, each in its way a concise, self-contained drama. Perahia responds with a poetic fire as well attuned to this Romantically evocative music as Classical poise was to his performances of the Mozart concertos. Indeed, it is because that Classical poise is very much operative here that the freedom in his playing seems to enhance the music's innate elegance as well as its drama. The generously applied (but tasteful) rubato is simply part of the language here — nothing more and nothing less than what a phrase demands in order to be heard in its own voice.

The ballades are followed with even more concise (I can't imagine calling them "little") miracles of perfection in the form of two "grand waltzes" (the *Valse Brillante* in E-flat Major, Op. 18, and the Waltz in A-flat Major, Op. 42); the F Major Nocturne, Op. 15, No. 1; three mazurkas (Op. 70, No. 3, in F Minor, Op. 17, No. 4, in A Minor, Op. 33, No. 2, in D Major); and two of the Op. 10 Etudes (No. 3, in E Major, and the sparkling No. 4, in C-sharp Minor). All grandly sustain the level of interpretive inspiration and performing brilliance already noted; it is all sorcery, and the distinguished recording does full justice to it. *R.F.*



**DEBUSSY: Images for Orchestra**  
**ELGAR: Enigma Variations**  
 Berlin Philharmonic, Levine  
 SONY 53284 (67 min)  
**Performance: Elegant**  
**Recording: Gorgeous**

An oddball repertoire pairing, this one! But when you get down to it, mixing mature Debussy with Elgar's first masterpiece is no stranger than Debussy's own combination, in the *Images pour Orchestre*, of a Spanish-flavored masterpiece (*Ibéria*) with two fascinating but lesser pieces subtly imbued with English and French folk elements (*Gigues* and *Rondes de Printemps*, respectively). And the idea of the Berlin Philharmonic performing this quintessentially French and British music adds yet another touch of incongruity — in the event, a bold and delightful touch!

In terms of James Levine's interpretations, *Gigues* floats out of the loudspeakers with as transparent a texture and as clean a line as any Debussy recording I have heard in recent years, and those same qualities permeate the rest of the *Images*, especially the slow movement of *Ibéria*. But the outer movements of *Ibéria* are lacking in rhythmic impetus and tension, and while there's lots of atmosphere in the festive third movement, I miss the untrammelled jubilation that should mark its final pages.

There are many satisfying things in the Elgar, notably the fine *sostenuto* line in the famous "Nimrod" section (Variation IX) and the apt gauging of its crucial climactic point — a hurdle for almost all interpreters. The wonderfully blustery, self-celebrating finale doesn't quite come off, however. That cavil aside, the sound of this live recording in Berlin's Philharmonie hall is of demonstration quality, especially in the De-

bussy. There is applause after the end of the Elgar. *D.H.*

**MOZART: Serenade No. 13 ("Eine Kleine Nachtmusik"); Concerto for Flute and Harp (K. 299); Sinfonia Concertante for Violin and Viola (K. 364)**

Soloists: Cleveland Orchestra, Dohnanyi  
 LONDON 443 175 (78 min)

**Performance: Elegant**  
**Recording: Consistently fine**

All of our orchestras give their principal players, and the concertmasters in particular, opportunities to perform as concerto soloists, but few provide opportunities for them to record in such roles. The Cleveland Orchestra, which became one of the notable exceptions early in George Szell's twenty-four-year tenure, continues that laudable tradition here, and with a good deal of poignancy.

In a warmly affectionate note, conductor Christoph von Dohnanyi advises us that Daniel Majeske, who died of cancer in November 1993, had been a member of the Cleveland Orchestra for thirty-eight years and its concertmaster for nearly twenty-five — longer than any of his predecessors. The sober, darkly lit 1991 recording of the *Sinfonia Concertante*, with the orchestra's principal violist, Robert Vernon, as co-soloist with Majeske, is a memorial of real substance.

