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(B.)

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(C.)

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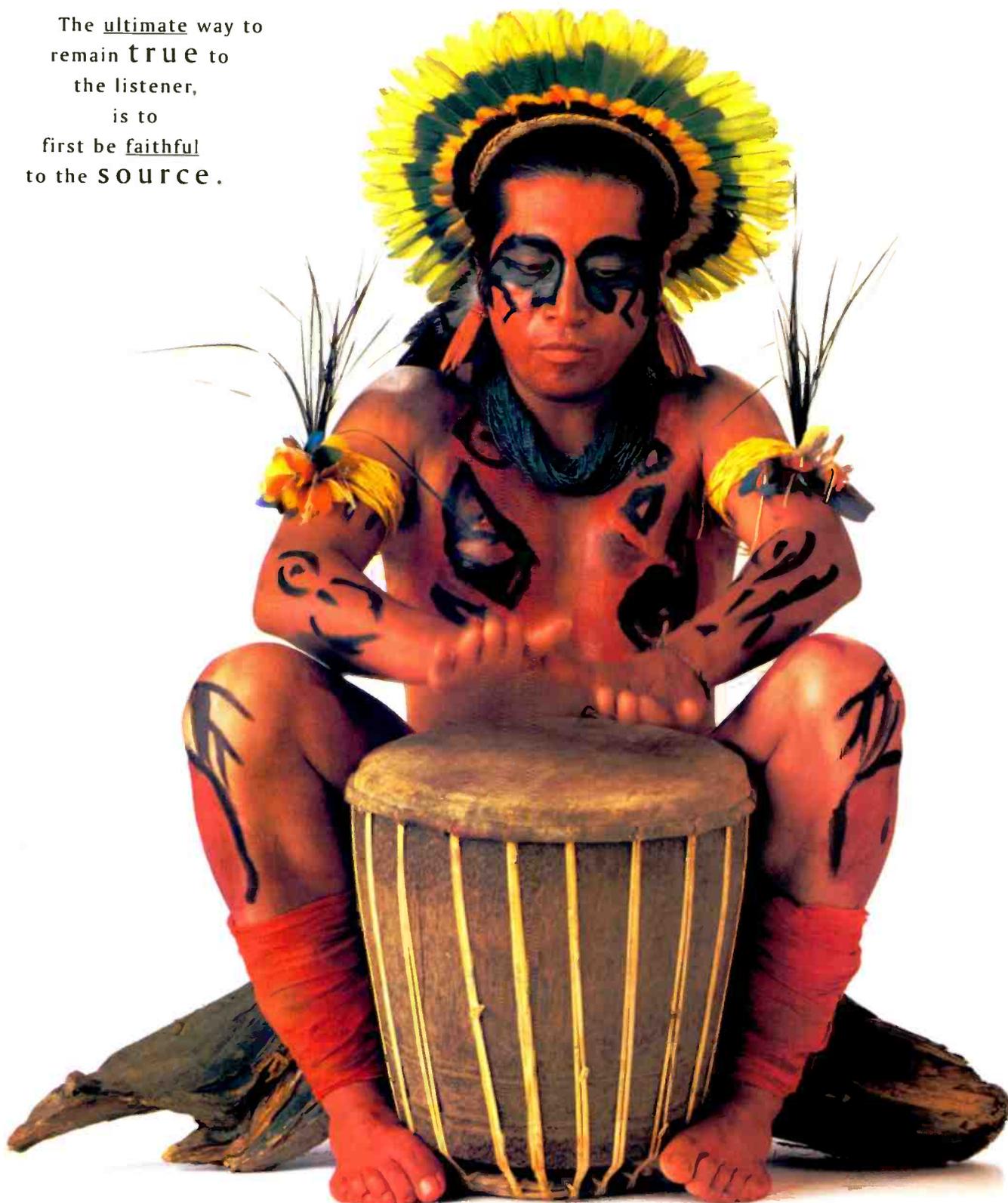


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Cover

The Cambridge SoundWorks New Ensemble II three-piece speaker system, JVC's RX815VTN A/V receiver, and Denon's DCM-460 CD changer. For more on sub/sat speakers, see page 84.

Photograph by Roberto Brosan

Carpet courtesy of ABC Carpet & Home

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BULLETIN

BY WILLIAM LIVINGSTONE
AND BOB ANKOSKO

GIFTS FOR KIDS

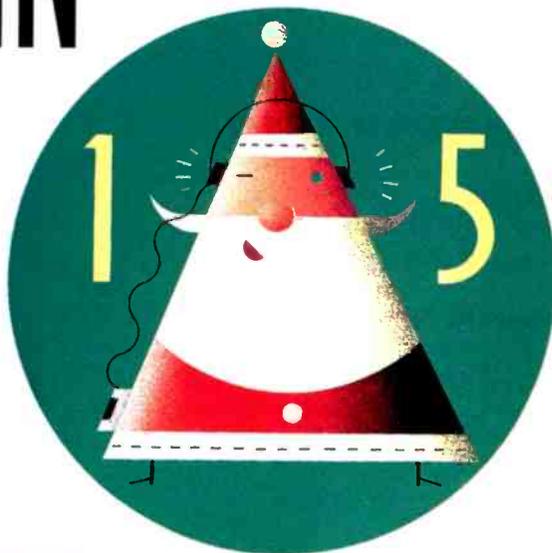
First choice for three-to-ten-year-olds: on CD or cassette, "Ants" by Joe Scruggs from Shadow Play Records (1-800-274-8804). Second choice: "Bananaphone" by Raffi on MCA 11115. For an older child with a classical bent: *Peter and the Wolf, Carnival of the Animals*, and *Young Person's Guide to the Orchestra* played by the Boston Symphony under Seiji Ozawa and narrated by Melissa Joan Hart (Sony 64079).

A/V DIGEST

Runco, maker of high-end video projection systems, has announced the world's first THX-approved laserdisc player, the LJR II, which meets the performance standards in a set of new video specifications developed by Luscasfilm's THX division. The LJR II, available with (\$4,995) or without (\$3,995) an onboard digital-to-analog converter, boasts a six-channel Dolby AC-3 output to accommodate future digital playback systems. . . . Speaking of new systems, Pioneer announced in Tokyo that laserdisc players featuring an AC-3 digital audio section will be offered for sale in the U.S. next year. The company also plans to offer an adaptor for existing laserdisc players.

KENNEDY CENTER HONORS

In its seventeenth annual celebration of the arts on December 4, the Kennedy Center in Washington is presenting its 1994 Honors to Aretha Franklin, Morton Gould, Pete Seeger, Kirk Douglas, and Harold Prince. Recipients of the Kennedy Center Honors are singled out for their contributions to the cultural life of the United States. The ceremonies and a gala performance will be taped for broadcast on CBS-TV at a later date. The telecast of last year's celebration won an Emmy.



SUPER WALKMAN

To commemorate the fifteenth anniversary of the trend-setting Walkman analog tape player, which made headphones a fixture in cities the world over, Sony plans to have a new high-performance Walkman in stores before Christmas. The palm-size WM-EX1, which will sell for \$249, boasts a new high-speed tape transport (said to triple fast-forward and rewind times) and a remarkable 36-hour playing time when its rechargeable battery is supplemented with an external AA battery pack (included). Sony says it has sold more than 120 million Walkmans and 200 different models since 1979.

HISTORY REPEATS ITSELF

History was made once again at the former Thomas A. Edison Labs in West Orange, NJ, when Les Paul, the renowned guitarist, multitrack-recording pioneer, and creator of the now-famous solid-body electric guitar bearing his name, laid down a few tracks—not on a digital multitrack recorder but on an 1890's-vintage Edison wax-cylinder phonograph. During a late-summer recording session organized by Jerry Fabris, a curator at the Edison National Historic Site, Paul and rhythm guitarist Lou Pallo performed a number of songs before an audience, including the classic *I'm Forever Blowing Bubbles* that Paul recorded in the Fifties with his wife, the late Mary Ford.

"It struck me as an interesting thing to do

because I would be playing an electric guitar into this acoustical horn," Paul told STEREO REVIEW. "We're so used to digital today that it was amazing to see something this simple working as well as it did." Somewhere, Mr. Edison must be smiling.

BOOKS

Rick Kennedy's *Jelly Roll, Bix and Hoagy: Gennett Studios and the Birth of Recorded Jazz* (\$24.95) has been published by Indiana University Press. . . . Fireside Books has published *The New Book of Rock Lists* (\$15) by Dave Marsh and James Bernard, a collection of amusing rock facts, figures, and trivia. . . . Ned Rorem, Pulitzer-Prize-winning composer and tireless autobiographer, has written yet another volume of memoirs. This one, published by Simon & Schuster (\$30), is titled *Knowing When to Stop*.

DR. BOSE

What do Duke Ellington, B.B. King, Sarah Vaughan, Dizzy Gillespie, Sting, Paul Simon, Billy Joel, Bonnie Raitt, and Quincy Jones have in common with Dr. Amar Bose, the chairman and technical director of Bose Corp.? No, they are not all speaker designers, but all have received honorary Doctor of Music degrees from Berklee College of Music in Boston. Dr. Bose received his this fall. His first doctorate was a Doctor of Science degree he earned in 1956 from MIT, where he has been on the faculty ever since.

DIGITAL RADIO DEMO

The first mobile demo of the so-called IBOC (in-band on-channel) digital audio broadcasting (DAB) system was hailed as a success by the developer, USA Digital Radio, a consortium of CBS, Gannett, and Group W Radio. Reception of the digital signal transmitted from the Sears Tower in Chicago to a DAB-equipped van was reportedly flawless even when multipath stomped on an analog FM signal.

GLOBAL NOTES

At an auction in London, the mayor of Kansas City, Missouri, paid \$145,000 for the alto saxophone played by Charlie (Bird) Parker at a concert in Toronto in 1953. . . . BMG Classics has signed a long-term licensing agreement with Firma Melodiya, the Russian state record company, that will allow BMG to manufacture and distribute recordings from the vast Melodiya archives. . . . Nineteen-year-old Evgene Mursky of Tashkent, Uzbekistan, won the £10,000 first prize in the World Piano Competition in London. . . . The winner of the First China International Piano Competition in Beijing is Shin Sang-Jean, 33, from South Korea. She was awarded US\$10,000.

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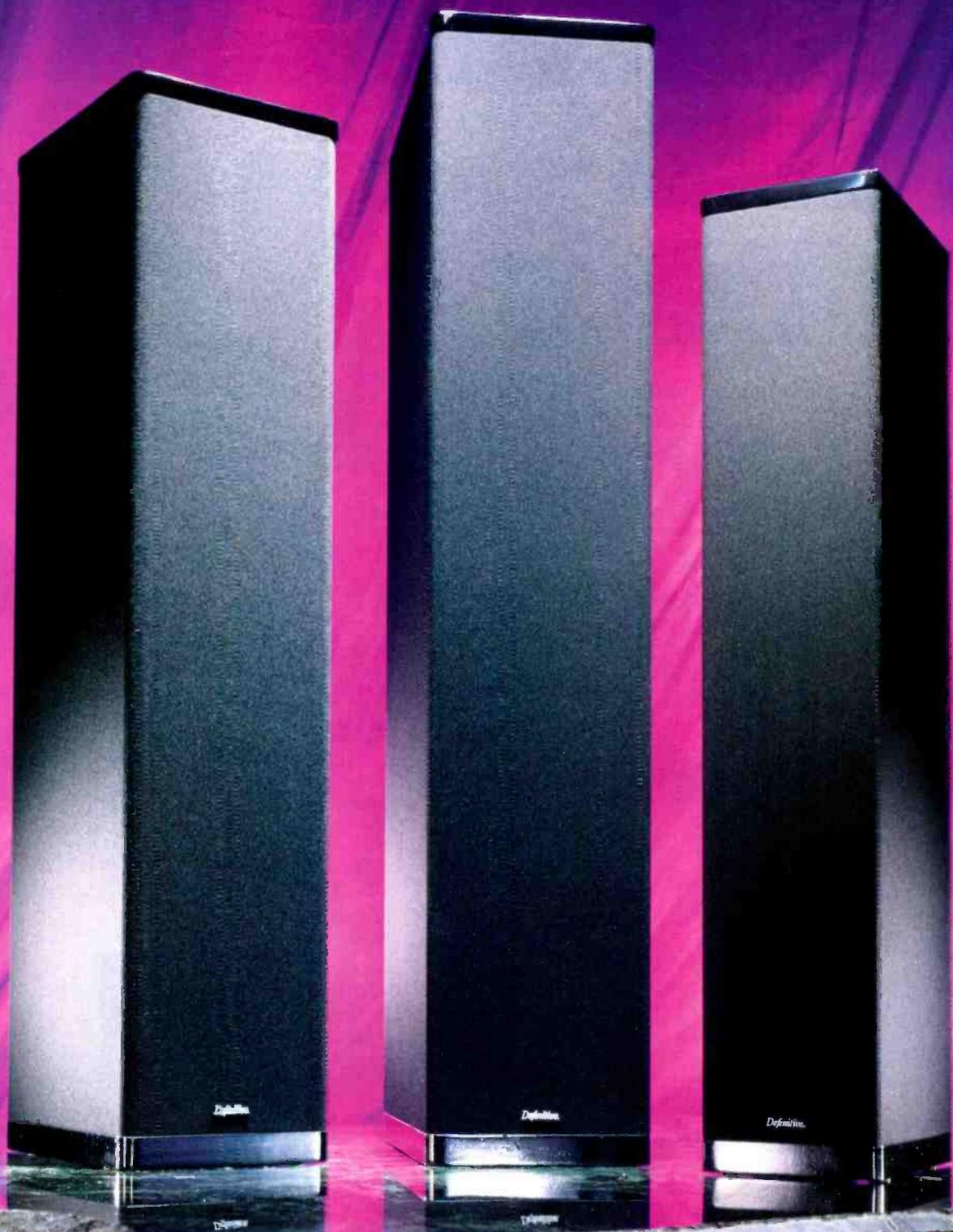
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LETTERS

CD Fix-Its

Most of my CD's were submerged in salt water for over an hour when the no-name storm of March 1993 brought water up to my doorknobs. Several months later, when I tried to clean and use them, I discovered several that looked as though the acrylic must have been porous; light passed through holes in the playing surfaces ranging from the size of a pin to bigger than a dime. The worst were the American Gramophone discs; none completely escaped damage, and the reflective surface of one of them actually peeled off in my hand.

Until reading Ken Pohlmann's October article on "CD Fix-Its," and learning that the playing surface was not in the middle of the acrylic sandwich. I couldn't imagine how water or oxygen sufficient to permit oxidation could pass through a CD's layer of acrylic. It seems to me that any disc that has so thin a layer of acrylic as to allow oxidation of the playing surface must be defective. Do I have recourse against the makers of these discs? If so, must I go through my local music shop, or communicate directly with the record companies?

I have been considering investing in a CD-ROM drive for my computer, but I worry about the reliability of the discs in my humid, seaside environment. Computers can't correct for missing bits, can they?

VERNON TONNESEN
Weeki Wachee, FL

The playing surface is actually sandwiched between polycarbonate plastic (very tough) on the bottom and an acrylic coating on the label side, so the label side is the more vulnerable. You probably have no recourse against anyone, given what the discs have been through, but you could try the record companies. As for CD-ROM's, they have even more powerful error correction than ordinary CD's, but there is a limit to the damage any such system can overcome.

Ken Pohlmann didn't mention my method for cleaning CD's, which I humbly consider to be the cheapest and the best.

Simply put your dirty CD under lukewarm running water and saturate a clean kitchen sponge with same. Put a dab of Ivory Liquid dishwashing detergent on the sponge and, holding the CD on its outer edges with one hand, clean the surface with the sponge held in your other hand, using center-to-edge motions. Wash and rinse both sides. Dry with a clean, lint-free cloth if available. (I use a kitchen towel and blow away all the lint with a rubber syringe.)

I've been cleaning CD's this way since I started collecting them in 1988—and they play beautifully! The cost of a 22-ounce bottle of Ivory Liquid here in Central Flori-

da is about 99¢, way better than paying \$25 for a 1- or 2-ounce bottle of commercial cleaning solution—and you can even do your dishes with it.

GEORGE NUSSBAUM
Winter Park, FL

Throwing Stones

It is probably impossible for a band with the stature of the Rolling Stones ("Voodoo Lounge," reviewed in October) to escape comparisons with their past glories. Admittedly, there isn't an "instant classic" like *Tumbling Dice* or *Start Me Up* on the new album, but it would probably be a safe bet that if the Black Crowds had recorded "Voodoo Lounge," it would have been hailed as one of the year's best albums.

LEONARD WENSKÉ
Lovington, NM

Quieter Cars Coming?

A year or so ago, I read that Lotus (the British car manufacturer) was developing a computerized noise-damping system that would "soon" be installed in new Lotus cars. More recently, a television program featured a report on the French Renault's development of similar technology for its cars. As I understand these systems, internal and external sensors would pick up road, engine, and wind noises and feed the signals into a computer, which would then "play" the same frequencies out of phase through internally placed speakers, thus canceling out the noises.

I am sure that such systems will have a dramatically positive effect on the listening environment of an automobile. How far has this technology developed, and how available is it or will it become to new car buyers or even after-market consumers?

DAVID B. HARRIS
Racine, WI

We're not sure exactly what Lotus and Renault are up to, but a number of automakers here and abroad are working on electronic noise-canceling systems like what you describe. So far Toyota is the only one we know of that is actually selling (in Japan only) a vehicle equipped with such a system.

Stormy Weather

Last year my wife and I bought our first home, which included a full-scale satellite reception system. This past summer, the dish signal was cutting out completely, often for a day or two. First I took my receiver in for repair; it checked out okay (\$20). Next we had a \$100 house call to check the satellite dish, connections, and LNB; they were all okay, too. Major frustration. The

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MD- Audio Buys: Annapolis, Galthersburg, Laurel, Rockville, Waldorf; Cumberland Elec.: Cumberland; Gramophone: Balt.; Ellicott City; Soundscape: Baltimore.
ME- Cookin': Portland.
MI- Pecar's: Detroit, Troy; Classical Jazz: Holland; Classic Stereo: Kalamazoo, Grand Rapids; Front Row AV: Flint; Future Sound: Ypsilanti; Court St. Listening Room: Midland, Saginaw.
MN- Audio Designs: Winona; Audio Perfection: Minneapolis.
MO- Independence AV: Independence; Sd. Central: St. Louis.
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MT- Rocky Mountain Hi Fi: Great Falls.
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NE- Custom Electronics: Omaha, Lincoln.
NH- Cookin': Nashua, Manchester, Newington, Salem, S. Nashua.
NJ- Hal's Stereo: Trenton; Monmouth Stereo: Monmouth, Wall; Sound Waves: Northfield; SoundWorks: Cherry Hill; Woodbridge Stereo: W. Caldwell, Woodbridge.
NV- Upper Ear: Las Vegas.
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PA- Gary's Elect.: State College; GNT Stereo: Lancaster; Hart Elect.: Blakely, Kingston; Hi Fi House: Abington, Broomall; Palmer Audio: Allentown; Stereoland: Natrona Heights (Pittsburgh); Studio One: Erie.
SC- AV Design: Charleston; Upstairs Audio: Columbia.
TN- Hi Fi Buys: Nashville; Lindsay Ward: Knoxville; Modern Music: Memphis; New Wave Elect.: Jackson; Sound Room: Johnson City.
TX- Home Entertainment: Dallas, Houston; Audio Tech: Temple, Waco; Audio Video: College Station; Brock AV: Beaumont; Bunkley's Sd. Systems: Abilene; Bjorn's: San Antonio; High Fidelity: Austin; Krystal Klear: Dallas; Marvin Electronics: Ft. Worth; Sd. Box: San Angelo; Sd. Quest: El Paso; Sd. Systems: Amarillo; Sd. Towne: Texarkana.
UT- Alpine Elect.: Provo; Audio Works: Salt Lake City; Stokes Bros.: Logan.
VA- Audio Buys: Arlington, Fairfax, Falls Church, Manassas; Audio Connection: Virginia Beach; Audiophonics: Roanoke; Home Media Store: Richmond; Stereotypes: Charlottesville.
VT- Audio Video Authority: S. Burlington.
WA- Definitive Audio: Bellevue; Seattle; Evergreen Audio: Silverdale; Pacific St. & Sd.: Wenatchee; Tin Ear: Kennewick; W.VA- Sound Post: Princeton.
WI- Audio Emporium: Milwaukee; Absolute Sound & Vision: Sheboygan; Sound World: Wausau.
Puerto Rico- Precision Audio: Rio Piedras.
Canada- A & B Sound: Calgary, Edmonton, Kelowna, Vancouver & Suburbs, Victoria; Advance Electronics: Winnipeg; Audio Ctr.: Montreal, Ottawa; Bay Bloor Radio: Toronto; CO- RA: Quebec City; Digital Dynamics: Clearbrook; Great West Audio: London; Lipton's: New Market; Ontario; Peak Audio: Halifax; Sd. Room: Vancouver; Sd. Station: Courtenay.
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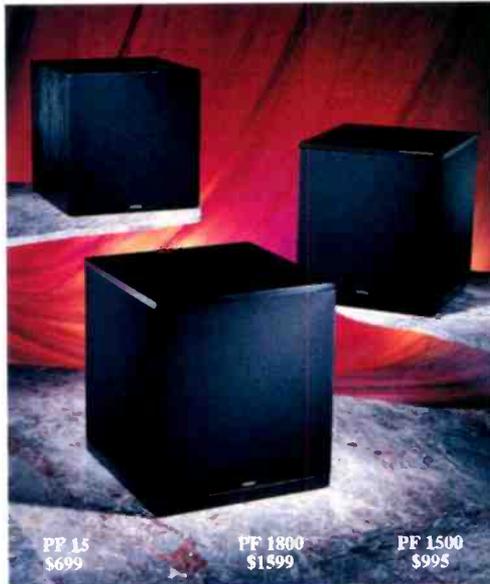
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LETTERS

dish signal cut in and out two more times before it hit me that every time it happened, it was raining.