Fittingly, it is coupled here with another double concerto, for flute and harp, in which principals of the orchestra are again soloists — in this case the flutist Joshua Smith and the harpist Lisa Wellbaum. The slighter but engaging work is agreeably set forth, and a stylish account of the always welcome *Eine Kleine Nachtmusik* serenade at the beginning of the generously filled disc makes it the equivalent of a full concert program. Dohnanyi has the orchestra sounding pretty big and bluff for such material, but elegant nonetheless, and the sound quality is consistently fine. *R.F.*



**RIMSKY-KORSAKOV: Sadko**  
 Soloists: Kirov Opera Chorus and Orchestra,  
 Gergiev  
 PHILIPS 442 138 (three CD's, 172 min)  
**Performance: Impelling**  
**Recording: Very good**

Recorded live, this performance of Rimsky-Korsakov's 1890's operatic fantasy — a real melodrama — is distinguished throughout by a taut energy and intensity,

properties as much of the score itself as of this realization, that make it nearly irresistible. The libretto is a typical fairy tale, taking Sadko, in a quest for fame and fortune, away from his wife and native city and into the Kingdom of the Sea and the willing arms of the Sea Princess, then back to *terra firma*, domestic happiness, and popular recognition. The music, now highly dramatic, now seductively lyrical, varies in its efficacy, often being truly moving but sometimes little better than a circus-band ditty, yet Rimsky's melodic gifts and telling orchestration always carry it along.

The performance is topnotch. The large chorus, which has a major role in the opera, sings with both fervor and conviction, its music rousing and expressively appealing by turns. The orchestra is especially noteworthy, crisp in attack, soaring in line, and vigorously theatrical. Always in sure control, conductor Valery Gergiev obviously understands and admires the work.

The soloists are similarly dedicated. Vladimir Galusin is commendable as Sadko, a grueling role that amounts to a test of vocal prowess, using his stalwart tenor to fine effect. As Volkhova, the Sea Princess, Valentina Tsidipova is entrusted with many of the most haunting melodies in the opera; her clear, floating soprano enhances them. Sadko's wife, Lyubava, is movingly sung by mezzo-soprano Marianna Tarassova. The Venetian Merchant of baritone Alexander Gergalov and the Indian Merchant of tenor Gegan Grigorian provide arresting cameos in Tableau IV (the celebrated *Song of India's* original context). Sergei Alexashkin's full-bodied bass sonorously portrays the powerful Sea King. *R.A.*

**SCHUMANN: Symphonies No. 3 ("Rhenish") and No. 4**

Chamber Orchestra of Europe, Harmoncourt  
TELDEC 90867 (57 min)

**Performance: Refreshing  
Recording: Good**

Schumann's original 1841 version of the Symphony No. 4 is the major justification for yet another recording of these familiar masterworks. It was actually the second of his canonical four symphonies in order of composition, but he took it into his head a decade later to revise the orchestration, and to some degree the musical content as well. As played here, the original has a much more transparent texture, free of the woodwind doublings that have tended to make the music sound beefy. The transitional material linking the slow introduction to the main body of the first movement is quite different from what we're used to, as are the initial pages of the finale, where the reprise of the militant theme from the first movement is given a single blunt proclamation.

Conductor Nikolaus Harnoncourt stresses the lyrical aspects of both the "Rhenish" and the Fourth Symphony, with decided *legato* emphasis throughout and a soft-pedaling of the obsessive rhythmic figuration. There is no high drama here, not even in the so-called Cathedral Scene of the "Rhenish." This is Schumann with a light hand, and in its own way it's refreshing. *D.H.*

**SHOSTAKOVICH: Symphony No. 11 ("The Year 1905")**

Vienna Symphony, Inbal  
DENON 78920 (62 min)

**Performance: Exceptional  
Recording: Impressive**

A chilling wide-screen sonic picture of the savage Tsarist repression of the January 1905 protest gathering of workers and citizens before the St. Petersburg Winter Palace, the Shostakovich Symphony No. 11 was composed when memories of the Soviet putdown of a similar protest in Hungary were still fresh, which has led recent commentators to infer a subtext embodying the composer's own protest against tyranny. Certainly that element comes through in the words of the revolutionary songs that thread their way through all four movements.