What can I do? I have the Fox NFL package, and neighbors are beginning to wonder what my wife is doing on a stepladder with an umbrella and an electric blow dryer in the rain. Help!

JIM CONSTINE
Cuba, IL

First, tell your wife to come inside. It's not a good idea to use a blow dryer in the rain. Now, according to the satellite-TV experts we consulted, the problem you describe is atypical of conventional large-dish satellite-TV systems. More than likely, moisture is getting into the LNB (low-noise block-down amplifier), which receives the signal from the dish's feed horn and sends it to your satellite receiver. If the LNB is not covered with a shroud of some sort, pay a visit to a local satellite-TV dealer (not the one who made the \$100 house call) and buy an LNB cover. It'll cost less than \$10 and shield the LNB electronics from the elements. If the LNB already has a cover, then the problem is probably a loose connection that is disturbed by the wind that often accompanies rain.

Ch-Ch-Ch-Changes

I read Daniel Kumin's excellent article on CD changers (October 1994) hoping to find a current model with the ability to reduce the dynamic range. I need that because of a hearing impairment. I also think it would be useful for background music.

Some years ago both DBX and NAD marketed models with that capability, but they are no longer available. Do you have any suggestions?

J. S. BONORRIS
Los Angeles, CA

Sony's TA-E2000ESD preamplifier has a dynamic-range-compression feature.

There has been a lot written about multi-play CD changers, but no one seems to mention one important feature: the pleasure of being able to shuffle the tracks that are programmed. Shuffling is a great feature, but I would like to be able to delete the tracks that I don't want to hear!

This feature is especially important to me since I have a changer that allows me to store a program for each CD. It would be nice to be able to listen to my programmed songs randomly, since it is boring to listen to them in the same order every time. And it takes a lot of time to reprogram each CD in a different order.

Also, since no one will ever have time to hear all the tracks on five CD's during one listening session, there should be a memory chip in all CD changers so that when you

turn the machine off, the songs not played can be heard during the next session.

BOB RECUPERO
Flushing, New York

Spiked

Steve Simels gored the wrong ox. I'm afraid, in his review of the two CD reissues by Spike Jones (September issue). *My Old Flame*, as I'm sure any jazz musician will attest, is anything but "a cornball pop tune." Jones may have been an artful satirist, but his aim could be erratic. I seem to recall that he also skewered *Laura* (Cole Porter's favorite non-Porter song) and a few other worthwhile pieces. Too bad Spike didn't stick to wide targets like *You Always Hurt the One You Love*, which richly deserved the dishonor.

ROBERT M. BUCKLEY
Williamsville, NY

VCR Advice

I was very pleased with the amount of information that "How to Buy a VCR" by Edward Foster (September) contained. It couldn't have come at a better time for me as I am buying a hi-fi VCR this week. The only exception I have to Mr. Foster's wisdom comes in the last paragraph, where he states that audio level indicators with no controls are "the ultimate idiocy." Of course, I would prefer to have controls, but when I am mixing my two CD players into a VCR for one of my awesome 8-hour party tapes, I control the level on the mixing board.

CHARLES KELM
Redondo Beach, CA

How can Edward Foster, in "How to Buy a VCR" (September), dismiss 8mm and Hi8 VCR's? For people who own laserdisc players and have a good rental outlet for laserdiscs, VHS is neither necessary nor desirable! I have found the 8mm format superior for time-shifting because the tapes are more durable, lasting about three times longer than VHS or Beta. And I have heard that 8mm is also superior for recordings one wishes to keep, as its shelf life is much longer than that of VHS and Beta.

TERESA GOODWIN
Reno, NV

I enjoyed "How to Buy a VCR," but it made no mention of the Beta format, which is still alive and doing well. Sony continues not only to manufacture new Betamax's but also to update and improve them, and SuperBeta gives video quality approaching that of laserdiscs—superior in some respects to Super VHS without needing special tape.

Selecting a VCR to play rented movies suggests VHS; choosing a VCR to tape vid-

eo and audio programs for archiving, which is what I do with mine (using digital satellite broadcasts as a source), clearly points to Beta.

ERIC NORBERG
Portland, OR

Oversights

STEREO REVIEW is an excellent magazine, but I have a couple of bones to pick with the October issue. In "Audio Q&A," Ian Masters tells Frank Sutherland that he might have difficulty finding a new turntable with the 78-rpm speed. I suggest that Mr. Sutherland turn to page 102 of the same issue, where a J&R Music World ad offers the Thorens 180 three-speed turntable.

And Steve Simels, who in "Big Noise from the Baltics" (page 97) refers to the Czech Republic as Czechoslovakia and places it among the Baltic countries (Estonia, Latvia, Lithuania), clearly hasn't kept up with geography. He should stick with music!

SIGURD BREMAN
Stamford, CT

Nagano and Zappa

In his article on conductor Kent Nagano in September, K. Robert Schwarz fails to note Nagano's most daring job yet: leading the London Symphony Orchestra, on a Rykodisc CD released in January 1983, in four pieces composed by the late "freak" rock star Frank Zappa. Yes, in 1983, when most classically trained musicians were still too snotty to attempt "new" music!

MARK D. MCKEOWN
Waco, TX

DAT's Better

Why don't you do more articles and tests on DAT? After I heard the sterile sound of DCC in a demo room, I felt better about my pro-DAT decision. Unlike MD and DCC, DAT does without any sound-affecting data reduction of any kind, and I can make digital copies from all current sources, including digital radio from our direct-broadcast satellites Astra and Kopernikus. If you use proper tape and clean the deck regularly, DAT will give you uncompromised performance at all times. By the way, since the introduction of MD and DCC, sales of DAT equipment have exploded in Germany.

RALF BECKERS
Aachen, Germany

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.

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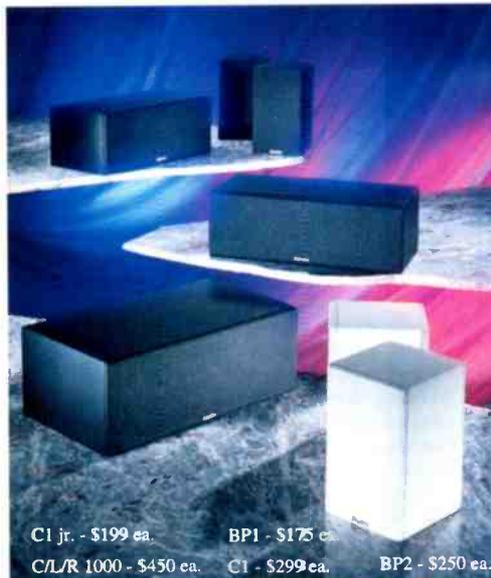
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AUDIO Q & A

BY IAN G. MASTERS

Audio Longevity

Q *I bought my integrated amplifier and speakers more than eighteen years ago. At the time I asked the technician in the store how long I could expect them to last, and he said that their performance would begin to go downhill rapidly in about ten years. Nevertheless, my equipment just won't quit; in fact, with the coming of CD's and laserdiscs, it sounds better than ever. So how long can high-quality speakers and electronic components be expected to last?*

WALLY E. PEETS
Crescent City, CA

A Unless a piece of stereo equipment actually breaks—which could happen 10 minutes after you take it out of the box—it could last indefinitely. I have equipment more than thirty years old that works perfectly. Electronic devices are especially hardy as long as you spritz their controls with contact cleaner now and then and make sure that the input and output connectors haven't become corroded.

Anything with moving parts—a tape recorder or a turntable, for instance—is more likely to wear out, but rudimentary maintenance should keep it operating long after your audio guru's arbitrary ten years. One thing that does seem to deteriorate over time is the foam once used in the surrounds of some speakers (it's been improved since). If that goes, you'll either have to have the cones replaced or trash the speakers. But lots of foam-surround speakers are still pumping it out twenty years on.

Doubling Up Subs

Q *My surround-sound system uses matched speakers from a single manufacturer, including a passive subwoofer. I'm planning to add another subwoofer. Would I be better off buying a passive model that matches my existing subwoofer or adding a powered unit? And if I do that, what's the best way to hook everything together?*

HIEP VAN TRAN
Portland, OR

A Ideally, you should go for the subwoofer that matches what you now have—if you have enough power, if your room is relatively free of standing waves and other acoustic anomalies, and if the subwoofer that goes with the system produces enough output to satisfy your craving for bass. Keep in mind that adding an identical subwoofer will increase bass output only by a just-discernible 3 dB; its main advantage is that it may help smooth out response problems caused by the room acoustics.

The typical powered subwoofer is fairly flexible in that, in addition to packing its own amplifier, it usually has a crossover and level control that enable you to match it to the rest of your system. Powered subs can be fed from a dedicated subwoofer output or from the left and right outputs of an amplifier. Your best bet is to consult the owner's manual of a subwoofer candidate to make sure you can do what it suggests.

Mono CD's

Q *Am I correct in assuming that all CD's are not created equal? I recently bought an assortment of jazz and blues discs for my new CD player, and while all of them sounded quite clear and free of distortion, several had very little stereo effect. I expect good stereo from a \$15 CD, not mono. What gives?*

HOWARD HANKS
Detroit, MI

A A compact disc is only as good as the original recording, so there is indeed a lot of variation. That's especially true with discs containing reissued material—as I suspect yours might be—because recording equipment and techniques have improved over the years. In the case of modest or missing stereo effect, it may be that the producer chose to dispense with a spacious sound, or that the music performance simply didn't have much to begin with. Small groups, where the musicians are close together, are often more accurately recorded with little stereo spread.

The Sound of Music

Q *Twice in the past week I have heard non-amplified live music. Both times I was walking along the sidewalk and heard the sound emanating from a nearby building, and both times I was immediately able to tell that the music was live. What am I detecting that enables me to make this distinction?*

MICHAEL J. CATICCHIO
Cleveland, OH

A If there's a central question in audio, that's it. Anyone who really knew for sure what you were hearing—and we all hear it—might have a shot at making the perfect audio component. It's easier, perhaps, to determine the characteristics of recorded sound and then to say that live music simply lacks those characteristics.

At both ends of the recording chain are inherently nonlinear devices that turn sound into electricity and back again: the microphones and the speakers. Even the best of each has response dips and peaks that are

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Eric Clapton: Unplugged (Warner Bros.) 23690

Aerosmith: Get A Grip (Geffen) 20814 #

Beastie Boys: Ill Communication (Capitol) 24717 #

Common Thread: Songs Of The Eagles (Giant) 25071

Tevin Campbell: I'm Ready (Qwest/Warner Bros.) 25112

U2: Achtung Baby (Giant) 25174

Reba McEntire: Greatest Hits Volume 2 (MCA) 25466

George Strait: Easy Come, Easy Go (MCA) 25486

Guns N'Roses: Use Your Illusion II (Geffen) 25534 #

George Benson: Love Remembers (Warner Bros.) 33823

Ella Fitzgerald: The Best Of The Song Books (Verve) 34616

Bryan Adams: So Far So Good (Greatest Hits) (A&M) 34771

Lenny Kravitz: Are You Gonna Go My Way? (Virgin) 34834

Miles Davis & Quincy Jones: Live At Montreux (Warner Bros.) 35011

Fourplay: Between The Sheets (Warner Bros.) 35074

Carreras, Domingo, Pavarotti: 3 Tenors (London) 35078

Rush: Counterparts (Atlantic) 35147

Guns N'Roses: Use Your Illusion I (Geffen) 35469 #

The Rodgers & Hammerstein Collection (MCA) 40015

Gin Eosoms: New Miserable Experience (A&M) 24884

Diane Schuur & B.B. King: Heart To Heart (GRP) 43234

k.d. lang: Ingenu (Warner Bros./Sire) 44370

Cecilia Bartoli: The Impatient Lover (London) 44664

Enya: Shepherd Moons (Reprise) 53190

The Cars: Greatest Hits (Elektra) 53702

Whitney Houston: The Bodyguard Soundtrack (Arista) 54213

Blind Melon: (Capitol) 54234

En Vogue: Funky Divas (East West) 61717

Chicago: Greatest Hits 1962-1989 (Reprise) 63363

Dave Koz: Lucky Man (Capitol) 64060

Bette Midler: Experience The Divine-Greatest Hits (Atlantic) 64291

Morrissay: Vauxhall & I (Reprise/Sire) 64421

Prince: The Hits 2 (WB/Paisley Park) 72325 #

Duran Duran: Decade/Greatest Hits (Capitol) 73573

Pantera: Far Beyond Driven (East West America) 73909 #

The Cranberries: Everybody Else Is Doing It, So Why Can't We? (Island) 80023

Meat Loaf: Bat Out Of Hell II: Back Into Hell (MCA) 83394

Melissa Etheridge: Yes I Am (Island) 35501

ZZ Top: Greatest Hits (Warner Bros.) 83411

R. Kelly: 12-Play (Jive) 83615

Nirvana: In Utero (Geffen) 90124 #

Garth Brooks: In Pieces (Liberty) 93710

Talking Heads: Popular Favorites 1976-1992/Sand In The Sueline (Warner Bros./Sire) 01414 *

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Prince: The Hits 1 (WB/Paisley Park) 02228 #

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audible, no matter how small they are. What's more, response irregularities are cumulative. There's also the matter of perspective. Recording microphones are not likely to be placed where you would be sitting if you were hearing the music live, and a recording is ultimately played back through a couple of boxes whose placement has more to do with fitting them into a home listening room than with where the original musicians might have been located. Then there's the additive effect of the acoustics of both the recording studio and the listening room, the absence of dynamic-range compression and other such processing in live music, and so on and on

There's no question that live music does have its own special "feel," and few, if any, stereo systems can replicate it. Discovering what precisely causes the difference will keep us busy for some years yet.

From Film to Video

Q *I'm not sure I understand the process of transferring the audio of a 35mm film to videotape. Since films are shot at twenty-four frames a second, while television operates at thirty frames a second, certain frames of the original are recorded twice on the tape to make up the difference, and persistence of vision prevents us from being aware of the extra frames. But does*

that mean parts of the original soundtrack are repeated in the same manner? If so, why do we not hear the distortion? And if the sound on the film is offset from the corresponding picture, as I understand it is, how do they become resynchronized on the tape?

SUDHIR KAKAR
Corona, NY

A The motion picture is a wonderful example of two seemingly incompatible forms of reproduction coming together in a way that suits both. The visual part of a movie is a series of still pictures flashed on to a screen in sequence. It was discovered early on that the minimum number required to produce the illusion of smooth motion is twenty-four frames a second, which is how the standard was established.

In a traditional movie projector, the film advances in a series of short jerks as the mechanism pulls each frame into the proper position, then leaves it there while light is shone through it. The light is masked briefly while the next frame is jerked into position, and so on. In reality, although twenty-four frames is enough for smooth motion, it's not fast enough to avoid our noticing a slight flicker, so theater projectors send two sequential flashes of light through each frame, or forty-eight exposures a second. To transfer to the North American TV standard of thirty frames per second, the exposures are

made slightly shorter, but every other frame gets a third flash so that the overall linear speed of the film remains the same.

That jerky motion, however, is absolutely wrong for good reproduction of analog audio, where transport smoothness is a must. To achieve that, the picture-projection part is physically isolated from the rest of the film motion by means of two film drives, one ahead of the optics in the film path, the other after it. Both rotate smoothly as the film is drawn from the feed reel in a continuous motion and wound onto the take-up reel. Between those "capstans" the tape is allowed to loop in the air both before and after the film gate, which accommodates the required jerky motion while keeping the film's overall motion smooth.

The audio is offset from the corresponding picture so that the device that reads the soundtrack can be placed outside the isolating film drives, where motion is smooth. Since all films have the same amount of offset, and it matches all projectors, whether in theaters or video-transfer facilities, there is no need to resynchronize audio and video.

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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created a home version called SoundEffects. Hook it up and you'll feel earthquakes rumble through your room. Blindside blitzes will have maximum impact. Even a kiss will feel hotter. Just ask your JBL dealer for a demonstration. And see how colorful TV sound can be.



SoundEffects

MAKING WAVES IN SOUND

Clockwise from top left: Our stereo satellite speakers put you in the middle of the action, not just in front of it. For dialogue there's our center channel, where whispers are as audible as screams. Another satellite speaker to round out the set. Our subwoofer, for the pitter patter of dinosaur footsteps throughout your house. For the name of your nearest dealer, call 1 800 336-4JBL (4525).

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NEW PRODUCTS



▲ PIONEER

The Elite PDR-09, Pioneer's first CD recorder/player, makes unerasable digital recordings on special discs that can be played on any CD machine. Features include analog and digital inputs, a 3-second buffer memory for precise cueing, and automatic

track/index numbering. The deck incorporates the SCMS chip, which prevents direct digital copying of copies. Prices: PDR-09, \$4,000; RDD-60 recordable discs, \$25 each. Pioneer, Dept. SR, 2265 E. 220th St., Long Beach, CA 90810-1639.

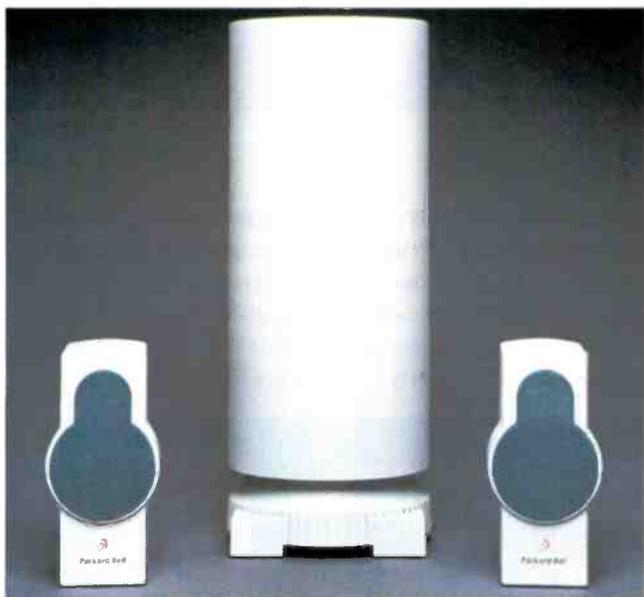


▲ ENERGY

Energy's Home Theater System (HTS) comprises three 19-inch-tall HTS-1 front speakers (\$250 apiece), each magnetically shielded with two 5¼-inch woofers and a tweeter, one AS-90 powered subwoofer (\$550), and two XL surround speakers (\$150 a pair). The subwoofer, which

incorporates a 12-inch driver, a 90-watt amplifier, and an adjustable crossover, is rated down to 28 Hz. All of the speakers are finished in black ash laminate. Energy Loudspeakers, Dept. SR, 3641 McNicoll Ave., Scarborough, Ontario M1X 1G5.

• Circle 120 on reader service card



▲ PACKARD BELL

Packard Bell's subwoofer/satellite system for multimedia computers consists of two minispeakers and a 21-inch-tall subwoofer. The built-in satellite amps are rated to deliver 40 watts each to the

tweeters and woofers, and the subwoofer has a 100-watt amp. Price: \$599. Packard Bell, Dept. SR, 31717 La Tienda Dr., Westlake Village, CA 91362.

• Circle 121 on reader service card



▲ PARASOUND

The C/DP-1000 CD player from Parasound has a hybrid 1-bit/18-bit digital-to-analog (D/A) converter. Other highlights include a large LCD readout, twenty-track programming, a coaxial digital output, gold-plated Tiffany-style RCA jacks, and a remote control. Price: \$495. The

user-installable Advanced Digital Adapter (not shown), available as a \$225 option, adds a glass-fiber optical output and a balanced AES/EBU output with an XLR connector. Parasound, Dept. SR, 950 Battery St., San Francisco, CA 94111.

• Circle 122 on reader service card

NEW PRODUCTS

▶ DUNTECH

The 2-foot-tall PCL25 speaker from Duntech of Australia has two 6 $\frac{3}{8}$ -inch woofers flanking a 1-inch dome tweeter. It is rated down to 55 Hz, and its crossover is said to produce a phase variation of less than ± 30 degrees between 150 Hz and 15 kHz. Available in Brazilian rosewood or Australian jarrah. Price: \$1,995 a pair; optional stand, \$299 a pair. Duntech, Dept. SR., 111 South Dr., Barrington, IL 60010.

• Circle 123 on reader service card



◀ KLH

KLH's V-01 left/right surround speaker, designed to be placed on the floor against the rear wall of a listening room, has a separate woofer/tweeter pair on each side. The 16 $\frac{1}{2}$ -inch-tall enclosure is finished in black vinyl. Price: \$200. KLH, Dept. SR., 11131 Dora St., Sun Valley, CA 91352.

• Circle 125 on reader service card



▼ HOME CINEMA DESIGNS

The Perfect Fit cabinet, 76 $\frac{1}{2}$ inches tall, can be adjusted to hold TV's with 27- to 61-inch screens. With compartments for two speakers and a subwoofer, eight pull-out media trays, and adjustable shelves, the three-

piece cabinet comes in cherry, oak, or whitewash oak, in straight and corner versions. Price: \$2,999 to \$3,599. Home Cinema Designs, Dept. SR., 2115 E. Kansas City Rd., Olathe, KS 66061.

• Circle 124 on reader service card



▼ CELESTION

Celestion's Soundstyle MP1 speaker, rated down to 70 Hz, combines a 4 $\frac{1}{2}$ -inch woofer and a tweeter in a weather-resistant, magnetically shielded white or gray cabinet that's only 11 $\frac{1}{2}$

inches tall including the integral stand, which can also serve as a wall bracket. Price: \$299 a pair. Celestion, Dept. SR., 89 Doug Brown Way, Holliston, MA 01746.

• Circle 126 on reader service card



▲ GO VIDEO

For camcorder fans: Go Video's GV-8020 combines an 8mm video recorder and a VHS Hi-Fi VCR in one standard-size component. It features one-button tape copying, an automatic editing mode for up to eight

scenes, an on-screen display system, an eight-event recording timer, and a remote control. Price: \$999. Go Video, Dept. SR., 14455 N. Hayden Rd., Suite 219, Scottsdale, AZ 85260-6949.

• Circle 127 on reader service card

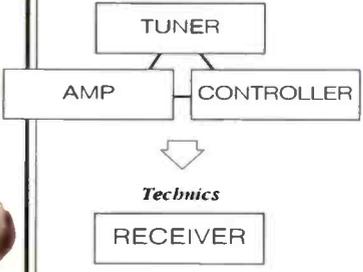
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NEW PRODUCTS



◀ RECOTON

Recoton's W-450 wireless speaker system includes an improved 900-MHz transmitter and a pair of 14½-inch-tall two-way speakers, each with a built-in RF receiver, a 25-watt amp, a volume control, and a black woodgrain-vinyl finish. Operating range is given as approximately 150 feet and bandwidth as 45 Hz to 19.5 kHz. Price: \$450. Recoton, Dept. SR, 46-23 Crane St., Long Island City, NY 11101.

• Circle 128 on reader service card



◀ SORICÉ

Soricé's A-300 cabinet (top, \$179 to \$369, depending on finish and options) holds 300 CD's. The A-MPC2 (bottom, \$219 to \$459) holds 270 LP's or laserdiscs and is shown with optional smoked-glass doors. The cabinets come in solid oak (shown), cherry, walnut, and teak. Available by mail with a thirty-day money-back guarantee from Soricé, Dept. SR, P.D. Box 747-91, Nutley, NJ 07110; telephone, 1-800-432-8005.

• Circle 129 on reader service card



▲ SOTA

Sota's Moonbeam turntable is a manual belt-drive system that includes a medium-mass straight-tube tonearm with a fixed headshell. The turntable features a nonresonant polymer platter, the same self-lubricating Turcite bearing-cup design used in Sota's

Comet and Satellite turntables, and a hinged dust cover. The base is made of laminated fiberboard. Dimensions are 17½ x 6 x 14 inches. Price: \$379. Sota, Dept. SR, 16135 New Ave., Unit 2, Lemont, IL 60439.

• Circle 131 on reader service card

KEF ▼

One of three new speakers in KEF's Reference Series line, the Model One combines a ported 6½-inch woofer and a 6½-inch Uni-Q coincident midrange driver with an integral silk-dome tweeter in a 34½-inch-tall cabinet. The

speaker's low-frequency limit is specified at 55 Hz. Price: \$1,500 in black ash veneer (shown), \$1,800 in Rosetta Burr. KEF, Dept. SR, 89 Doug Brown Way, Holliston, MA 01746.

• Circle 130 on reader service card



◀ ECLIPSE

Theft-proof? Eclipse's ECD-414 car CD receiver can be programmed to recognize any CD the owner chooses as its "key." Whenever the power is disturbed, that CD must be inserted to

reactivate the unit. Eclipse will replace stolen units for up to one year. Price: \$529. Eclipse, Dept. SR, 19600 S. Vermont Ave., Torrance, CA 90502.

• Circle 132 on reader service card



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-Stereo Review
Nov. 1994

"Ensemble III Sounded Very Good Indeed...First Rate In Every Respect... It Manages To Sound Like A Lot More Speaker Than Its Unassuming Appearance And Very Attractive Price Would Suggest."



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Our Most Affordable Ensemble System.

Ensemble III is the most affordable member of our Ensemble family of subwoofer/satellite speaker systems, which *Audio* magazine said may be "the best value in the world." Like all our speakers, it was designed by Audio Hall of Fame member

Complete Ensemble III Pro Logic System.

You can own a complete Dolby Pro Logic home theater sound system with Ensemble III for under \$1,000. It consists of Ensemble III, three of our Model Ten-A two-way speakers (one for center channel, two for surround), a powerful Sony Dolby Pro Logic receiver (70/70/20/20 w/ch.), a high performance Sony CD player, and a system remote control. We don't know of a better home theater value in the country.



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Henry Kloss (founder of AR, KLH & Advent).

Ensemble III sounds *very* much like our other Ensemble systems, with nearly identical tonal balance and stereo imaging qualities. Compared to our New Ensemble II subwoofer/satellite system, Ensemble III gives up a little in the way of power handling, low bass range, and efficiency. But unlike the "cube" satellite speakers you'd expect to find in similarly priced systems, Ensemble III's satellites are true two-way speakers. Each houses a 3 1/2" woofer and a 3/4" tweeter and a built-in crossover. Ensemble III's 6 1/2" woofer uses two separate voice coils (one for each channel) in a cabinet using a special flared port for smooth air flow.

With most recordings, Ensemble III will sound virtually identical to the New Ensemble II. It simply won't play as loudly, which makes it a *terrific* speaker system for smaller rooms.

Overcome The Fear Of Paying Too Little.

Ensemble III is affordable because we sell factory-direct, eliminating expensive middlemen. It doesn't mean we cut corners when we designed it. Its subwoofer cabinet is made of the same low-resonance MDF found in our New Ensemble and New Ensemble II systems. The satellites are housed in high-

grade ABS plastic, laminated to a stiff, acoustically dampening inner shell. There are built-in crossovers in both satellites and the subwoofer, so you can connect all three units directly to your receiver, or "daisy chain" the receiver to the subwoofer, then to the satellites.



Like all our speakers, Ensemble III is backed by our 7-year parts & labor warranty - and comes with connecting wire, a wire cutter/stripper, an informative user's manual, our "Hook-Up Guide" and our "Guide To Surround Sound".

30-Day Risk Free Audition.

With our 30-day risk-free home audition, you can listen to Ensemble III the right way - in your home, with your music, with no sales person hovering nearby. If you aren't entirely 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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CIRCLE NO. 6 ON READER SERVICE CARD

NEW PRODUCTS



◀ CLIK!CASE

The Klik!Case CD12 from Outer Circle Products is made of heavy-duty plastic and stores twelve CD's without jewel boxes. Its six hinged trays hold two discs each, one on either side. Price: \$10. Outer Circle Products, Dept. SR, 860 W. Evergreen Ave., Chicago, IL 60622.

• Circle 133 on reader service card



▲ QUASAR

Quasar's LD510 combi-player handles laserdiscs and CD's. Highlights include a shuttle dial for fast forward and review, a remote control, and a digital time-base corrector and Y/C separation circuit to enhance

color and overall picture quality. The player's horizontal picture resolution is given as 430 lines. Price: \$500. Quasar, Dept. SR, 1707 N. Randall Rd., Elgin, IL 60123-7847.

• Circle 135 on reader service card



◀ CERWIN VEGA

Cerwin-Vega's HT-12PWR powered subwoofer, rated down to 30 Hz, has a remote control so that you can balance your system's bass output without leaving the couch. Clad in black woodgrain vinyl, it measures 15 x 17 $\frac{3}{4}$ x 16 $\frac{3}{4}$ inches and packs a 12-inch woofer, an adjustable crossover, and a 150-watt amplifier with automatic signal-sensing turn-on. Price: \$900. Cerwin-Vega, Dept. SR, 555 E. Easy St., Simi Valley, CA 93065.

• Circle 136 on reader service card



◀ SPECTRUM AUDIO

The HD3, Spectrum Audio's top-of-the-line speaker, combines an 8-inch woofer, a 3-inch dome midrange, a 1-inch aluminum-dome tweeter, and a passive bass radiator in a 46-inch-tall cabinet designed for zero diffraction and high dispersion. Sidereal capacitors and air-core inductors are used in the crossover.

Frequency response is given as 28 Hz to 24 kHz ± 2 dB, sensitivity as 88 dB, and power-handling capability as 200 watts continuous. Price: \$3,995 a pair. Spectrum Audio, Dept. SR, 1021 Nevada St., Toledo, OH 43605.

• Circle 134 on reader service card



▲ SANUS SYSTEMS

The Natural Foundation Series II speaker stands from Sanus, made of medium-density fibercore, are available in 7-, 14-, 21-, and 28-inch-tall models. All feature adjustable steel floor spikes, a concealed speaker-wire path, and

a black finish. Oak pillars (shown) are optional on the 14- and 21-inch models. Price: \$60 to \$85 a pair. Sanus Systems, Dept. SR, 1973 W. County Rd. C2, Roseville, MN 55113.

• Circle 137 on reader service card

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

IT'S NOT TOO LATE!
ORDER BY DEC. 23



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.

Because we sell carefully matched and tested home theater speaker systems factory-direct, with no expensive middlemen, 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. **\$80.** *Center Channel* is identical to a



Cambridge SoundWorks *Ensemble* satellite (but with magnetic shielding). **\$149.** *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.**

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 pr.** The smaller *The Surround II* is arguably the country's best value in a dipole radiator speaker. **\$249 pr.**

The Surround said, "In many ways the surround sensation was every bit as good as far more expensive installations." **\$399 pr.** The smaller *The Surround II* is arguably the country's best value in a dipole radiator speaker. **\$249 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.** 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.** The new *Powered Subwoofer II* uses a 120-watt amplifier with an 8" woofer. **\$399.**

Our *EXO-1* electronic crossover can be used with either of our powered subwoofer systems,

or with powered subwoofers made by other companies. Its high pass filters keep strong, low bass signals out of the main stereo speakers, and directs them to the powered subwoofer. **\$299.**

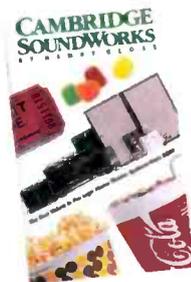
Home Theater Speaker Systems

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** price without improving performance.

For information on other home theater speaker systems - or on any of the products we make and sell - call 1-800-FOR-HIFI for your free color catalog. Thanks.



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CIRCLE NO. 6 ON READER SERVICE CARD

TIME DELAY

Hi Fi/Stereo Review
DECEMBER 1984 • \$4.00
 STUDIES IN MUSICAL ARCHEOLOGY • HI-FI
 IN THE FUTURE • MINGUS-JAZZ VOLCANO



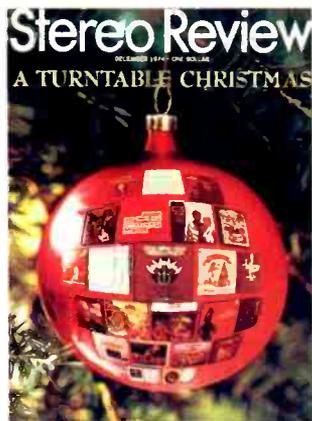
“woofers,” and “wow.” And in test reports, Julian Hirsch examined PML’s EK61 capacitor microphone, a \$100 model that, he declared, “brings fully professional performance within the reach of the serious audio hobbyist.”

Fighting Words: Reviewing Robert Horton’s “The Very Thought of You,” an album of pop standards by the star of TV’s *Wagon Train*, Gene Lees wrote, “It makes me want to punch Robert Horton right in the mouth.”

30 Years Ago

In his November 1964 “Views from Here and There,” European Editor Fredric Grunfeld alerted readers to the Swiss première of the avant-garde composer Rolf Liebermann’s *Les Échanges*, scored for “156 office machines and mechanical devices including typewriters, adding machines, cash registers, and telephones, led by a computer with a mambo beat.”

New products this month included the Alliance C-225 antenna-rotator control system (\$59.95), the Goodman Maximus I miniature two-way



20 Years Ago

At last, a solution to the problem of underage crime? In his December 1964 pop music column, Steve Simels said that while a recent TV special by the rock horn band Chicago was on, “I can personally attest that the entire teenage population of Dumont, New Jersey, was off the streets.”

In Best of the Month, George Jellinek hailed a new Philips version of Verdi’s *Un Giorno di Regno* starring Jessye Norman and José Carreras (“an absolute delight”), and Noel Coppage raved over “Learn to Love It” by Jesse Winchester. In other reviews, Eric Salzman was unmoved by a Claudio Arrau disc of Schumann’s

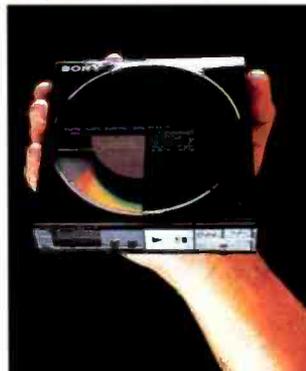


Freda Payne, 1974

Novelletten (“This isn’t my kind of Schumann, and I wonder if it’s Schumann’s kind of Schumann”). Chris Albertson dissed John Coltrane’s “Africa Brass Sessions, Vol. 2” (“Another attempt to pad the Coltrane estate”), and Joel Vance detested “The Golden Scarab” by Doors keyboardist Ray Manzarek (“His first solo album, and I hope it’s his last”).

Among the new products in this issue were Ortofon’s VMS-20E phono cartridge with a frequency response of 20 to 20,000 Hz ± 2 dB, the Scott R36S receiver with 30 watts per channel, the Concord CD-100 cassette deck with Dolby B and a response of 30 to 16,000 Hz, and the aptly named Ampzilla power amplifier, a 200-watt-per-channel behemoth from G.A.S. Julian Hirsch tested the Rotel RX-402 receiver (25 watts per channel), the ESS AMT-5 speaker system with a Heil “air-motion transformer” tweeter and a 12-inch acoustic-suspension woofer, and Marantz’s Model 4300, a \$900 “quad-ready” four-channel receiver he called “close to ideal.”

Sony’s first Discman, 1984



Hubba Hubba! Reviewing Freda Payne’s “Payne and Pleasure,” Peter Reilly noted that the cover photo featured “enough exposed breast and thigh to satisfy even a Fellini childhood fantasy.”

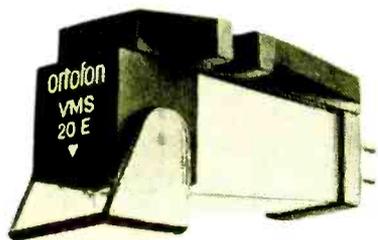


10 Years Ago

For the issue’s cover story, Julian Hirsch turned his attention to the first portable CD player, Sony’s D-5 Discman, a 1¼-pound unit costing \$299.95. “Try as we may,” he wrote, “we cannot escape the sense of awe and amazement that the Sony Discman arouses in us.” In other test reports, Hirsch evaluated Shure’s V15 Type V-MR phono cartridge (an upgrade of the acclaimed V15 Type V from 1982) and the Denon DP-37F turntable with an electromechanically damped tonearm, and Craig Stark reviewed the Nakamichi BX-300 cassette deck, at \$650 the company’s lowest priced three-head recorder. “If you’ve been dreaming about the quality deck you could never afford,” Stark concluded, “wake up to the BX-300.”

Zzzz . . . Reviewing Neil Diamond’s “Primitive,” Peter Reilly wrote “Undoubtedly Diamond has many fans, but then so do minor tranquilizers.”

—Steve Simels



Ortofon’s VMS-20E, 1974

speaker with a bandwidth of 45 to 20,000 cps (Hz), and Lafayette’s LA 230 WX stereo receiver with a rated output of 12 watts per channel. In “Audio Basics,” Hans Fantel concluded his alphabetical series of definitions of audio terms with “tweeters,” “watts,”



How Do You Improve On "... The Best Value In The World"?

Cambridge SoundWorks Introduces *New Ensemble*, *New Ensemble II* – and a new member of the family, *Ensemble III*.

Audio magazine once said our *Ensemble*® speaker system may be "the best value in the world." Since then, numerous critics have applauded our *Ensemble* and *Ensemble II* 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.

We're pleased to introduce new versions of our *Ensemble* and *Ensemble II* systems, as well as our new, ultra-compact *Ensemble III*.

The New *Ensemble*

New Ensemble is an improved version of our original dual-subwoofer/satellite speaker system. *New Ensemble* 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. *New Ensemble's* ultra-slim (4 1/2") subwoofers give you more placement flexibility than any system we know of.



So What's New?

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

1. *New Ensemble* uses a new 8" woofer with a very long "throw" for linear cone excursion and more accurate bass. An integral heat sink provides improved power handling.

2. *New Ensemble's* satellite speakers use the same speaker drivers and crossover as the original, but with new midrange and high frequency balance 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 that octave by 2 dB. *Ensemble* satellites have relatively less output in this range to avoid the "boxy" sound typical 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 high frequency control has three positions: A) The same balance as original *Ensemble*. B) A 2 dB high frequency increase. C) A 2 dB high frequency decrease. The switch can subtly increase the system's "airiness" (Increase) or it can reduce any tendency towards "edginess" (Decrease).

In terms of "real life" performance, we believe our *New Ensemble* system competes head-on with speakers selling for hundreds more. Available with black-laminate subwoofers for \$629, or with vinyl-clad subwoofers for \$549.



The New *Ensemble II*

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

New Ensemble II also uses 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.

Stereo Review said the original *Ensemble II* "performs so far beyond its price and size it can be compared only with much larger speakers at substantially higher prices." *New Ensemble II* carries on this tradition, outperforming other speakers in its category, including well-known models for about twice the price. Factory-direct price, \$439.

The *Ensemble III*

Now you can bring the clear, balanced wide-range sound of *Ensemble* speakers to a small, crowded room. Our new *Ensemble III's* satellite



speakers are only 4 1/2" x 6 1/2" x 3" and its subwoofer is 8" x 8" x 15".

Compared to *New 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.

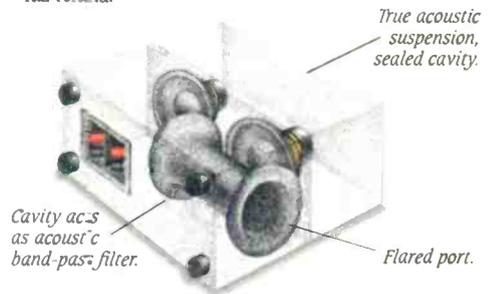
With most recordings *Ensemble III* will sound virtually identical to *New Ensemble II*. It simply won't play as loud. Its construction quality is normally found only in much more expensive speakers.

Factory-direct price, including connecting wire, cutter/stripper and Hook-Up Guide, is only \$329.



30 Day Home Audition.

All Cambridge SoundWorks speakers are backed by a 30-Day Total Satisfaction Guarantee. So you can audition your speaker the *right* way — in your home, with no salesman hovering nearby. If within 30 days you're not happy, return your system for a full refund.



True acoustic suspension, sealed cavity.

Cavity acts as acoustic band-pass filter.

Flared port.