I have found Elisha Inbal's previous Shostakovich performances from Vienna just a cut below the best of the competition, but in No. 11 he comes out very near the top for my money, thanks among other things to an exceptionally vivid recording. His reading of the work is tauter than usual, but not at the expense of atmosphere or drama. The raw terror in the second movement, which depicts the massacre, is singularly well conveyed here; the orchestral



playing as well as the recording make an enormous impact. The performance as a whole has a concentration and fervor missing in Inbal's earlier readings. Of the current digital recordings of the Shostakovich Eleventh, this is the one to get. *D.H.*

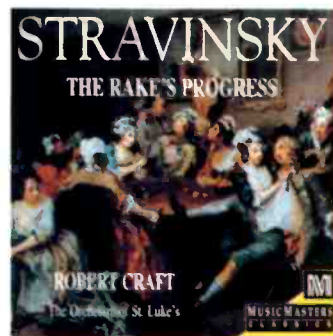
**STRAVINSKY: The Rake's Progress**

Garrison, West, others; Gregg Smith Singers;  
Orchestra of St. Luke's, Craft  
MUSICMASTERS 67131 (two CD's, 128 min)

**Performance: Subtle and satisfying  
Recording: Just fine**

The twentieth century's most elegant marriage of words and music, at least in our own language, is *The Rake's Progress*, which brought together two utterly divergent yet equally great creative personalities. It was a strange match: the revolutionary, endlessly inventive Igor Stravinsky and the savagely sardonic English poet W. H. Auden. This excellent new recording of the opera, led by Stravinsky's disciple, Robert Craft, reveals just how magical a collaboration it was.

Auden and his partner, Chester Kallman, crafted a dark, ironic morality tale based on a cycle of paintings by the eighteenth-century English painter William Hogarth that chronicled the dissolution of a vain, silly



country boy who goes to London and sinks into a life of sin. When they turned the finished libretto over to Stravinsky in 1948, he wrapped his enormously pliant musical imagination around a sensibility that was foreign both to his earthy Russian soul and to his decades of schooling in the lyrical French tradition.

Yet the opera, composed in Hollywood to a libretto written in Greenwich Village, is in many ways very American, and it is satisfying to hear an all-American cast sing it. There are no big-name stars here, but the principals bring to the piece all the wit and passion one could wish for. Tenor Jon Garrison, as the anti-hero Tom Rakewell, milks the part's humorous pomposity in the early acts, yet he also brings out genuine pathos in the finale in Bedlam. Jayne West, as his sweetheart Anne Truelove, sings the famous first-act monologue, "No word from Tom," with a shimmering, silvery soprano tone that is nicely captured by the clear, unobtrusive recording. No musician has a greater claim to be the definitive Stravinsky interpreter than Robert Craft — no guarantee of a good performance, of course, but here he elicits a sensitive, surefooted performance from the Orchestra of St. Luke's. *J.J.*

**WAGNER: Lohengrin**

Jerusalem, Studer, Meier, Moll, Welker, others;  
Vienna State Opera Chorus;

Vienna Philharmonic Orchestra, Abbado  
DEUTSCHE GRAMMOPHON  
437 808 (three CD's, 211 min)

**Performance: Very good  
Recording: Mostly good**

The Vienna Philharmonic gives conductor Claudio Abbado gleaming sound and tonal refinement throughout this recording. His approach to the famous Act I Prelude is less impressive for its transcendent luminosity than for a transparency that reveals Wagner's contrapuntal wonders, and there is an urgency to his reading that I welcome in this opera, especially in the Bridal Chamber Scene; the performance falters only in the Act II Finale, where the vocal textures are not sufficiently clarified.

Tenor Siegfried Jerusalem is a first-rate Lohengrin, eloquent in his lyric scenes, where he delivers his long phrases with fervor and poetic insight, though his voice itself lacks sensuous appeal. After an acceptable but not really distinguished first act, soprano Cheryl Studer's Elsa gathers strength and comes completely into her own in Act III. In the second act, the innocence she projects contrasts effectively with the biting

tones of mezzo-soprano Waltraud Meier's subtly venomous Ortrud.

Vocally, the performance gets off to a sterling start with the resonant and clearly forged baritone of Andreas Schmidt as the Herald and the opening lines of the voluminous and always dependable bass Kurt Moll (King Heinrich). These artists maintain their excellence later on, though Moll is denied sufficient presence in the problematic Act II Finale. The cast's weak element is the Telramund of baritone Hartmut Welker; a seasoned artist, he does no serious damage and asserts himself well in the ensembles, but at forte levels his tone loses steadiness and becomes effortful at the top.

Overall, this is certainly a recommendable *Lohengrin*, but the earlier sets under Rudolf Kempe (Angel) and Georg Solti (London), both also with the Vienna Philharmonic, are still strong contenders, especially Solti's, which offers the brilliant Elsa of Jessye Norman, a stronger Telramund, and Plácido Domingo in the title role. *G.J.*

## Collection

### MICHEL LEGRAND

Four Piano Blues: American Piano Music  
ERATO 96386 (77 min)  
Performance: Stellar  
Recording: Close, direct

This certainly seems to be the heyday of the classically inclined popular musician. First came Gershwin, then Bernstein (who was actually a popularly trained classical musician). Nowadays Keith Jarrett records Bach, André Previn performs just about anything, and Michel Legrand here takes on an astonishing array of American composers, from Gottschalk and MacDowell to Amy Beach and Scott Joplin to Morton Gould, Copland, Barber, and Bernstein to Conlon Nancarrow and John Cage — almost all of it with great success.

One more or less expects Legrand to take to Gershwin, Bernstein, and even Copland. The Gottschalk, Nancarrow, and Gould pieces on this CD, every one a tour de force, are dazzling in their brilliance. More surprising are the pieces by the ultra-Romantics: the gorgeous and quite original *Improvisations* of Amy Beach, the late Romanticism of MacDowell's *New England Idylls*, and the dramatic style of Barber's *Ballad*, Op. 46. Most astonishing of all is the Cage *Bacchanale*, his first prepared-piano piece, from 1938, which sounds quite spirited and bluesy in this bravura performance. What is truly surprising is how easily and naturally Cage (admittedly, early Cage) fits in with the company; perhaps it takes a Frenchman to point out how clearly Cage belongs in the main line of American composers.

Only the Joplin rags (*The Entertainer*, *Maple Leaf Rag*) do not come off. Subtlety is not Legrand's strong point, but these performances lack tenderness, brilliance, and, most unforgivably, rhythmic verve: they are pounded out in a pedestrian manner. Otherwise this is a generous helping of goodies, well chosen and dashing served up. *E.S.*

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July

QUICK FIXES



**BACH: Flute Sonatas**

Galway; Moll; Cunningham  
RCA VICTOR 62555 (75 min)  
Both kinds of Bach flute sonatas are here, the three for violin and keyboard with fully written-out parts and the three for solo flute with keyboard accompaniments improvised over a bass. Flutist James Galway is no Baroque specialist, but, genial as always, he strikes a compromise between a pure period-style performance and a modern virtuoso reading, putting everything on the same lively even keel. The performance is reverent, but to me it lacks Galway's usual personal flair without offering quite enough go-for-Baroque to compensate. *E.S.*

**BEETHOVEN: Coriolan Overture; Quartet No. 11 (arr. Mahler); Symphony No. 7**

Indianapolis Symphony, Leppard  
KOSS 2215 (72 min)  
The overture and symphony receive decent but undistinguished readings under Raymond Leppard — no competition for either the big star conductors or the best of the original-instruments crowd. The acoustic surround is a bit tight, but the sound is clean. Mahler's string-orchestra expansion of the Op. 95 quartet fares better acoustically, but Yuri Bashmet's Moscow Soloists on RCA offer a more malleable and vital interpretation. *D.H.*



**DEBUSSY: Violin Sonata  
FAURÉ: Violin Sonata No. 1  
FRANCK: Violin Sonata**

Zukerman; Neikrug  
RCA 62697 (68 min)  
It may be that Pinchas Zukerman and his sympathetic keyboard collaborator, Marc Neikrug, have deliberately chosen an approach more austere than the norm for these works, but I miss the characteristic warmth, the sheer richness of tone, the

general sense of commitment and eagerness to communicate that have been Zukerman's hallmarks — qualities I'd have thought especially apposite to these sonatas. *R.F.*