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CIRCLE NO. 6 ON READER SERVICE CARD



SIGNALS

BY KEN C. POHLMANN

e-music

In the late 1890's only a few people had that high-tech invention the telephone, but even fewer had the highest of high-tech, an Edison cylinder player. The opportunity to listen to recorded music was a very rare treat. But Yankee ingenuity soon solved the problem. The owner of the cylinder player would crank up his telephone and send, say, four long rings down the party line as a special signal to his neighbors that a concert was about to begin. Then, holding the telephone's mouthpiece in front of the player's horn, he would play cylinders while his neighbors listened in on their phones. They could even shout their requests down the line. All in all, a remarkably efficient music-distribution system.

Today, the music-distribution system is quite different. Most of us have many players—a CD player or two, a cassette deck, and probably an old turntable—and we own individual copies of recordings. Integral to the distribution system is convincing people to buy those copies. In particular, record companies promote new releases to the public through radio airplay, music videos, live performances, print advertisements, and published reviews. We routinely sample new songs on the radio or VH-1 and then decide which CD's to buy. The consumer's ability to preview new releases is critical to the success of the venture.

Our music-distribution system was established soon after Edison turned his first phono crank and has been honed for effectiveness ever since. Today it is truly a slick money machine. But every record executive knows that times are changing. Increasingly, the target audience of young people is escaping the traditional music-distribution blitz. Many aren't tuned in when the video plays on MTV, they decide to pass on the concert, and they certainly aren't reading 1950's-style fan magazines anymore. These kids are busy elsewhere—specifically, tuned into the information superhighway.

Logically, many electronic-highway companies have noted the growing millions that log on every day, and increasingly, everywhere you look, they are using the electronic highways to promote new products. For example, while the Internet is trying hard to avoid commercial-

ization, there is little objection to posting free software. In many cases, software companies post demonstration versions of their products on the net, with a discrete advisory that the full version is for sale. Customers can download the demo, give it a test drive, and either purchase or pass. The beauty of it: It costs developer and consumer almost nothing to upload or download such a demo.

A case in point is the game *Doom*, whose phenomenal violence is matched only by its astounding success. Rather than launch their new product through traditional advertising channels, the code-meisters at id Software simply put a demonstration version of the game on the Internet. Within hours, the game had been downloaded by hundreds of thousands of enthusiasts, spreading over the globe like a virus. After nibbling on the demo version, customers flooded the developer with orders.

Clearly, this kind of promotion makes perfect sense for companies and customers interested in computer software

Even the tradition-bound record industry is exploring the electronic distribution of music.

and games—both parties are logged onto the highway every day, and it provides a perfect meeting point. But what about everyone else? The numbers suggest that "everyone else" will begin logging on as well. The sales of CD-ROM drives, sound cards, and modems continue to astound observers, and fully half of the muscled, multimedia-ready Pentium-processor PC's are being bought for home use. In other words, even if you're not a computer nerd, chances are you'll be spending more time online. Music lovers are already surfing the Internet in great numbers. There are countless music newsgroups and databases devoted to exploring topics as diverse as Debbie Gibson, tuba music, Dire Straits, Melissa Etheridge, preclassical European music,

Fuzzbox, Miles Davis, bagpipe music, Hindustani and Carnatic Indian music, and Led Zeppelin, to name a few.

All kinds of materials are being ported over to network file servers. The printed word, now called e-text, can be found in numerous sites. Most notably, the goal of Project Gutenberg is to give away one trillion books by December 31, 2001. Currently, about 100,000 free e-texts are downloaded each month from Gutenberg via the Internet into computers around the world. The complete texts of titles ranging from *Frankenstein* to Bill Clinton's inaugural address are available to anyone who connects to mrcnext.cso.uiuc.edu. Significantly, Project Gutenberg recently archived its first video (the Apollo lunar landing) and its first musical selection (Beethoven's Fifth Symphony). Just imagine—using that high-tech invention called the telephone, anyone with a computer and a modem can access a central storage space and download a bit of Beethoven, free of charge, very much like the neighborhood party-line distribution of the 1890's.

Even the tradition-bound record industry is not unaware of the possibilities of electronic promotion and distribution of music. Its customers are mainly young and completely comfortable with bits and baud. When Aerosmith launched its new album last spring, they previewed it on CompuServe, encouraging buyers to download one of the tunes for playback over their PC's. Warner Bros. and its affiliated labels are inaugurating an online preview service so that you can download 30-second samples of new titles weeks before the in-store release.

And electronic music distribution will become increasingly advantageous in the twenty-first century. The day is not far away when you will enter a series of musical preferences into your computer. Thereafter, it will continuously roam the electronic highways looking for old and new releases that may interest you. In particular, it will alert you to new releases that fit your preference profile. You'll be able to browse through the new album, preview its contents, then buy it, downloading the contents to your hard disk or a CD recorder. The traditional music-distribution methods will gently fade away.

Of course, if you're reading the electronic version of this column posted on America Online, this is already old news to you. □

Introducing *SoundWorks* By Henry Kloss.

We'll get right to the point. *SoundWorks* – our new 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 literally hundreds of applications, and thousands of people.

SoundWorks consists of a pair of satellite speakers (app. 3 1/2" x 3 1/2" x 3 1/2") and a compact, powered 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 high and mid frequencies all the way down to 150 Hz, without the need for a "midrange" driver. You can order *SoundWorks* with satellites finished black, or in "computer-beige." The satellites can be used as is, hung on walls using their back-panel keyhole slot, used with their supplied mini-stands, or they can be attached to a computer monitor with their velcro kit (supplied).

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 – on the floor behind your TV set, under your computer 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 portable CD player, a "set and forget" bass level control, and connecting terminals for the satellite



\$199

Not including CD player

Never Before Has So
Much High Quality,
Wide Range, Natural,
"Big" Sound Come
From Such A Small,
Affordable System.

speaker wires. It also has an input for 12 volt-so you can plug *SoundWorks* into the cigarette lighter in your car or boat!

The Sound.

"Amazing." "Remarkable." "Unbelievable." These are the words used by leading members of the audio press at the unveiling of *SoundWorks*. 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 sounds far better than any we've heard designed for that use). 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 it's small enough to pack in a suitcase, so you can travel with it.

The Price.

You can buy *SoundWorks* only factory-direct from Cambridge SoundWorks. Because we eliminate expensive middlemen, we can sell *SoundWorks* for only \$199. We haven't heard a system for anywhere near its price that we think sounds nearly as good. Period.

30-Day Risk-Free Audition.

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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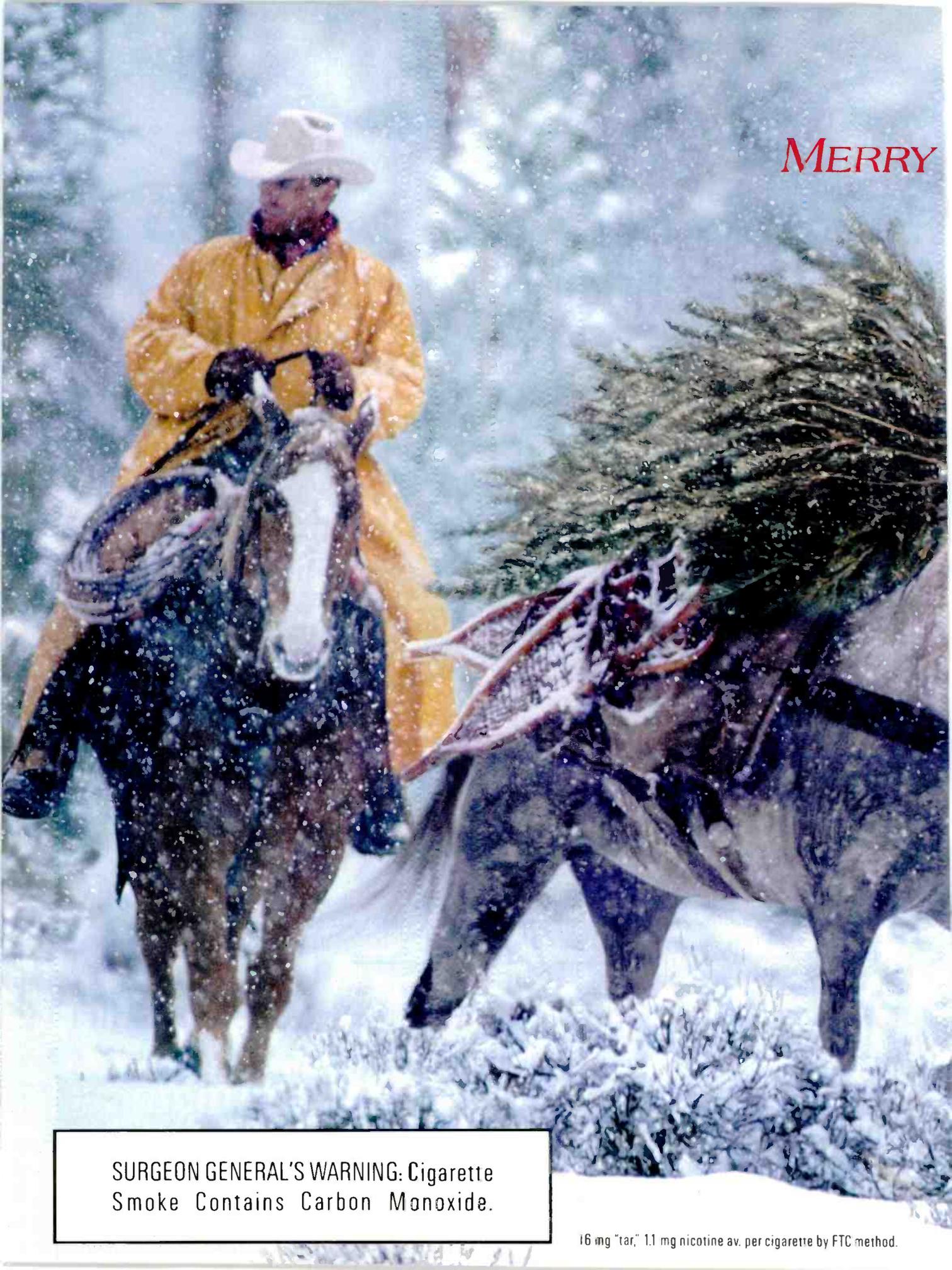
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CIRCLE NO. 6 ON READER SERVICE CARD

A man wearing a yellow raincoat and a light-colored cowboy hat is riding a dark horse through a snowy forest. The horse is pulling a pack animal, likely a mule or donkey, which is carrying a large evergreen tree on its back. The scene is filled with falling snow, creating a festive winter atmosphere.

MERRY

SURGEON GENERAL'S WARNING: Cigarette
Smoke Contains Carbon Monoxide.

16 mg "tar," 1.1 mg nicotine av. per cigarette by FTC method.

CHRISTMAS FROM MARLBORO COUNTRY.



CAR STEREO



Blaupunkt Velocity V250 Power Amplifier

KEN C. POHLMANN • HAMMER LABORATORIES

An amplifier is nothing more than a gain block: Its output is equal to its input multiplied by a constant. At least in theory. In practice, an amplifier also contributes noise and distortion to a greater or lesser degree. In addition, many amplifiers today do a lot more than just amplify. Particularly in the car market, where integration of function is a real asset, amplifiers increasingly contain crossovers and equalizers. The Blaupunkt Velocity V250 adds two features that are much less common—a limiter to prevent clipping and a noise gate to suppress background noise. Together, they make it much more than just a gain block.

On the outside, the Velocity V250 follows amplifier design convention with a flat-black, extruded-aluminum chassis bristling with heat sinks. On top of the chassis is a blue LED power indicator. As with most amplifiers, the connectors and controls are mounted on the chassis ends. In this case, one end holds all the connectors. A screw terminal provides contacts for battery power, ground, and remote turn-on leads. Two phono jacks accept line-level stereo inputs. Two other phono jacks are audio outputs, which are

hard-wired from the inputs and can be used to send the input signal to additional amplifiers. A standard RJ-11 telephone jack is used to connect the optional RM-1 remote control, which has two sliders to adjust the amplifier's gain and its HUSH noise-gate threshold. Another telephone jack is an output for those same control signals and can be used to daisy-chain additional amplifiers so that they can all be controlled from one remote. Four screw terminals are used to connect speaker leads; they accommodate up to 8-gauge wire. A 30-amp fuse also plugs into the chassis end.

The other end of the chassis holds four knobs and four switches. Two knobs provide bass and treble tone control, centered at 130 Hz and 6 kHz,

respectively, with ± 10 -dB ranges. Another knob sets the crossover frequency, either high-pass or low-pass, over a continuously variable range from 20 to 220 Hz. The fourth adjusts the amplifier's input sensitivity between 0.3 and 6.0 volts. A slide switch selects the crossover function: high-pass at 12 dB per octave; low-pass with a slope of 12 dB per octave at the 20-Hz setting, rising to 24 dB per octave at the 220-Hz point; or crossover off. Three more slide switches select stereo/mono mode, bass boost (+10 dB at 50 Hz) on/off, and THD_L limiter on/off.

The V250 contains the THD_L limiting and HUSH noise-gate circuits originally designed by Rocktron Corporation for professional, live-sound applications. They are aimed at two traditional amplifier problems—clipping and noise. When input levels become so large that the corresponding output is greater than an amplifier can deliver, the output waveform gets “clipped,” flattening the tops and bottoms of its excursion. This condition is particularly troublesome on musical peaks, where power demand is highest. The clipped waveform contains strong distortion components that may be both audible and dangerous to tweeters. One solution is to use a limiter, a circuit that is acoustically transparent at low levels but dynamically compresses signals as the levels become higher, which enables the amplifier to reproduce high average levels cleanly without gross clipping of signal peaks. Most limiters respond to the full-bandwidth signal, clamping down and releasing as needed. Such radical changes in the amplifier's gain can be quite audible, and the “pumping” effect is very unwelcome.

The THD_L circuit is more sophisticated. It is the huge power demands of high-level bass frequencies that typically push an amplifier into clipping. The THD_L circuit uses an input voltage-sensing circuit to look at the bass component of the incoming signal and adjust the feed-through gain of the amplifier within milliseconds. Bass peaks are compressed, so they will not force the amplifier into distortion, but middle and high frequencies can pass through without limiting. The resulting compression is less audible than

DIMENSIONS

9 3/4 INCHES WIDE, 2 1/4 INCHES HIGH, 7 INCHES DEEP

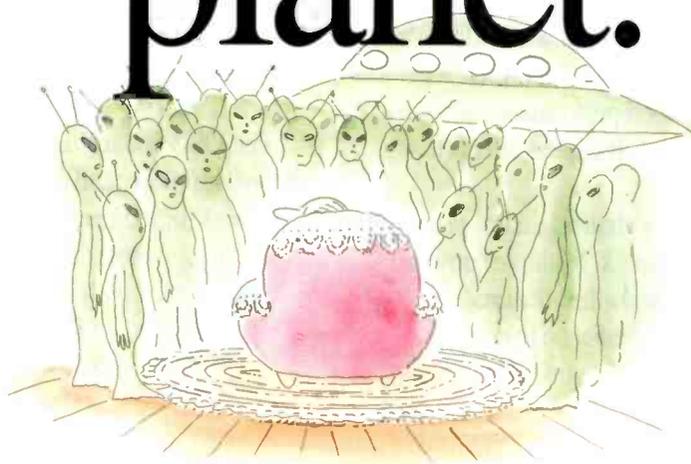
PRICE

\$320; RM-1 REMOTE CONTROL, \$50

MANUFACTURER

BLAUPUNKT, ROBERT BOSCH CORP., DEPT. SR,
2800 S. 25TH AVE., BROADVIEW, IL 60153

Adcom
designed
the GSP-560
to rival any
surround sound
system on the
planet.



Perhaps we carried



A new reason to be afraid of the dark.

Crunching footsteps behind you. Laser beams shooting over your head. Just a typical night at home with Adcom's new GSP-560 Surround Sound Processor/Amplifier. At Adcom's level of critically acclaimed performance it doesn't just produce surround sound. It creates effects that are out of this world.

The GSP-560 expands your two-channel audio system into a full five/six-channel home theater. Multiple surround modes, user selectable time delay and a full-featured remote give you the control and convenience to create a sonic experience that surpasses anything you've ever heard in a movie theater.

Award-winning technology takes you to the outer-limits.

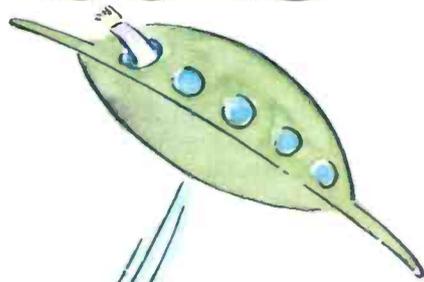
The GSP-560 features a high-current 80 watt center channel amplifier and a pair of high-current 40 watt amplifiers for the rear channels. It will accurately drive the most demanding loudspeakers, even those with impedance ratings less than 2 ohms.

The GSP-560 gives you a choice of Dolby Pro Logic, Concert Hall, Nightclub, and Five-Channel Matrix



INNOVATIONS '93
CONSUMER ELECTRONICS SHOW

e got a little away.



surround modes
so you can select
the listening
environment that best suits
your source and your mood.

Selectable time delay lets you optimize the surround performance precisely for the acoustics of your room. Additional 5-Channel Stereo and Bypass modes assure optimum enjoyment of audio-only sources.

The GSP-560 Surround Sound Processor/Amplifier follows in the footsteps of other critically acclaimed Adcom components. Its award-winning, life-like sound captures the attention of audio/video lovers throughout the universe.

Surround yourself now at your Adcom dealer.

Preview the new GSP-560 at your authorized Adcom dealer today, but be careful, you might want to leave the lights on.

ADCOM[®]

details you can hear

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CAR STEREO

conventional limiting, and the amplifier can effectively play louder across a wider frequency range. I would recommend leaving the THD_L limiter on all the time.

At the bottom end of the dynamic range, low-level noises stemming from installation deficiencies and source noise such as tape hiss can detract from music. The HUSH circuit is a noise gate that acts as a downward expander, attenuating soft signals below a certain threshold, and with them the noise. The threshold can be adjusted so that only very low-level signals are affected. The idea is to tune the setting so that when a masking music signal is present, the channel is open, but in the absence of a masking music signal, the channel is attenuated. By smoothly gating and ungating the signal as it passes over the threshold, the circuit reduces the perceived noise level, ideally without audible side effects. Blaupunkt claims that HUSH can provide 15 to 20 dB of noise reduction without affecting sound quality; reduction of up to 60 dB is possible, but at the expense of decreasing the audio signal's dynamic range.

The V250 contains a number of other interesting design features. When it is turned on, volume is ramped up over 1.5 seconds to prevent turn-on pops. An infrasonic filter removes spurious signals below 10 Hz from the input to conserve power and reduce distortion. A thermal-protection circuit decreases output when the temperature exceeds 170° F (80° C). There are also circuits to protect the amplifier from speaker short-circuits, connecting DC power to ground, and undervoltage and overvoltage conditions. The stereo amplifier is rated at 50 watts a channel into 4 ohms, and it can be bridged to mono for 100 watts into 4 ohms.

The V250 was solid on the test bench, meeting or exceeding its published specifications. Noise and distortion were quite low, and frequency response was completely flat except for a negligible low-frequency bump. Power output was healthy, exceeding specification with a 14.4-volt power supply (output was naturally somewhat lower with a 12-volt supply). Blaupunkt

MEASUREMENTS

Unless otherwise noted, all measurements made with 14.4-volt DC power supply, all channels driven into 4 ohms

Output at clipping

(14.4 volts, stereo/mono)

8 ohms	32/125 watts
4 ohms	58/155 watts
2 ohms	94/98 watts

Output at clipping

(12 volts, stereo/mono)

8 ohms	27/95 watts
4 ohms	45/120 watts
2 ohms	63/91 watts

Noise (A-wtd., re 1-watt output) ... -90.3 dB

Distortion (THD+N at 1 watt)

at 1 kHz	0.023%
at 20 kHz	0.011%

Frequency response

..... 20 Hz to 20 kHz +0.36, -0.08 dB

Channel separation (at 1 kHz) 78.4 dB

Damping factor 220

Sensitivity

(for 1-watt output) 40 to 800 mV

Current draw

(rated output into 4 ohms) 13.6 amps

Shutdown time

(rated output, 100 Hz) did not shut down

does not recommend bridged operation of the V250 into 2-ohm loads. Current draw at rated output was a modest 13.6 amps.

Installing the V250 did not pose any problems. I mounted it flat in a rear trunk using supplied screws; the chassis has integral mounting flanges. For this test, I configured the amplifier for stereo operation and switched the crossovers out of the circuit so that I could audition the full frequency spectrum. I hooked up a pair of line-level head-unit outputs to the V250's stereo inputs and connected the remote controller as well as a pair of full-range speakers mounted in the front doors.

I powered up the car's electrical system and adjusted the amp's input sensitivity with a test tone from a CD. I first checked out the gain control on the optional remote. It worked fine, but in this elementary installation it was essentially redundant with the head unit's volume control, though marginally better because it attenuated any slight noise introduced into the

system downstream of the head unit. It would be more useful in a multiamp setup. For example, if the V250 were dedicated to subwoofers, you could remotely control their volume independent of overall level.

I found remote control of the HUSH noise gate very useful. A noise gate can be tricky to adjust, and for optimal operation the threshold must be set according to background noise level, music level, and type of music. With the remote in hand, this kind of fine-tuning was easily accomplished. Better yet, during a lengthy audition I found the HUSH circuit to be musically transparent at levels above the threshold and extremely effective as a gate below the threshold. By nudging the threshold up and down, I was able to gate out low-level noise without significantly affecting music fidelity.

I next turned my attention to the THD_L limiter. The V250 is a 50-watt-per-channel amplifier in its stereo mode, and when push comes to shove, physics dictates that the amp will run out of gas at very loud levels. In fact, that is exactly what happened when I cranked up the amp with the THD_L switched out. When I switched it in, however, it successfully limited distortion, avoiding clipping even when the amp was aggressively overdriven. In short, it did an excellent job of squeezing out higher average sound-pressure levels without accompanying overload on peaks. Better yet, I could not detect any sonic penalty at low levels when the limiter was not being triggered. The THD_L limiter, coupled with the V250's outstanding basic performance, enabled this modestly powered amp to perform like a beefier animal, and the HUSH circuit helped minimize both install and source noise. Indeed, if you've had stubborn noise problems, a V250, installed by a good dealer, could be the answer to your prayers.

The Blaupunkt V250 clearly shows the direction of future car amplifier design—increased integration of function. With the kinds of features it packs tidily into one extruded chassis, together with excellent sound quality, you'd have to be crazy to mess with external components and interconnects and all the troubleshooting that kind of installation requires. □

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CIRCLE NO. 3 ON READER SERVICE CARD



TECH TALK

BY JULIAN HIRSCH

Audio Potpourri

A good many of my columns are inspired by questions and comments that come my way in correspondence from readers. With the year drawing to a close, I thought it would be a good time to wrap up some miscellaneous queries.

One reader wonders why the benefits of balanced signal lines are not as widely applied in consumer products as in professional components. For one thing, this feature is unlikely to yield any audible improvement in a typical home installation, but it could add significant cost. A balanced line carries the signal from one component to another through two *ungrounded* wires, using a separate lead to connect the electrical signal grounds at the two ends of the signal path. The purpose of this type of connection is to minimize pickup of noise or power-line hum on a long connecting path between two parts of a system. In commercial sound installations, where there may be numerous microphones and amplifiers at considerable distances from other parts of the system (a mixing board, for example), the advantage—or necessity—of a balanced signal path is obvious. In a home system (barring an elaborate multiroom installation), those conditions do not apply, and consequently there is little likelihood of any listening benefits from using balanced signal paths.

There are, nonetheless, some audiophile components that provide balanced as well as conventional unbalanced connections, which is a good thing for the occasional installation in which they can make a difference. And if balanced connections were as cheap as unbalanced ones, they would no doubt be commonplace. The additional circuitry required adds cost to the equipment, however, and balanced connectors and cables are much more expensive than simple shielded cables and RCA-type phono plugs and jacks.

Another reader recently encountered the idea that analog reproduction of music is superior to digital and wonders about the pros and cons of that controversy (and controversy it certainly is, now that the corresponding argument over LP versus 78-rpm recordings has become moot). Reams have been written on both

sides, and I do not propose to poke that hornets' nest! If a person finds the sound of an analog recording superior to a digital rendering of the *same performance* (otherwise we would be comparing apples and oranges), he or she is certainly entitled to that opinion.

For my part (and the direction in which the audio industry has grown over the past decade suggests that I am not alone), I think CD's and other digital formats are incomparably superior to analog media, such as LP's. That does not mean that analog recordings are worthless—there is much more than the medium to be considered in evaluating a recording. But I find digital recordings in general to be so much better than LP's that I can only marvel at how long this controversy has been with us.

Consider some of the characteristics of LP and CD recordings (excluding their musical values). An LP record, played

I consider CD's (and other digital formats) incomparably superior to analog recordings.

with a state-of-the-art cartridge, can have distortion percentages in the range of one to several percent. A mediocre CD player might have as much as 0.05 percent distortion, but less than 0.005 percent is much more typical (even in the lowest price brackets). I would be the first to admit that none of those distortion levels is likely to be audible at normal listening levels, but surely *less* distortion is preferable to *more*.

What about frequency-response uniformity (flatness)? Very few, if any, phono cartridges—regardless of price—have a response over the full audio range, 20 Hz to 20 kHz, that is flat to better than ± 1 or 2 dB. That is not bad, but just about any CD player will have a response error of less than 0.1 dB at those extremes, and a more typical variation is ± 0.01 dB or so.

What about noise—one of the basic weaknesses of analog recording? Between record-surface noise (hiss, ticks,

pops) and turntable rumble, it is unusual to achieve a signal-to-noise ratio (S/N) much better than 50 dB in LP playback. The most expensive, state-of-the-art turntables, cartridges, and phono preamplifiers can probably get the noise down to -60 dB, or even better. On the other hand, only a cheap portable CD player is likely to have a noise level as *high* as -60 dB, and typical home players run in the -90-dB range or better.

Personally, I can hear a -90-dB 1-kHz signal from a test CD only by turning up the system gain and putting my ear against the speaker grille. Under any normal listening conditions that I can imagine, a CD player has *no* audible noise. Any noise you hear probably comes from your amplifier (still analog!) or perhaps the recording itself, depending on its age and source.

But what about the claims that analog simply *sounds* better? It is difficult to argue with what someone hears, or claims to hear, even when it conflicts with what most other people hear and with what one knows by other means. One can subject such claims to carefully designed double-blind listening tests and thereby resolve which recording method is more *accurate*, or even the extent to which a stated preference is based upon actual perceived sound quality as opposed to other factors. But preferences themselves are fundamentally a personal matter.

I therefore prefer a more pragmatic approach. I don't care a hoot what someone else says he hears. No two people hear exactly the same thing, even under the most strictly controlled conditions, since "hearing" is ultimately a process of each individual's brain. And it is everyone's privilege to hear what he pleases and enjoy (or loathe) what he hears.

When I comment on the sound of something, it applies only to my personal reaction under (frequently) nonrepeatable conditions. Others will not necessarily hear the same thing or react to it in the same way. And I cannot comment on the sound of anything I have not heard or that I find not to have a sound of its own (a category that typically includes almost every part of an audio system except the speakers and the room). If more people were to take this point of view, I think there might be less bickering and insecurity about the sounds of various components and more plain enjoyment of the music played through them. □



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—David Ranada, STEREO REVIEW



THE ONKYO TX-SV919THX

In the August 1994 issue of Stereo Review, Technical Editor David Ranada had this to say about the Onkyo TX-SV919THX:

“Powerful, accurate, and clean with music, and especially when decoding soundtracks, Onkyo's standard-setting TX-SV919THX is the best A/V receiver I have ever tested.”

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TEST REPORTS



Sony DTC-60ES DAT Recorder

DAVID RANADA • TECHNICAL EDITOR

Home decks for the digital audio tape (DAT) format have always been a rare breed. They have never been an endangered species, though, because professionals have enthusiastically embraced the format as the most cost-effective way of making CD-quality 16-bit digital master tapes. In fact, the audio data on many music CD's passed through a DAT stage.

Sony, long a leader in the DAT format, makes three home models, the middle of which is tested here. All are suitable for making dubs of LP's and digital "clone" copies of CD's as well as professional-quality live or garage-studio recordings. With the \$1,200 DTC-60ES, however, Sony has gone beyond the capabilities of most professional DAT machines: It is one of two Sony home decks that incorporate Super Bit Mapping, or SBM (the other is the \$2,500 DTC-2000ES). Simply put, SBM enables the recording of a wider dynamic range than is theoretically possible with a standard 16-bit recording system. It does this by taking a better-than-16-bit signal from a high-resolution analog-to-digital converter and turning it into a 16-bit sig-

nal while shifting the irreducible, residual quantization noise away from where it would be most audible to where it would be least audible, above 15 kHz.

SBM is a recording-only process; SBM tapes are playable on any DAT machine. The noise and distortion reduction you obtain in playback of an SBM tape are proportional to the general quality of the digital playback system (more on this later). In the DTC-60ES, SBM is an analog-input-only operation and is turned on and off by a rather inconspicuous button to the upper right of the display window.

DIMENSIONS

18 $\frac{3}{4}$ INCHES WIDE, 4 $\frac{3}{4}$ INCHES HIGH,
13 $\frac{3}{4}$ INCHES DEEP

WEIGHT

13 $\frac{3}{4}$ POUNDS

PRICE

\$1,200

MANUFACTURER

SONY ELECTRONICS, INC., DEPT. SR, ONE SONY
DR., PARK RIDGE, NJ 07656

Besides SBM, the DTC-60ES has a host of useful features. Those directly affecting sound quality are 1-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters and three selectable sampling frequencies for the analog input: 48 kHz (the DAT and professional standard), 44.1 kHz for CD and MD compatibility, and 32 kHz to provide a 4-hour long-play mode. Analog-input sampling rate is determined by a front-panel slide switch. Sampling rate is determined automatically for digital input signals.

The availability of 44.1-kHz sampling with analog signals is important for would-be record producers, since the resulting tapes will be directly transferable to a CD mastering system without going through sampling-rate conversion, a process that under even the best of mathematical circumstances adds some noise to the signal. There is no audible advantage to the 48-kHz rate, and I use 44.1 kHz for all my live recordings. (Lack of 44.1-kHz analog-input recording is the principal fault of Sony's otherwise admirable TDC-D7 portable DAT recorder.)

Other features include an automatic in/out fader that operates on either analog or digital inputs, a clock whose time is automatically recorded during all taping, and a complete DAT subcode system that automatically inserts the DAT equivalent of CD track locators while recording. The subcodes

TEST REPORTS

give the DTC-60ES such CD-player features as track scanning, automatic track skipping, fast cueing, and programmed playback. They can be added, erased, or moved after the initial recording. There is also a CD-sync mode that starts recording in synchrony with compatible Sony CD players, as well as a crude timer-recording system that requires an external power on/off timer (this would have been the perfect use for that internal clock).

The DTC-60ES shows the status of most of these features, with the result

that the indicators are rather crowded on the front-panel fluorescent display and illegible from a distance. The display can show DAT track number, four time functions (date, elapsed time, remaining time, elapsed track time), tape-transport status (record, play, and pause), sampling rate, selected input, overload margin, the status of the various subcodes, and, naturally, the signal level. I would have liked more, and more prominent, transport indicators; from across the room it's hard to tell in which direction rapidly

changing timer digits are going. The useful recording-overload margin indicator shows in decibels how close the largest peak encountered approaches digital overload.

The deck has a full complement of back-panel connectors: phono-jack analog inputs and outputs and both optical and coaxial digital inputs and outputs. The recorder's remote duplicates most of the front-panel functions (including the subcode-editing functions) and adds controls for the various programmed-playback functions. Its buttons are too uniform in size and arrangement, however, and the transport controls are arranged differently from those on the front panel, which is an annoyance.

All our lab data involving the analog input stage and its A/D converters are referred to maximum input level, which with the DTC-60ES was just below the point where the red overload segments in the level meters lit up. That's about 0.3 dB below maximum digital data output, a very slight and absolutely inconsequential loss of dynamic range. Take those overload indicators seriously, by the way, because they really do mean overload. The instant those red lights go on, you are clipping the signal and introducing very large amounts of distortion; you cannot allow the signal to go "into the red" as you can with analog cassettes, although the audibility of the clipping will depend on the degree of overload and how long it lasts. On the other hand, you can run signals right up to that overload point with no audible change in distortion.

In contrast, the digital input cannot be overloaded, since it simply passes the digital data stream through, though there is nothing to prevent recording an already-clipped digital signal originating from, for example, a poorly recorded CD with its pre-existing distortion perfectly preserved. On the other hand, the digital input will correctly record only 16-bit signals. Greater-than-16-bit data seem to be truncated to 16 bits, which can produce more distortion in the signal than if it had been 16-bit to begin with. This limitation means that the benefits of SBM are not available to incoming digital signals, but then again, very

MEASUREMENTS

All data taken at 44.1-kHz sampling rate.

Fast-forward 48 seconds
Rewind time 47.3 seconds

Analog-to-digital

All measurements taken from the digital data stream and referred to maximum level. Unless otherwise noted, all data are for operation both with and without Super Bit Mapping (SBM).

Input sensitivity 410 mV
Frequency response
 20 Hz to 20 kHz +0, -0.25 dB
Distortion (THD+N)
 SBM off 0.0024%
 SBM on (see text) 0.0046%
Signal-to-noise ratio (A-wtd./CCIR-wtd.)
 SBM off 96.4/91.7 dB
 SBM on (see text) 95.6/94.4 dB
Linearity error <1 dB from 0 to -106 dB
Worst hum component -110 dB at 180 Hz

Digital-to-analog

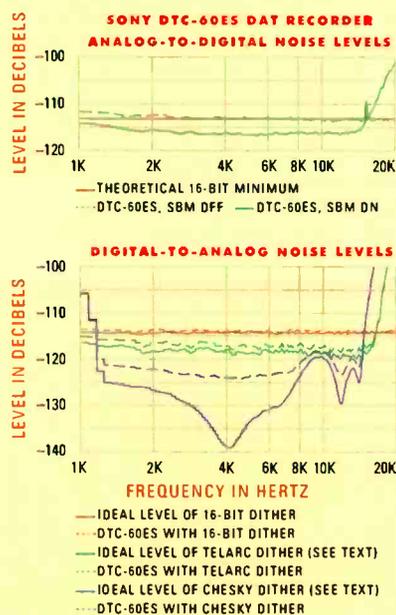
All data referred to analog output with maximum digital input. All test signals were dithered 16-bit digital.

Maximum output level 2.05 volts
Channel imbalance 0.02 dB
Frequency response
 20 Hz to 20 kHz +0, -0.1 dB
Distortion (THD+N)
 de-emphasis off 0.00273%
 de-emphasis on 0.00217%
Signal-to-noise ratio (A-wtd.)
 de-emphasis off 94.6 dB
 de-emphasis on 97.1 dB
De-emphasis error 1 dB
Linearity error <1 dB from 0 to -110 dB
Worst hum component -123 dB at 180 Hz

Analog-to-digital-to-analog

All data referred to maximum analog output with maximum-level analog input signal.

Maximum output level 1.98 volts
Channel imbalance 0.02 dB
Wow and flutter below measurability
Frequency response
 20 Hz to 20 kHz +0, -0.38 dB
Distortion (THD+N)
 SBM off 0.00305%
 SBM on (see text) 0.00460%
Signal-to-noise ratio (A-wtd.)
 SBM off 94.2 dB
 SBM on (see text) 94.2 dB
Linearity error <1 dB from 0 to -105 dB
Worst hum component -114 dB at 180 Hz



N E W

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TEST REPORTS

few nonprofessionals have access to the 18- or 20-bit digital signals that could make it worthwhile.

Our measurements are broken down into three categories: analog-to-digital, digital-to-analog, and analog-to-digital-to-analog. Data in the first category indicate the quality of the DTC-60ES's input stages, including the critical A/D converters. Good performance here is important for those who do live recording or hope that their recordings may one day be released on CD. The sound of such recordings will be only as good as the DTC-60ES's analog-to-digital conversion. The digital-to-analog measurements show how well the DTC-60ES reproduces DAT's, including those made directly from a digital source. These data also show how good the deck is when acting as an outboard D/A converter for a CD player or other digital source (it's easy to switch the deck into this mode). The analog-to-digital-to-analog measurements show the deck's overall performance—from analog input to tape to analog output—and are analogous to a cassette deck's record/play performance. A fourth set of data, for 16-bit digital-to-digital recording, is not printed because the results were *perfect*: Precisely the same audio data came out of the digital output on playback as were received at the digital input during recording. This digital cloning capability is one of the most important characteristics of the DAT format, one that is not obtainable with DCC or MD or with almost any consumer-level computer hard-disk recording system. Like all other consumer digital recorders, however, the DTC-60ES incorporates SCMS, the Serial Copy Management System, which prevents second-generation direct-digital copying—that is, digital copying of a recording that is itself a digital copy.

As for those lab measurements, practically all the numerical data show what would be excellent performance for an amplifier, let alone a tape recorder. The DTC-60ES is a stellar performer, better in all audibly significant respects than most of the first few generations of professional digital record-



ers (many of which are still in studio use). Of particular note are the linearity figures, which are superb in the digital-to-analog mode but, surprisingly, just as good in the much more difficult analog-to-digital direction.

Also of note, and deserving of some explanation, are the noise and distortion measurements, especially those for SBM operation. First, the numbers. The reason the signal-to-noise ratio (S/N) decreases slightly when Super Bit Mapping is turned on is that the conventional A-weighting scale used does not “ignore” frequencies above 15 kHz as much as your ear would at these low levels. Remember, it is into this very-high-frequency region that SBM moves lower-frequency quantization noise, hence the decrease in measured S/N with A weighting. Use of CCIR weighting, which more closely models the ear's response to low level signals, does show a slight improvement in S/N. Our distortion figures are for total harmonic distortion plus noise (THD+N) and thus reflect the increase in noise above 15 kHz when SBM is on.

The SBM improvement is quite a bit smaller than what one would expect from the graph on page 18 of the manual and the nearby statement that “the improvement in noise level for . . . frequencies lower than 3 kHz exceeds 10 dB when SBM is activated.” As our own graph shows, turning SBM on gives an S/N improvement of only about 4 dB at the ear's most sensitive frequencies (3 to 4 kHz), along with a telltale but inaudible rise in noise above 15 kHz. The benefit of SBM diminishes to about 2 dB below around 500 Hz, but the noise in that frequency region is dominated by comparatively

large, but also inaudible, power-line harmonics. Although the improvement afforded by the Super Bit Mapping circuit in the DTC-60ES is not spectacular, every decibel around 3 kHz helps. The most likely reason for SBM's failure to come even halfway to the claims made for it is that the A/D converters in the deck are not enough better than 16-bit devices to permit a greater improvement from the application of SBM. The manual, by the way, makes some statements that suggest the deck's A/D converters have 24-bit resolution, which clearly they do not (our measurements imply, at best, 17-bit performance); it's simply that data fed from the converters to the SBM system are in 24-bit format.

We were also interested in seeing how well the DTC-60ES's D/A converters preserved the benefits of noise-shaping 20-to-16-bit systems similar in effect to Super Bit Mapping. Our second graph shows both theoretically perfect performance and the DTC-60ES's actual performance when reproducing, through its analog output, signals fed directly to its D/A converters: the residual digital background noise of noise-shaped “20-bit” recordings from Telarc and Chesky (the 1-kHz hump in the Chesky traces is a test tone) and the dither noise of a theoretically perfect 16-bit recording. Although the DTC-60ES's D/A performance in no case matched theoretical limits, it did very well with these extremely difficult signals.

These observations are really nit-picking, however. We heard absolutely no noise or distortion from the DTC-60ES in actual use, playing all types of music at elevated, but still domestic, levels. The deck was sonically transparent not only when recording through the digital input but also when recording even the most difficult material through the analog input. This superb sound quality, in combination with the deck's outstanding lab measurements, ease of use, and full complement of features, means that even with its Super Bit Mapping switched off the Sony DTC-60ES is easily the best audio recorder STEREO REVIEW has ever tested. □

N E W

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Before attempting the operation of the Lifestyle® 12 home theater system, the following instructions should be carefully reviewed and memorized.

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TEST REPORTS



Definitive Technology BP8 Speaker System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Definitive Technology says that its bipolar speakers are designed to create a spacious, natural soundstage, closer to that of a concert-hall performance than that produced by most conventional (forward-radiating) models. The BP8, the newest addition to that series, has two identical sets of speaker drivers in a single compact, unobtrusive cabinet. One pair faces forward conventionally, while the other faces the rear, so that its direct output is reflected from the wall behind the speaker

DIMENSIONS
7 INCHES WIDE, 38 INCHES HIGH, 11 INCHES DEEP

WEIGHT
38 POUNDS

PRICE
\$399 EACH

MANUFACTURER
DEFINITIVE TECHNOLOGY, DEPT. SR, 11105
VALLEY HEIGHTS DR., BALTIMORE, MD 21117

enclosure. The two sets of drivers, which share a common enclosure volume and port, operate *in phase* (with their cones moving inward or outward simultaneously), so that their low-bass outputs tend to reinforce each other instead of canceling as happens with dipole (out-of-phase) radiators.