**SCHUMANN: Piano Concerto; Violin Concerto**

Argerich, Kremer; Chamber Orchestra of Europe, Hamoncourt  
TELDEC 90696 (63 min)  
Pianist Martha Argerich is in her best form here, with not only her usual electric virtuosity and explosive playing at the climaxes, but also an eloquent, deeply musical rhythmic elasticity that brings out all the romantic impetuosity of Schumann's Piano Concerto. The Violin Concerto does not fare so well. Written in rough, broad strokes, it seems even less impressive here than usual because Gidon Kremer and Nikolaus Hamoncourt inflate it pretentiously, offering weightiness in lieu of nuance. *D.P.S.*

**MIKHAIL KAZAKEVICH  
Plays Rachmaninoff, Brahms, Bach, Honegger, Berg**

CONIFER 51235 (63 min)  
The thirty-six-year-old expatriate Russian pianist shows a good deal of creativity in this program, which builds on both the contrasts and the connections between Rachmaninoff's Second Piano Sonata, four Brahms intermezzos, a Bach prelude and fugue, Honegger's *Prelude, Arioso and Fughetta on the Name BACH*, and Berg's Sonata, Op. 1. While it is not all satisfying — the Bach seems more than a little wayward — the performances suggest an imaginative musical mind as well as gifted hands. The recorded sound is exemplary in its realism. *R.F.*

**SYLVIA MCNAIR  
The Echoing Air: Music of Henry Purcell**

Academy of Ancient Music, Hogwood  
PHILIPS 446 081 (62 min)  
Though Purcell's music doesn't always export well, this collection of short vocal and instrumental works, including selections from *The Fairy Queen*, is winningly arranged and performed. Soprano Sylvia McNair's lush, polished singing displays intelligence and a discreet sense of expressivity, but conductor Christopher Hogwood sometimes fails to give the music the folksy flexibility and unbuttoned high spirits it needs. *D.P.S.*

**LA NEF  
Music for Joan the Mad**

DORIAN 80128 (66 min)  
A theater piece by the Canadian early music group La Nef, "Music for Joan the Mad" contains moody vocal and instrumental music of the Renaissance. It is an authentic tribute to the queen of Spain known as Juana la Loca (1479-1555), driven mad by excessive love for her husband, Philip the Handsome. Excellent. *William Livingstone*

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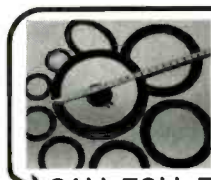
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# THE HIGH END

BY PETER W. MITCHELL

## The Sound of Dolby AC-3

In the three years since Dolby Stereo Digital (DSD) soundtracks arrived in theaters, their sound has been controversial. It can be impressively clear, vivid, and spectacular. But to audio critics who were familiar with the sound of the best six-channel 70mm films, DSD soundtracks often seemed aggressive and over-bright.

DSD uses Dolby's AC-3 system of digital coding. AC-3 encodes 5.1 channels of surround sound into a compressed bit stream with a total data rate, in DSD, of only 320 kilobits per second. Since CD coding has a data rate of 706 kilobits per second per channel, 5.1 channels of CD code would require more than 3.5 megabits per second. AC-3 shrinks that rate by a factor of eleven. Can such aggressive data reduction work without compromising the sound?

Based on critical listening tests at Lucasfilm's Skywalker Ranch, the HDTV Grand Alliance chose Dolby AC-3 as the North American standard for the audio portion of digital high-definition television. That is a point in AC-3's favor, although test participants admitted privately that neither AC-3 nor the other candidates reproduced the test signals flawlessly. Imperfections were also heard during European HDTV tests in London and Berlin. So when Pioneer announced plans to include AC-3 soundtracks on laserdiscs, high-end critics were skeptical.

A year ago, Dolby invited me to an AC-3 mastering session in Hollywood where I A/B'd the AC-3 output against a multichannel master recording. Most sounds were identical, but in some transient sounds the AC-3 coding added a bright, metallic edge.