Each driver group consists of a single 5½-inch polypropylene-cone woofer and a ¾-inch soft-dome tweeter with magnetic-fluid cooling and damping. The crossover, at an unspecified frequency, is of the Linkwitz-Riley type to optimize the phase and frequency response through the crossover region. The enclosure was designed with a newly developed computer program and is said to rival the bass-loading characteristics of a transmission-line enclosure with a simpler and less expensive cabinet.

Another goal of the BP8's designers was to minimize diffraction, commonly caused by grille frames and external cabinet discontinuities, which can alter a speaker's imaging characteristics. The BP8 is a columnar design with rounded edges, just wide enough to accommodate the bass drivers. Instead of having a conventional grille, the entire cabinet (except for its top and bottom) is enclosed in a black (or, optionally, white) fabric "sock" that fits snugly around its full length and can be rolled down for access to the drivers. The top plate and the visible edges of the base are finished in either glossy black or genuine oak. The input connectors—multiway binding posts spaced to accept dual banana plugs—are in the bottom plate of the cabinet, which is slotted at the rear to accommodate the connecting cables.

We placed the BP8 speakers about 2 to 3 feet from the side walls and 18 inches from the front wall of the room, angled slightly inward, as suggested by the manufacturer. Their "raw" room response, averaged for both speakers, was unusually uniform across the full audio range, even in the bass region where room-boundary effects are usually quite prominent.

The close-miked response of the front woofer and its port (the rear response was identical) was flat within ±3 dB from 30 Hz to about 3 kHz. The composite frequency response,

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TEST REPORTS

formed by splicing the woofer measurement to the averaged room curve corrected for room absorption at high frequencies (they overlapped for about three octaves, from 300 Hz to nearly 3 kHz), was flat within ± 3 dB from 30 Hz to 20 kHz. Quasi-anechoic MLS response measurements showed an overall rise of 5 dB from about 1.2 to 15 kHz, with a couple of ± 2 -dB variations along the way.

The high-frequency horizontal dispersion of the system, over a 45-degree angle to its forward axis, was typical of systems using a $\frac{3}{4}$ -inch tweeter. There was less than a ± 2 -dB change up to 10 kHz, above which the off-axis output fell by about 6 dB at 15 kHz and 12 dB at 20 kHz.

The system's sensitivity was 90 dB, as rated. At a standard 2.83-volt input (equivalent to 1 watt into 8 ohms), the woofer distortion was between 1.5 and 2 percent in the upper part of its range (200 Hz to 2 kHz), reaching 5 percent at 53 Hz and 10 percent at 30 Hz.

Definitive Technology refers to the impedance of the BP8 and its companion bipolar systems as "compatible with 8-ohm outputs." That characterization is probably justified by the system's relatively high sensitivity, which enables normal listening levels to be generated with less input power than many comparably priced speakers need. Nonetheless, we measured a minimum impedance of 3.2 ohms at 240 Hz and dips to approximately 4 ohms at several other frequencies. The crossover to the tweeter appeared to be at about 3 kHz, judging from impedance and group-delay measurements.

Single-cycle tone-burst measurements indicated that the BP8 has an exceptional ability to absorb high-power transients without damage or audibly offensive distortion. We were able to "bottom" the woofer cones at 100 Hz with an input of 785 watts, although they absorbed 1,100 watts at 1 kHz (the amplifier's maximum into the speaker's 5.5-ohm impedance at that frequency) without difficulty. The tweeter, like most, was not damaged by high burst levels at 10 kHz, and the amplifier clipped at 1,470 watts into its 6.7-ohm impedance.

Listening to music via the BP8 speakers produced, in addition to the

expected performance, at least one surprise. Although solidly built, with internal bracing and 1-inch-thick high-density fiberboard front and back panels, the BP8 looks very compact, and, regardless of how it performs in the upper octaves, one does not normally expect a speaker of its modest proportions to fill the room with deep bass. Even when close-miked woofer measurements suggest extended bass response from such a speaker, it will sel-

The BP8's room response, averaged for both speakers, was unusually uniform across the audio range, even in the bass.

dom be capable of a really satisfying output level at the very bottom. After all, that is why we have subwoofers!

To get right to the point, the BP8 puts out enough clean sound in the 30- to 35-Hz region to create a room-filling, skin-tingling quality that one does not expect (and very rarely experiences) from an inconspicuous column and a pair of small cone drivers. To be sure, adding a good subwoofer can still make a real difference—but only with program material that contains significant deep bass in the first place. For most of what we think of as bass, down to 40 Hz or so, these speakers need no assistance.

Their imaging was excellent and often included the sense of space and "air" that is one of the desired benefits of a bipolar design. These speakers "grow on you" as you live with them (in contrast to some that outgrow their welcome rapidly). Considering its performance, modest size and cost, and ability to blend with almost any decor, we consider the Definitive Technology BP8 an outstanding value among floor-standing loudspeakers. □



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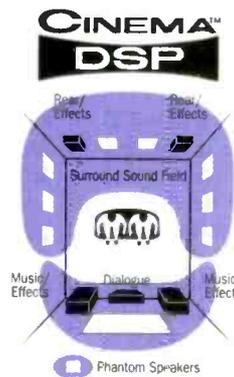
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TEST REPORTS



Pioneer PD-F51 Compact Disc Changer

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

If you're in the market for a new CD player, chances are you're looking for a changer. And it's easy to see why CD changers have become so popular. Aside from the convenience of providing extended musical programs of your own choice, most changers offer all the "bells and whistles" of typical single-play machines at little or no increase in price (or sacrifice of performance).

Pioneer's PD-F51 is distinctly different from other CD changers we have tested. For one thing, it is remarkably compact and does not look like the others. It is relatively deep and narrow, and it has a small front panel that has fewer control buttons than most other players. For another, it holds up to twenty-five discs in each of its two hinged internal magazines while retaining a front-panel slot for loading a single disc (No. "0") manually. The changer comes with an infrared remote control, which is not only handier to use than the front-panel buttons but is also required for programming some of the special operating modes.

Almost the entire front panel of the

PD-F51 hinges down (manually) to reveal two side-by-side disc magazines, or "racks," each of which hinges forward individually at the touch of a button to expose its twenty-five disc slots. The discs are loaded on edge, with their label sides facing to the right. After a magazine is loaded, it is pushed upward to latch it in place.

After the changer is loaded, its front panel can be hinged upward manually, revealing its display window surrounded by a number of control buttons of various sizes and shapes. These buttons include a power switch, an

eject button for the "Plus One" slot (the single-play disc position), and others that operate the basic transport functions: fast forward or reverse skipping or scanning, play, pause, and stop.

Other buttons switch the display between the elapsed time on the current track and the total playing time of the disc and program the machine to play all tracks on a disc or a single track. Three "Custom" modes enable a user to play any of the tracks on any of the discs (up to fifty selections) in any desired sequence. In the random-play mode, the changer can be set to randomize the tracks on a single disc or to randomly select discs as well as tracks (to a maximum of fifty tracks).

Aside from its special programming features, the PD-F51 operates much like any conventional CD player. For many, if not most, operations, we found its remote control to be easier and more convenient to use than the front-panel buttons. Unlike most other CD players, however, the PD-F51 does not display the total number of tracks or the remaining time (on either the current track or the disc), offering only the current track and disc number, the elapsed time in that track, and the total playing time of the disc.

The PD-F51 also has an ADLC (automatic digital level controller) feature that can be activated by a front-panel button to deal with the problem of level variation from disc to disc, which can cause an unwelcome jump in volume after a disc change. Apparently the ADLC is a compression circuit (it did reduce the output from high-level passages, although we generally preferred not to use it).

Another interesting feature is the "Power-On Demo" that can be activated on start-up to demonstrate all the possible displays that can appear in the front panel window. Since in normal (unprogrammed) operation the display is rather sparse, this feature is quite useful and informative. The PD-F51 was designed for compatibility with other Pioneer components, including tape decks with the CD Deck Synchro function (for synchronized taping of selected CD tracks) and components designed for System Remote Control (which enables a single

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WEIGHT

16 POUNDS

PRICE

\$615

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Model Ten-A



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Model Ten-A is a very small (4 1/2" x 6 1/2" x 3"), two-way acoustic suspension speaker that's ideal for an affordable Pro Logic system. Its small size makes it easy to place near your TV. And its balanced, natural sound will satisfy even critical listeners. It is acoustically identical to the satellite speakers in our *Ensemble III* system. Factory-direct price, **\$80.**

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Center Channel is a compact, two-way, acoustic suspension speaker that is acoustically identical to the satellite speakers in our *New Ensemble®* and *New Ensemble II* speaker systems.* Its wide-range, well-dispersed, balanced sound and high power handling capability make it one of the country's best values in a center channel speaker. Factory-direct price, **\$149.**

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Because of its ultra-wide, ultra-low

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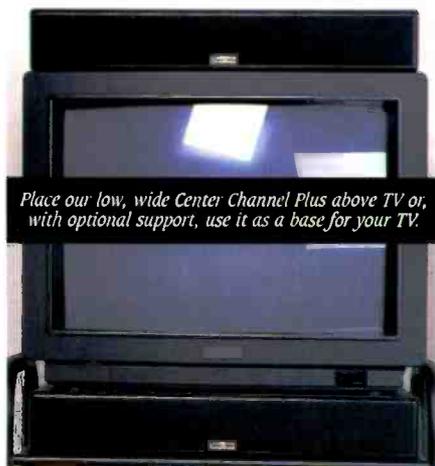
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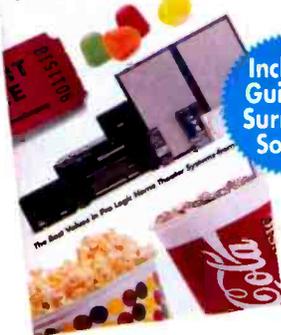


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TEST REPORTS

remote to control the CD player as well as the other system components).

Clearly, the Pioneer PD-F51 is a different sort of CD player in its design and operating features, but what about its performance? Playback frequency response was very flat, within 0.1 dB overall from below 15 Hz to 9 kHz and down a mere 0.5 dB at 20 kHz. The level difference between channels was a minute 0.04 dB. Maximum output level was about 0.38 volt (1.5 dB) above the 2-volt standard, but that's not enough to cause any problems. Distortion was low, typically about 0.003 percent at a 0-dB (maximum) level from 20 Hz to 2 kHz and less than 0.006 percent up to 17 kHz. At 1 kHz the distortion was well under 0.003 percent at all levels.

Low-level linearity of the digital-to-analog (D/A) converters was excellent (typical of 1-bit converters, although Pioneer does not specifically identify that design detail). Even at -90 dB the amplitude error was less than 0.4 dB. And the measured dynamic range was outstanding.

The change cycle for discs in the same magazine section (Nos. 1-25 or Nos. 26-50), took less than 2.1 seconds (considerably less for adjacent



discs). Not unexpectedly, the time was appreciably longer when a magazine change was required, about 10 seconds from Position 1 to Position 26.

Although the PD-F51 is relatively heavy, and appears to be solidly constructed in its operating mechanism and related parts, its top/side cover is a comparatively light-gauge piece of aluminum. We found that a moderate slap on the cover could induce a momentary mistracking dropout. The changer was able to play through relatively large gaps in the information layer, however, up to 2,000 micrometers in length, without mistracking audibly.

The PD-F51 is very easy and logical to use once you have read the instructions. The twenty-page manual is clear and explicit, but it *must* be read and understood, in combination with some hands-on practice, if you wish to make use of many of the player's special features. Unexpectedly, I found the single-disc playback capability to be one of the most useful features. Just insert a disc partway, and it is silently drawn inside and played. When the eject button is pressed, the disc reappears silently and can be withdrawn. The absence of a sliding single-disc drawer makes this feature especially attractive.

My only real complaint about the design (and it is a minor one) concerns the display's inability to show disc, track, and time information simultaneously. Overall, the Pioneer PD-F51 is an impressive combination of imaginative design and function, with as near to state-of-the-art performance in most respects as we have seen and with no significant design or operational weaknesses. □

MEASUREMENTS

Maximum output level	2.38 volts
Frequency response	20 Hz to 20 kHz +0, -0.5 dB
Channel separation	
100 Hz	120 dB
1 kHz	110 dB
20 kHz	86 dB
Dynamic range	108 dB
Quantization noise	-92.3 dB
Distortion (THD+N)	
1 kHz (-50 to -10 dB)	0.002%
20 Hz to 2 kHz (0 dB)	0.003%
20 kHz	0.009%
Linearity error (at -90 dB)	0.36 dB
Max. interchannel phase shift	0.22°
Defect tracking	
(Pierre Verany #2 test disc)	2,000 µm
Impact resistance (top and sides)	B
Disc-change time	
same magazine	2.1 seconds
between magazines	1C

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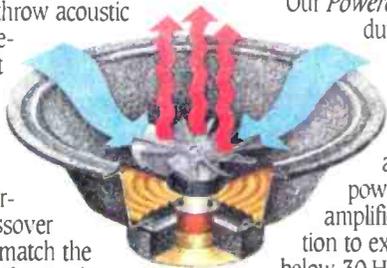
Stereo Review

A semi truck landing after a 20 foot fall in *Terminator 2*. The heavy pounding of feet of a T-Rex in *Jurassic Park*. These are examples of the ultra-low, ultra-strong bass signals on today's movie soundtracks. Such frequencies are rare in music, and are beyond the capabilities of most speakers designed for music.

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Our Slave Subwoofer.

For all-out home theater performance, you can add our optional *Slave Subwoofer*, which is identical to our *Powered Subwoofer*,

except that it lacks the amplifier and controls. It uses the amplifier and controls built into the *Powered Subwoofer*. The combination reproduces a below-30 Hz signal cleanly to a sound pressure level of over 100 dB in a 3,000 cubic foot room! That's enough clean, deep bass for the largest home theaters. Factory-direct price, \$299.

"...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."

Stereo Review

Our Powered Subwoofer II.

Our *Powered Subwoofer II* uses a heavy duty 8" acoustic suspension woofer in a vinyl-clad cabinet that also holds a 120-watt amplifier. The *Powered Subwoofer II's* 8" woofer has a very long (3/4") "throw" for powerful, linear bass response. Its amplifier employs electronic equalization to extend uniform output to well below 30 Hz. Bass performance is, in fact, identical to that of our *Powered Subwoofer*, although total acoustic output is not as suitable for exceptionally large rooms. There is also no provision for connecting a "slave" subwoofer.

The woofer uses a unique heat sink, instead of a dust cap (see illustration). An input gain control and a variable low-pass filter let you match *Powered Subwoofer II* to

any speaker system. Factory-direct price, \$399.

Satisfaction Guaranteed.

With our 30-day money-back guarantee you can audition these speakers the *right* way - in your home, listening to your music, with no salesman hovering nearby. If within 30 days you aren't entirely happy, return your system for a full refund. We even reimburse original UPS ground shipping charges in the continental U.S.

"I was taken aback by the ability of your Powered Subwoofer to fill my living room with ultra-low bass...I am extremely impressed with your product and will not hesitate in recommending it to anyone interested in serious bass. I am an extremely happy bass-a-holic." Guy C., Customer

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TEST REPORTS



Hsu Research HRSW12V Powered Subwoofer

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Hsu Research specializes in subwoofers—loudspeakers that operate only at very low frequencies where the output of a conventional “full-range” speaker begins to fall off. Although some speaker advertising can be misleading in this regard, the bass modules that extend the range of small satellite speakers lacking the ability to generate useful signals below 150 Hz or so are rarely true subwoofers. In most cases they are simply the system’s woofer and themselves roll off below 50 Hz or so. A subwoofer, as I understand the term, is a speaker that operates only in the low bass (certainly not over 100 Hz, and sometimes only below 50 Hz) to extend a system’s response downward by one or two octaves to the lower limit of audibility.

The new HRSW12V from Hsu Research, which sells its products factory-direct only, is a true subwoofer no matter what your definition might be.

It doesn’t look much like a loudspeaker (an important consideration for anyone trying to avoid violence to room decor), bearing more resemblance to an end table than an audio component. It is cylindrical in shape and drum-like in its proportions, 23 inches in diameter, 22 inches high, and supported 2½ inches off the floor by three sturdy (but not needle-pointed) feet. It is cov-

DIMENSIONS

23 INCHES IN DIAMETER, 22 INCHES HIGH

WEIGHT

60 POUNDS (ABOUT 70 POUNDS IN CARTON)

PRICE

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MANUFACTURER

HSU RESEARCH, DEPT. SR, 20013 RAINBOW WAY,
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ered by a tightly fitting black cloth sleeve except for the top, which is a ¾-inch-thick gray speckle-finished disc of what Hsu calls Zolatone granite (it has the look and feel of stone).

The driver, a 12-inch cone with a long-throw voice coil, was developed specifically for this application and is mounted on the bottom of the enclosure, facing downward. Its shielded magnet structure enables the speaker to be placed close to a video monitor or TV without affecting the picture. Also on the bottom is a port, 3½ inches in diameter, terminating a tubular duct that extends most of the way to the top of the enclosure.

The HRSW12V is normally powered by an internal amplifier, accessible from the bottom of the speaker, but the system is also available with the amplifier external to the speaker. Hsu says the amplifier can deliver 150 watts to the speaker’s 3-ohm nominal impedance. It includes a Linkwitz-Riley crossover network (a plug-in module) with 24-dB-per-octave slopes. The standard crossover frequency is 91 Hz, but a number of other choices, from 28 to 155 Hz, are also available.

The amplifier has a phase-inversion switch to facilitate blending the subwoofer’s output with that of the main speakers, a defeatable soft-clipping circuit to reduce harmonic distortion and improve reliability, an infrasonic filter to prevent overload, an equalizer circuit to flatten the subwoofer’s response, and a bypass switch for the crossover network, intended primarily for use in Home THX systems with a crossover built into the controller. The line-level signal inputs are standard phono jacks (for left and right channels) whose input impedance of 100,000 ohms is compatible with any preamplifier or other signal source. A second set of jacks carries the high-pass output from the crossover to the regular main-amplifier section, removing the low-frequency portion of the signal from the front speakers (desirable but not essential). A pair of screw terminals is also provided to accept input to the subwoofer crossover and amplifier from the loudspeaker outputs of the system’s main amplifier.

The amplifier panel contains, in addition to the several switches and con-



In-Wall Speakers By Henry Kloss.

Inside.

We Don't Know Of Any Other In-Wall Speakers That Match Their Performance, Durability, Value And Ease Of Installation.

Cambridge SoundWorks manufactures two different in-wall speaker systems designed by Henry Kloss (founder of AR, KLH & Advent). The in-wall version of our *Ambiance*[™] speaker is designed for use indoors. The in-wall version of our all-weather speaker, *The Outdoor*, is suitable for use on the patio, by the pool...even on boats.

Both systems deliver the wide-range, accurate, natural sound people expect from Cambridge SoundWorks. Both systems are covered by our 7-year parts & labor warranty and our 30-day money-back guarantee. And because we sell only factory-direct, with no expensive middlemen, both systems represent outstanding values.

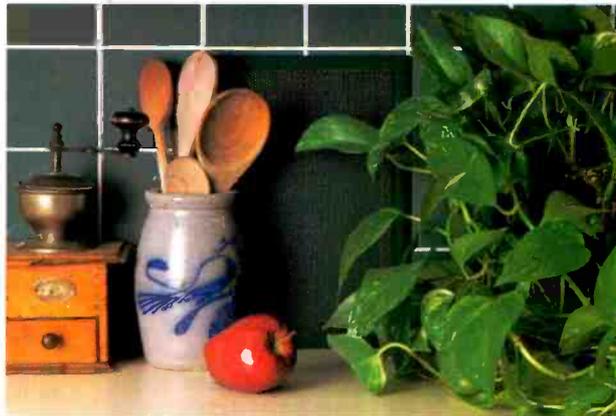
Ambiance In-Wall Speakers.

We don't know of *any* ultra-compact speaker - at *any* price - better than our *Ambiance* speakers. (Also available in free-standing cabinets.) Henry Kloss chose a very wide dispersion tweeter for *Ambiance* In-Wall. It delivers accurate midrange/high-frequency response over a very wide pattern, so you can place the system very high - or very low - on a wall and still hear realistic stereo imaging anywhere in the room. This flexibility can be very important for in-wall installations.

We don't know of any loudspeaker its size with better bass response than *Ambiance* In-Wall. *Stereo Review* magazine said "They easily held their own against substantially larger, more expensive speakers...a lot of good sound at a hard-to-beat price." Factory-direct price, \$329 pr.



8 1/4" wide x 11 3/4" high x 3 3/4" deep (below mounting surface) x 3/8" (above mounting surface, including grille).



And Out.

The Outdoor In-Wall Speakers.

The Outdoor In-Wall speaker is very similar to *Ambiance* in overall sound, and has the same wide dispersion pattern. It is slightly more efficient, so that it can produce high volume levels with a reasonably powered receiver - which is very appropriate for an outdoor speaker. It has an electro-plated steel grille and a slim-line enclosure with a braced polymer shell. Unlike other in-wall systems, its mounting frame is integrated with a fully sealed enclosure that provides not only weather resistance, but also proper acoustic loading for the speaker drivers. It includes

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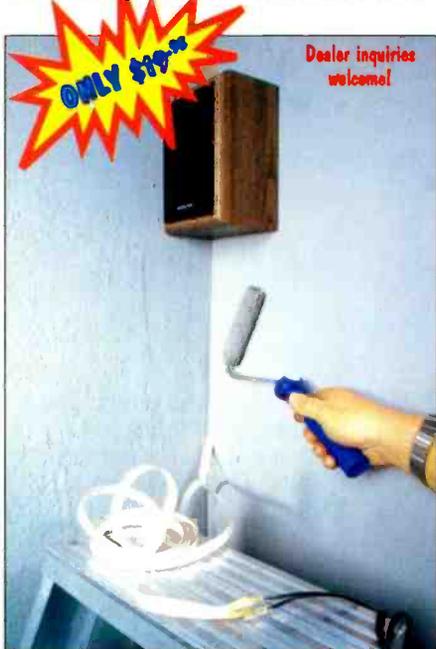
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nectors, a level-control knob and line fuse. When purchased as an external component, the amplifier is housed in a gray patterned case about 9¾ inches wide, 7¼ inches high, and 5½ inches deep, with external heat-dissipating fins on its front panel.

A unique feature of the Hsu powered subwoofer is its recommended placement—close to the listening position. Although a subwoofer's location is usually undetectable by ear, subs are typically installed at the front of the room somewhere in the vicinity of the main speakers.

The HRSW12V's crossover network places the subwoofer's output in phase with that of the main speakers,

A unique feature of the Hsu HRSW12V subwoofer is its recommended placement—close to the listening position.

but delayed by a full wavelength. If the subwoofer is located one wavelength closer to the listener than the main speakers, their outputs will be more nearly in phase where it counts—at your ears.

At the standard 91-Hz crossover frequency, that spatial difference amounts to about 10 to 15 feet, so that in most installations where the listeners are at that distance from the main speakers, the deep-bass output of the subwoofer and the sounds from the main speakers will reach the listener at nearly the same time. Whether this produces an audible effect is perhaps debatable, but certainly any difference should be toward more accurate sound reproduction.

There are other advantages as well. If the subwoofer is very close to the listener, its direct sound output predominates and room effects (which can be considerable at the very low

frequencies) are minimized. Also, being immediately adjacent to the subwoofer results in higher levels at the listener's ear, requiring less power for the same listening level.

Measuring the performance of a subwoofer like the HRSW12V is both easier and more difficult than for a full-range speaker. On the one hand, an anechoic environment (other than the outdoors) is almost impossible to obtain, and interaction with the room boundaries makes distant-mike measurements impractical. So the only practical procedure is to use close-miked (near-field) measurements, as we normally do with the woofers of conventional speakers.

Depending on the signal (sine wave, swept noise, or wide-band noise with a swept filter) and the exact placement of the microphone relative to the cone (and the vent, in this case), a variety of response curves can be generated. We tried all of these methods, and a general pattern emerged from the plots.

The speaker's response was down 3 dB at 23 Hz and about 6 dB at 20 Hz. At the upper end of its range, it was typically down 3 dB at 75 Hz and 6 dB at the 90-Hz crossover frequency (as rated). Its total harmonic distortion plus noise at a 100-dB level measured at the outer diameter of the enclosure was a minimum of 0.4 percent at 55 Hz, rising to 7 percent at 20 Hz and 2.2 percent at 90 Hz. A spectrum analysis of the output at 50 Hz under the same conditions, but using a separate, unequalized amplifier, showed second and third harmonics slightly below 0.1 percent, a very low figure for a speaker in that range.

In use, the HRSW12V did a fine job. There was never an audible clue to its location next to the listener, and it provided the tactile full-body stimulation in the lowest octave that is the real justification for using a subwoofer. A final comment on that: The speaker makes a convenient seat during a listening session, but in that case the massage it delivers to the listener (sitter?) is a constant reminder of its presence!

The HRSW12V is one of the most potent subwoofers we have used. Sonically, it is all one could wish for, and the price is right. □

Chances are, a perfect evening consists of unplugging the phone, centering yourself in front of your audio system and getting lost in your favorite recordings. And we bet when you're not listening to music, you're working so you can buy more music. Admit it, you're obsessed.

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This approach to music has attracted its share of fanatics. People like our principal audio designer, John



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Pinnacle AC 650 Loudspeaker System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Pinnacle Loudspeakers recently introduced its Audio Cinema line, designed to meet the needs of home theater installations as well as conventional high-fidelity applications. The Audio Cinema series currently comprises seven full-range speakers, four of them magnetically shielded for use in close proximity to a TV receiver or monitor, and a passive subwoofer.

The AC 650, roughly in the middle of the line, is the smallest of the three unshielded speakers. It is a compact two-way system based on a 6½-inch treated fibercone (plasticized) woofer with a rubber surround operating in a vented enclosure. There is a 12-dB-per-octave crossover at 2.5 kHz to a ¾-inch soft-dome tweeter with magnetic-fluid cooling and damping. Like other Pinnacle systems, the AC 650 uses the company's patented Diaduct bass-loading system, with the internal duct tube at an acute angle to the cabinet walls, which is said to enable greater bass extension than a given size of cabinet and driver could otherwise have.

The cabinet is finished on all sur-

faces in a vinyl wrap that looks and feels remarkably like real wood. All the front edges of the cabinet are beveled. The removable black cloth grille fits snugly into the front panel recess, and the drivers are approximately centered in the panel area. The back panel contains recessed five-way binding-post connectors and the Diaduct port.

For proper operation, the rear of the AC 650 must be at least a few inches

from the wall, and Pinnacle says that for best performance the speakers should be about 30 inches off the floor and at least a foot from the wall. We installed them on 26-inch stands 2 feet out from the wall.

The averaged room response of the two speakers spliced readily to the near-field bass response curve to form a composite response curve that varied only ±3.5 dB from 35 Hz to 20 kHz. The portion below 2 kHz was a few decibels stronger than the range from 3 to 10 kHz, but the overall response was impressively uniform. In the uppermost octave (10 to 20 kHz), the output climbed back to the overall average level. A quasi-anechoic MLS frequency-response plot confirmed the basic shape of the measured room response, with a variation (on-axis, at 1 or 2 meters distance) of about ±2.5 dB over the 300-Hz to 20-kHz range of this measurement.

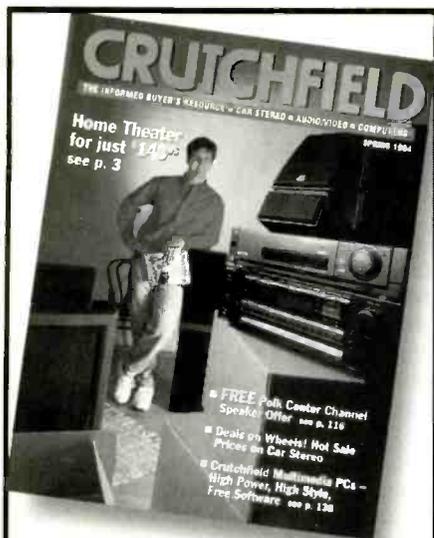
Horizontal dispersion, measured at 45 degrees off-axis with a swept one-third-octave random-noise signal, was typical of small dome tweeters. Up to 10 kHz, the on-axis and off-axis response curves were within about 2 dB of each other, diverging at higher frequencies. At 15 kHz, the off-axis output was down about 8 dB, and at 20 kHz it was down 15 dB relative to the axial response.

The system's impedance curve had two peaks in the bass, 18 ohms at 27 Hz and 20 ohms at 80 Hz. The impedance was a very uniform 3.8 ohms (the minimum value) to 4 ohms from 120 Hz to 1.5 kHz, reached just over 9 ohms at 4.8 kHz, and was 5 ohms or less from 10 to 15 kHz. Pinnacle nonetheless rates the system at 8 ohms nominal impedance and says that it has found the speaker to perform well with a wide variety of receivers and amplifiers.

That claim is probably justifiable in light of the AC 650's relatively high sensitivity rating of 91 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input of pink noise, which suggests that only a moderate amount of power will ever be needed for a comfortable listening level. Our measurements confirmed the 91-dB sensitivity rating.

Woofer distortion was very low at

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our standard test level (corresponding to a 90-dB SPL output, in this case 2.5 volts). Over most of the woofer's range, from 80 Hz to 2 kHz, the distortion readings were between 0.6 and 1 percent. Even at lower frequencies the distortion remained low, reaching 2 percent at 60 Hz and 5 percent at 30 Hz—impressive performance for a 6½-inch woofer.

In our pulse power-handling tests, the woofer reached its suspension limits with a loud rasp (but without damage) with a single-cycle 100-Hz input of 350 watts. It is safe to say that very few people would ever attempt such abuse deliberately, but it is also reassuring to find that this little giant could survive such treatment without permanent damage.

As always, the acid test of a speaker is in the listening. Considering the AC 650's low price, we were already quite impressed by its measured performance, but we nevertheless found the listening evaluation to be the most surprising part of the test. To put it as simply and directly as I can, the Pinnacle AC 650 does not sound like any speaker of its price that I have ever heard. To be sure, there are some excellent speakers in its general size range, but they typically sell for at least several times as much.

The pair of AC 650's created a soundstage comparable to some of the best I have previously heard in my

home. Their stereo presentation was flawless (the imaging test signals of the Chesky JD37 CD appeared and moved exactly as they were supposed to, which some speakers at ten times the price have failed to achieve), and their tonal balance, from bass to treble, was superb. There was no artificial boom, honk, or sizzle, or any other unnatural effect that I could find.

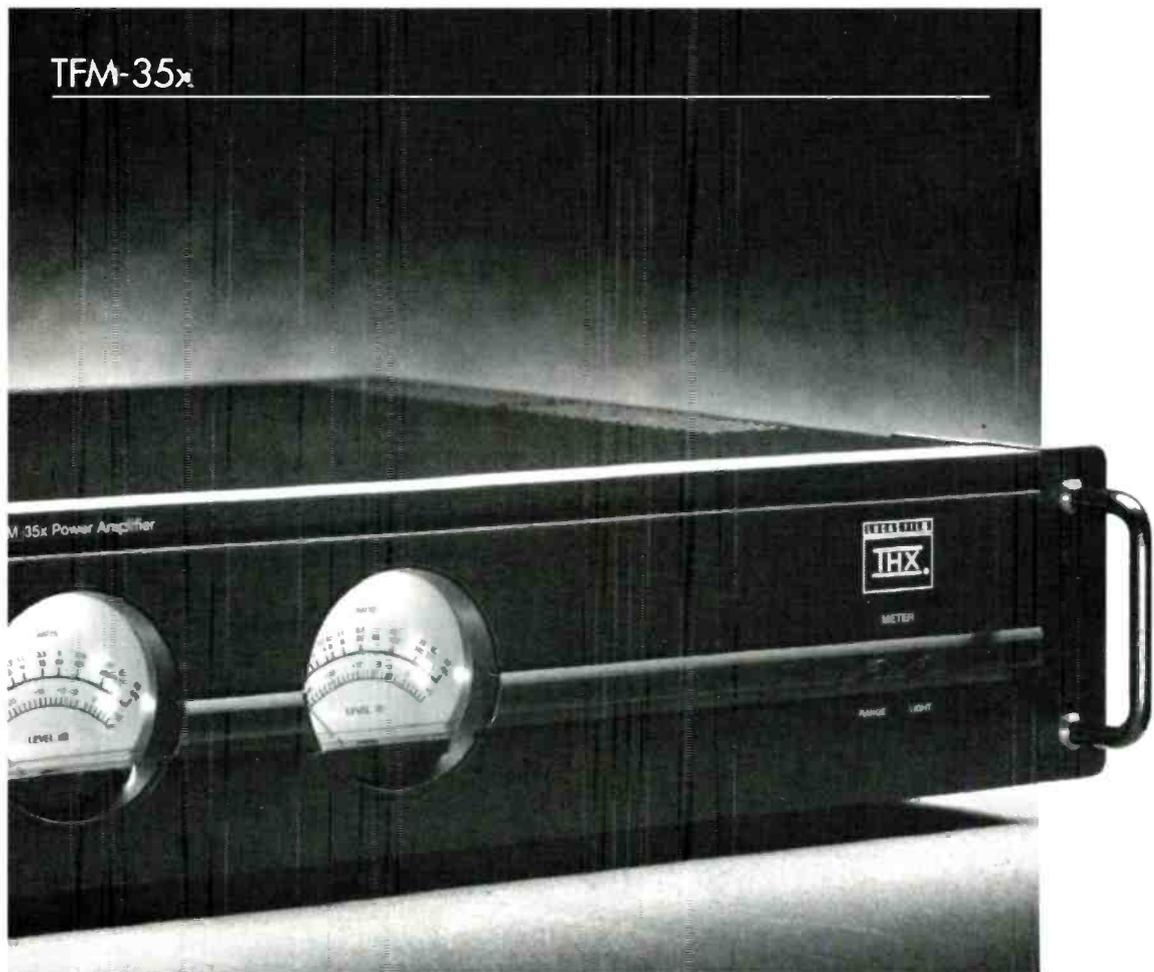
Also, these speakers do not have to be treated with kid gloves. As I began to appreciate their special qualities, I tried to find their Achilles' heel, but it eluded me. They will play as loud as I would ever wish to listen to orchestral music at home (85 dB average SPL in a 15 x 20-foot room) without sounding strained.

It has been a long time since I last encountered an inexpensive speaker that could go toe to toe with others many times its price and more than hold its own. If I had heard the Pinnacle AC 650 in an audio showroom or at a hi-fi show, I would have assumed that everything had been carefully "tweaked" (when I finally get such a speaker on my own turf, it rarely produces the effect that caught my attention in the first place).

The Pinnacle AC 650 is well worth going out of your way to hear. I cannot imagine another speaker in its price range that can surpass its overall sound quality—but, as always, you'll have to listen and decide for yourself. □



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Atlantic Technology System 250 Home Theater Speakers

DAVID RANADA • TECHNICAL EDITOR

Atlantic Technology now has two home theater speaker systems in its product lineup. The System 250 is the more costly of the two, but all six of its component speakers are available separately as the 250 Series. When you buy them as a complete system (\$1,446), you get two boxes. One contains the subwoofer, the other the five remaining speakers.

The most conventional of the lot are the 251 LR front-channel speakers (\$299 a pair), which are used as the basic left/right pair when reproducing stereo music. Each 6 x 13 x 8½-inch magnetically shielded enclosure contains a ¾-inch dome tweeter with magnetic-fluid cooling between two 4-inch polypropylene woofers in a vertical array. Nominal impedance is given as 8 ohms and sensitivity as 90 dB sound-pressure level (SPL) at 1 meter with a 1-watt input. Recommended amplifier power is from 10 to 150 watts.

Setup instructions for the 251 LR's make too much of placing them so that the distances from each speaker to the closest three room surfaces are dif-

ferent. Although that is a good general guideline, it becomes less important when the bass comes from a separate module, as it normally would with these speakers. The manual does not mention how high up to position the 251's, but they should be near, or aimed at, your ear level when you're seated.

The 253 C magnetically shielded center-channel speaker (\$279) is described as "timbre adjusting." On its back panel are controls for adjusting its midrange and treble output to match its sound with that of any speakers outside the 250 Series that it might be used with. Settings are given for best match with the 251 LR's, so no experimentation is necessary to get that right. The 253 C has the same driver complement, nominal impedance, sensitivity, and recommended amplifier power as the 251 LR's, but it is designed for horizontal placement, with dimensions of 15 x 6¾ x 7¾ inches. It comes with an ingenious wooden base that lets you tilt the speaker up or down to aim it at the main listening area when it is placed above or below a TV screen.

The 254 SR surround speakers (\$299 a pair) operate in the now-familiar quasi-dipole mode, with high-frequency radiation directed primarily away from the listener, toward the front and back of the room. This radiation pattern is obtained by the use of two 3½-inch polypropylene "mid-tweeters" driven out of phase with each other. The woofer is a 4-inch polypropylene cone. Nominal impedance is given as 8 ohms, the minimum as 6 ohms. Sensitivity and recommended amplifier power are the same as for the 251 LR and 253 C. Dimensions are 9½ x 10½ x 3¼ inches, and weight is 8½ pounds. For wall-mounting, Atlantic Technology provides a metal bracket that is screw-fastened over the connection-terminal recess on the rear of the speaker. Connectors for the 254 SR, like those for the 251 LR and 253 C, are multiway binding posts.

Bass for the System 250 is supplied by the 252 PBM (Powered Bass Module, \$569), a woofer with three power amplifiers (each rated at 40 watts into 4 ohms) that can be used in various ways. In the simplest setup, which Atlantic Technology calls the "passive" mode, all that power (90 watts when summed in this way) is delivered to the 252 PBM's 12-inch driver. In this mode, the other speakers in the system are driven directly by an A/V receiver or amplifier, which feeds its signal to the 252 PBM from either its front-speaker connections or a dedicated line-level subwoofer output.

The speaker-level inputs in the 252 PBM's rear panel are push-connectors. The rear panel also contains the crossover-frequency selector switch, which has two settings: 80 Hz and 120 Hz. Atlantic Technology recommends 80 Hz for use with the 251 LR and 253 C.

In the "powered" mode, two of the woofer's built-in amplifiers are available for external use. One hookup illustrated in the 252 PBM manual shows how it can drive any pair of speakers, creating a powered three-piece satellite/woofer speaker system that can be used with something as modest as a portable CD or tape player. The final hookup option given is for the 252 PBM to drive a center-channel speaker in case that capability is not available elsewhere in your A/V system (a rare occurrence in this day of Pro Logic receivers).

As usual with separate woofers, the 252 PBM's setup and adjustment in-

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AVR-1500



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structions are vague, though they are good as far as they go. The most important admonition given is to adjust the woofer level for best results "on a variety of material." Since you can adjust the woofer level independently of that for the other speakers, you might also try putting the 252 PBM in a room corner as a first approximation to a final location and adjusting the bass level from there.

Also available from Atlantic Technology, but optional, are some simple, sturdy metal stands (Model 156 ST, \$99 a pair in black, \$119 in white) suitable for holding the 251 LR front speakers or the 254 SR surround speakers at approximate seated ear level. They come disassembled but are easy to put together using two bolts for the stand and one that goes into a threaded hole on the back of each speaker. The bolts and appropriate Allen wrench are provided. Each stand enables you to thread a speaker cable (not too thick!) from the base through the hollow support post up to the speaker, a neat arrangement that will help prevent accidental tipping of the whole assembly.

I had no trouble putting together the stands or with any other aspect of set-up apart from the usual one of deciding where to put the woofer and an annoying one of cramped connectors: The recess in the 253 C's back panel is too small for finger comfort when using any type of cable connector that requires twisting the binding posts tight. Also, the binding-post wire holes are oriented 90 degrees away from where they would be most accessible.

The woofer box ended up in a corner, as subwoofers usually do in our listening room. I attached the 251 LR's to the stands but preferred the surrounds in our usual locations, high against the side walls, rather than on the stands, where they were too easily localized by ear. If you use the "passive" hookup and your equipment has facilities for high-pass filtering of the signals sent to the front left and right speakers, I urge you to turn those filters on. The fronts seemed to sound cleaner when they weren't called on to handle frequencies in a range they weren't designed to reproduce.

But even without such high-pass filtering, which is usually available only in high-end A/V receivers and separate surround processors, the sound of

the Atlantic Technology system was good. It was not completely uncolored—classical strings tended to sound a little dull and lacking in presence, while classical male vocals had a slight added nasality—but on the whole the effect was beneficial to typical pop vocals and the typical harshly recorded movie soundtrack, which is what the system was designed primarily to handle. With the 251 LR's placed a few feet from any walls, imaging was very good: precise left-to-right, with a good sense of depth whenever the recorded program material called for it.