The competing DTS system added fuel to the controversy. First the developers of DTS demonstrated to audio critics that theatrical DTS playback is indistinguishable from a discrete multichannel master tape. Then DTS developed "Coherent Acoustics" coding for laserdiscs. Its data rate is 240 kilobits per second per channel, so a six-channel DTS signal has a total data rate of 1.44 megabits per second, the same as the CD-format stereo soundtrack on a laserdisc.

When several audio critics compared

DTS with a multichannel master tape, they found the sound virtually identical. And when I heard a DTS soundtrack in a high-quality home system, it sounded better (with a more realistic sense of surrounding ambience) than the same movie in a first-rate Hollywood theater.

Since laserdiscs are already issued in multiple editions (pan-and-scan, wide-screen, THX), they could also be issued in an audiophile version with a DTS soundtrack replacing the stereo digital soundtrack. Then AC-3 and DTS could compete directly in the marketplace, and consumers could decide for themselves which technology they prefer.

Last summer Dolby's Roger Dressler pointed out that critics had heard only the theatrical version of AC-3, which operates at 320 kilobits per second. It was rushed to theaters in 1992 to compete with another system, Cinema Digital Sound (CDS), which has since disappeared from the scene.

Meanwhile, Dolby engineers continued to develop a higher-performance "consumer" version of AC-3 for use in the more revealing environment of the home theater. That is the version of AC-3 used for laserdisc, and it will be the stan-

the 5.1-channel master tape that the DTS demo disc was made from. So we could compare the same sounds in DTS, AC-3, and uncompressed formats.

We began by comparing the six-channel tape with the DTS disc. They sounded identical — no surprise, since both were copies of the same source, and DTS coding is essentially transparent. Conceivably we might have heard a difference between the D/A converters in the Tascam DA-88 and those in the DTS decoder, but we did not.

When we compared the AC-3 disc, we heard occasional differences, but they were quite small. In most respects the AC-3 playback sounded identical to the uncompressed tape. Two well-known critics who have been particularly skeptical about AC-3 were impressed by this excellent result. I searched for the metallic edginess that I had heard in previous AC-3 recordings, but it just wasn't there. The audible differences that did emerge were of two types:

1. Loud high-frequency transients were very slightly louder and brighter in the AC-3 playback than in the discrete tape. That may be a mild form of the transient distortion that I noticed last year. But it was noticeable only in direct comparison with the tape. By itself, the AC-3 version sounded fine.

2. Naturally complex sounds, such as the sound of violins, had a smooth, finely textured character on the tape but a subtly coarser, grainier texture on the AC-3 disc. That led me to wonder whether the AC-3 disc had gone through extra stages of A/D conversion and back. An investigation at Dolby revealed that it had. So the slight graininess may be only in this one recording and not on other AC-3 discs.

Dressler's promise has been validated: AC-3 on laserdisc sounds much better

**When Pioneer announced plans to include AC-3 soundtracks on laserdiscs, some critics were skeptical.**

dard for HDTV, cable, and the Toshiba/Time Warner digital videodisc (DVD) as well. It uses a more sophisticated and flexible encoding algorithm and operates at 384 kilobits per second.

How good is the consumer version of AC-3? When the first laserdiscs with AC-3 arrived in February, I participated in a three-way comparison between a laserdisc with AC-3 coding, a laserdisc with DTS coding, and a digital tape. The laserdiscs were demo discs that contained excerpts from recent movies; both included the same excerpt from *The Mask* (the popular Jim Carrey film). The tape was a digital copy, in Tascam DA-88 format, of

than any AC-3 playback that I have heard in the past. If home theater is important to you, put an AC-3 decoder on your shopping list. As a bonus, the improved sound of the consumer version of AC-3 will gradually be added to the cinema version.

The difference in sound between Dolby AC-3 and DTS is now so small that there may be no market for DTS laserdiscs. The real future of DTS coding may be in multichannel CD's, providing superb discrete-channel surround sound for music. You wouldn't need to buy a new CD player; just feed the digital output from your existing player to a DTS decoder. I'm thrilled at the prospect. □

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