Front/back positioning of the surrounds relative to the prime listening position was more critical than usual because the "dipole null" of the surrounds' radiation pattern was rather narrow owing to the less-than-180-degree angle between the 254 SR mid-tweeters. With the surround speakers

The amplifiers built into the Atlantic Technology 250 SBM woofer can drive any pair of speakers to create a powered three-piece satellite/woofer system.

located to the sides, as they normally would be, simply rocking forward and backward at the prime listening location can move you into and out of the null, producing distinct changes in surround level and timbre. Fortunately, this characteristic becomes less apparent the farther away the surrounds are located (they're only about 8 feet away in our listening room).

When the 252 PBM woofer was properly adjusted (I had help from a microphone and spectrum analyzer), it blended well with the other speakers in the system. It was capable of delivering large, but not immense, amounts of low bass. On some very dynamic material played loudly I felt it wasn't producing the impact it should, per-

haps because of the woofer's "dynamic bass equalization" circuitry, which is designed to extend the low-frequency response without overdriving the system. Playing loud test tones through the woofer showed it could deliver substantial output down to 25 Hz, however.

The 253 C center speaker produced a closer acoustical match to the 251 LR fronts when its high-frequency knob was turned up almost all the way and its mid-frequency control was left at its marked 251 setting. Using the recommended test signal (the Dolby Pro Logic level-matching pink noise), I could not obtain what I would consider a good timbre match with a couple of other front speakers (not from Atlantic Technology) I had handy. Spectrum analysis showed that the range of frequency responses provided by the 253 C's controls would preclude an exact match with many other speakers, especially those whose responses are not already similar to the 253 C's. That's pretty much to be expected, however. Even the 253 C's manual says that "a perfect match is virtually impossible," and you still have a considerably better shot at getting close *with* the controls than you would without them.

The center-speaker response, when adjusted as above, did closely resemble that of the 251 LR front left/right speakers. A one-third-octave spectrum analysis of the latter's output showed a rather smooth overall response (about ± 4 dB from 125 Hz to 20 kHz). The curve's most prominent deviation, both on-axis and horizontally off-axis, was a dip of about 4 dB in the lower treble, extending from 2.5 to 6.3 kHz, which would account for the slight dulling noted earlier. Some treble rolloff is often desirable when reproducing soundtracks, however, and such a response would also account for the speakers' success with pop vocals, which are commonly recorded through microphones with response peaks in that range.

Overall, and particularly in home theater applications, the speakers performed well. In view of its price and versatility, Atlantic Technology's System 250 must be considered among the best buys in home theater speaker systems. □

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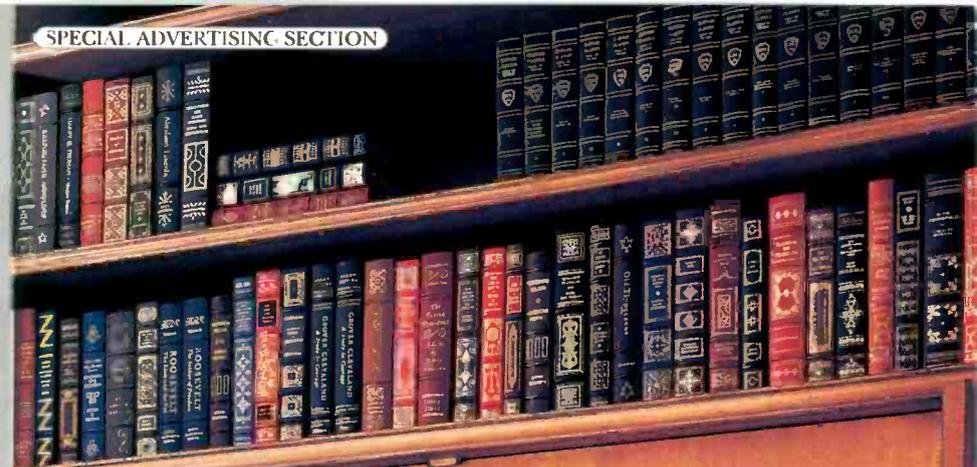


KV-13V50

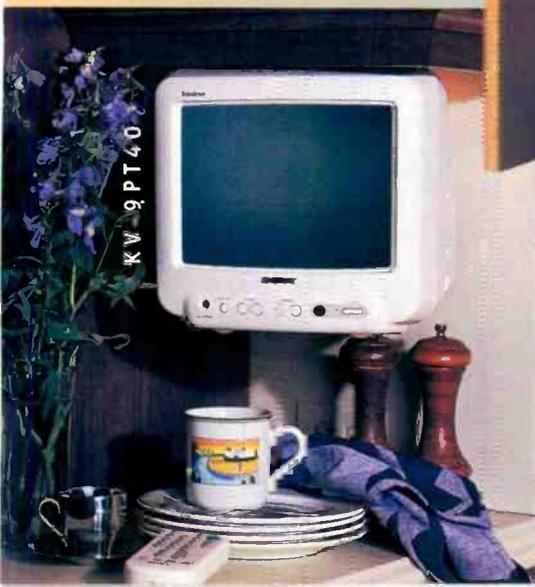


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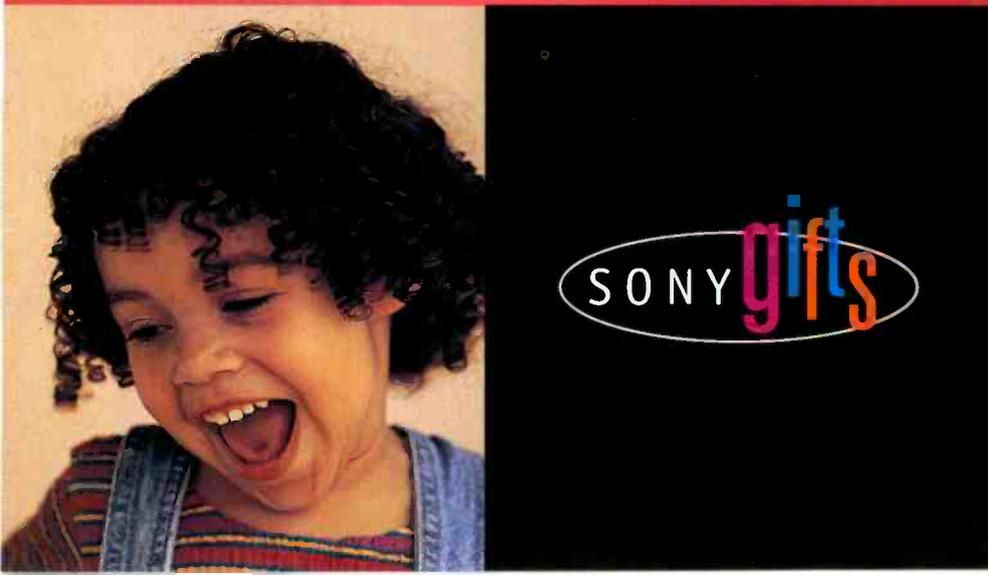


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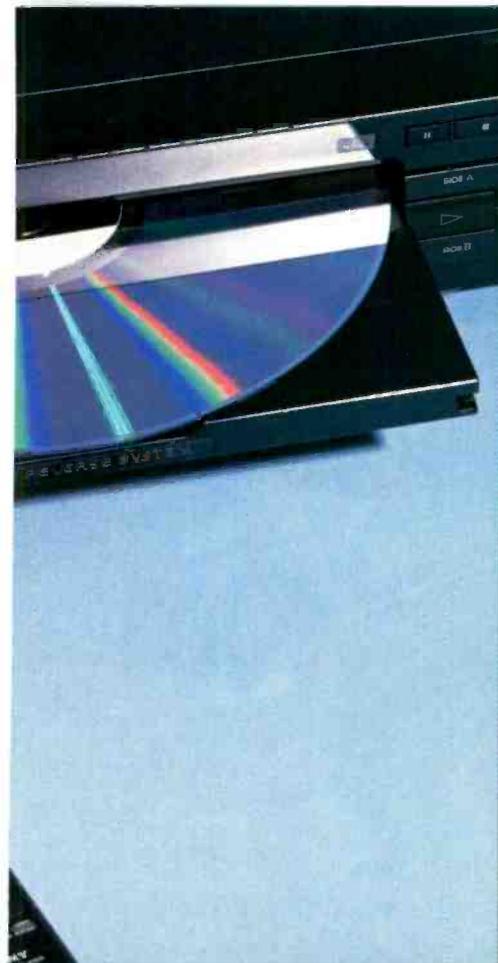
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SLV-770HF



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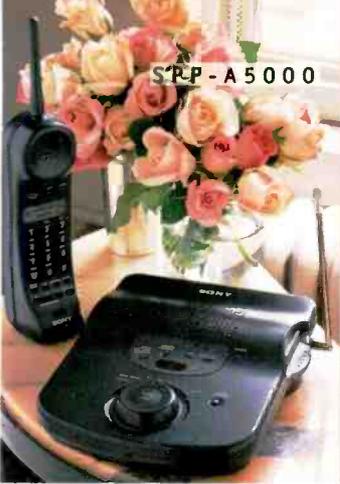
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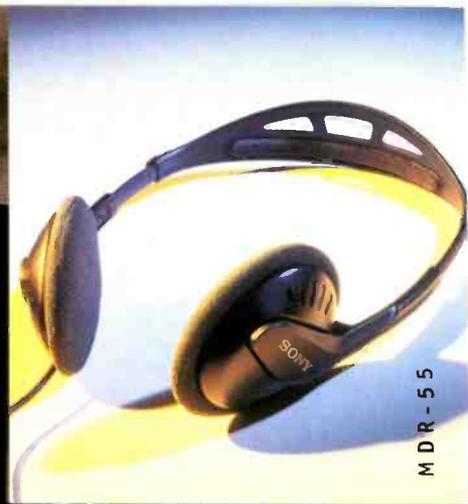


IT-W20

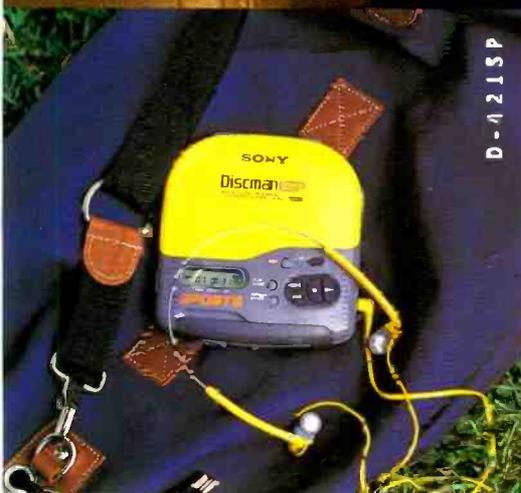


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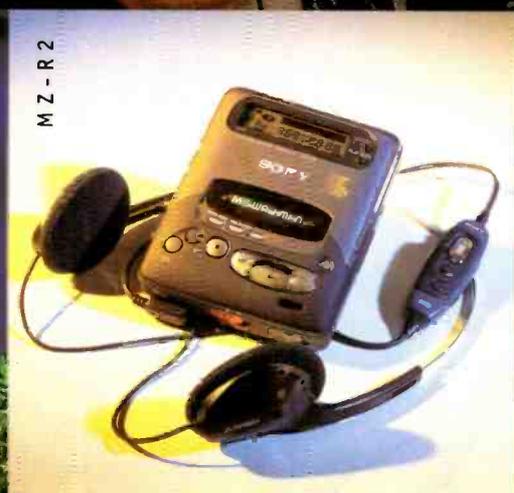
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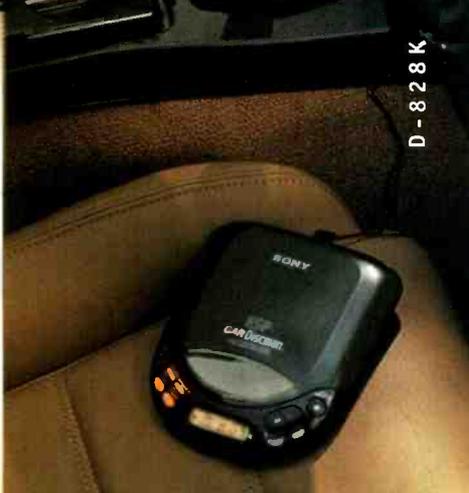
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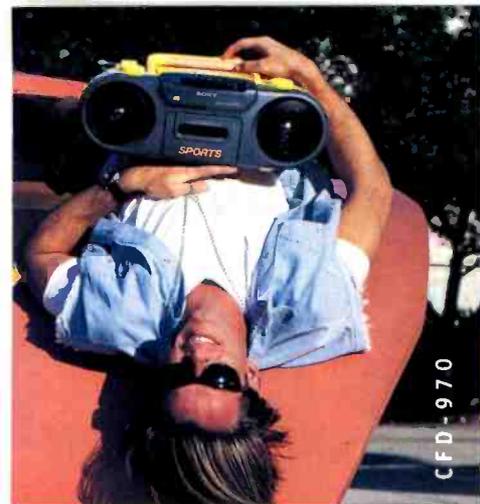


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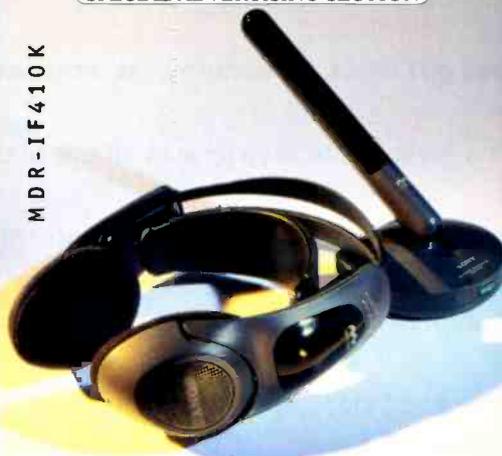
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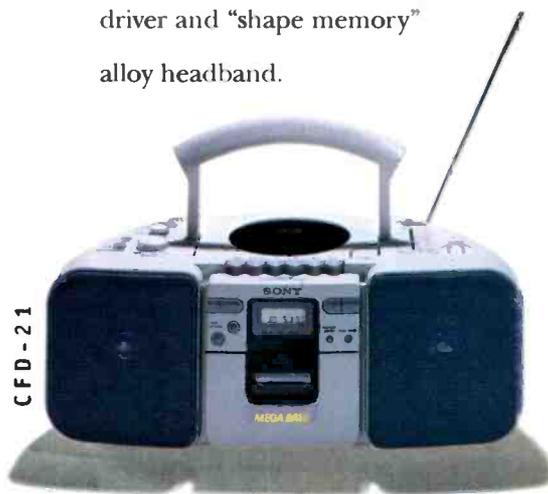
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sound gift suggestions



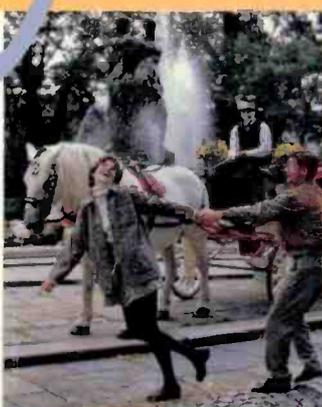
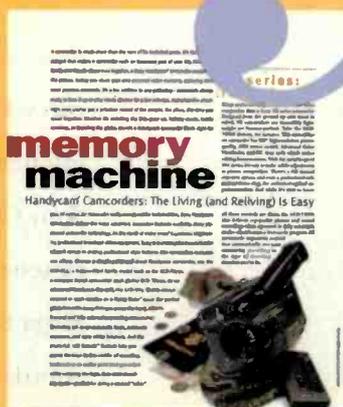
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SPECIAL CD OFFER

Masters of Motown

Hear ye, hear ye! Motown Records is offering you some serious listening to serious Motown hits in a sampler called "Serious Grooves." It contains twenty tracks of carefully remastered music including some of the company's most important recordings by its greatest stars. The sampler is offered exclusively to STEREO REVIEW readers. To get your copy simply clip the coupon below, fill it out, and send it in with a check for \$4 to cover postage and handling.

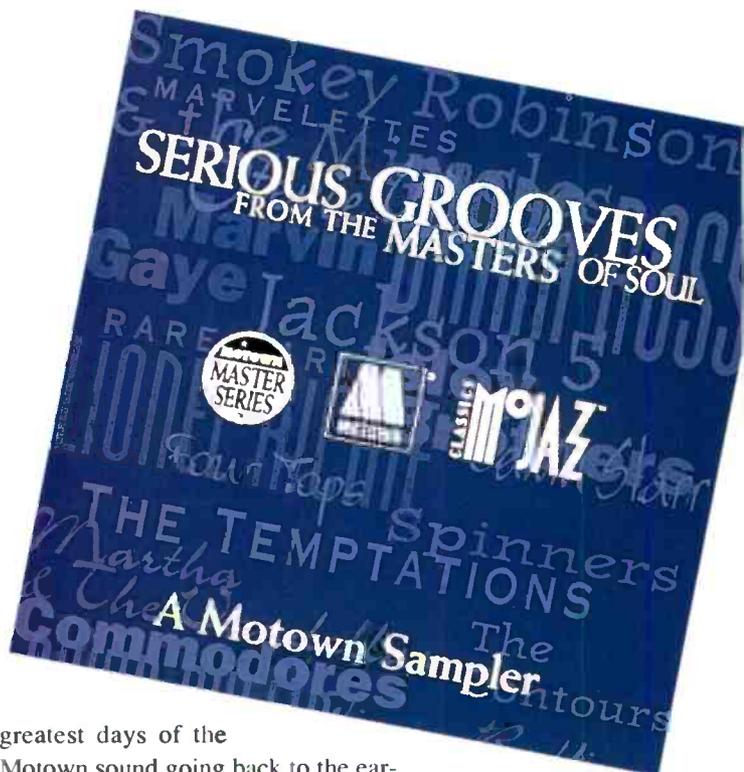
When the digital compact disc was launched in the United States in the early 1980's, many Motown recordings of the preceding two decades were immediately transferred to CD. Since then, of course, digital technology has been further developed and refined, and some of those early transfers no longer seemed to do justice to the original analog recordings. In 1992, Motown executives made a critical assessment of the way its most important recordings were represented on CD and decided to launch a new series that would be state-of-the-art both technically and artistically.

Candace Bond, Motown's director of catalog development, says: "The only way we could hope to recreate the real sound—the real 'magic' that happened when these hits were created—was to go to the original sources, the right tapes and the people who made them. We shocked a lot of Motown's stars and producers of the 1960's and 1970's by asking them to help us present their music with the artistic and emotional integrity of the moment it was recorded."

The result was the Motown Master Series and the series of MoJazz Classics. Since these were launched in 1992, twenty-six volumes have been released, and the twenty tracks on "Serious Grooves" were taken from those reissues lovingly renovated by their original creators.

Motown occupies a unique place in the history of recording in the United States. According to more than one critic, it fostered the greatest collection of popular singers, songwriters, instrumentalists, and producers ever assembled under one label. Originally based in Detroit, which is called Motortown (abbreviated to Motown), the record company was founded by Berry Gordy. It issued its first recording in 1959 and went on to become the greatest black-owned American record company (and among the top black-owned U.S. corporations).

The artists and music on "Serious Grooves" represent the



greatest days of the Motown sound going back to the early Sixties. For example, in the summer of 1966 the Four Tops struck gold with *Reach Out I'll Be There*, included here, which became No. 1 on both the R&B and Pop charts. Other great stars of the Motown catalog included in the sampler are Marvin Gaye, Stevie Wonder, the Temptations, Rick James, the Dazz Band, Teena Marie, Mary Jane Girls, the Jazz Crusaders, Jr. Walker and the All Stars, Smokey Robinson and the Miracles, Diana Ross and the Supremes, the Funk Brothers, and Brenda Holloway.

"Serious Grooves" is the first Motown sampler ever presented in STEREO REVIEW's series of special CD offers. The hits of the great days of Motown have been called "the ultimate party music." This magazine's editors highly recommend that you send for this sampler, and we're serious. □

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THREE'S

The Cambridge SoundWorks
New Ensemble II sub/sat system
(\$439) and the company's
26-inch stands (\$99 a pair) are
shown with JVC's RX-815VTN
A/V receiver (\$630). We
custom-painted the satellites.



COMPANY

Although three-piece speaker systems have been somewhat overshadowed in recent years by five- and six-piece home theater speaker lineups, they remain as viable as ever—especially for people with small or odd-shaped rooms, or for those who want a speaker combo that can be easily expanded into a multi-channel surround system (see “Four’s a Theater,” page 89). The rationale for the so-called subwoofer/satellite system is simple: Divert the bass (derived from both stereo channels) to a hideaway subwoofer and use a pair of small, decor-friendly speakers to reproduce the rest of the musical spectrum. No need to go without bass (thanks to the stand-alone subwoofer), no need to worry about where to put two massive tower speaker systems (thanks to the small satellites).

At the heart of the sub/sat approach to speaker design is an indisputable fact of acoustics: Sounds below about 150 Hz in frequency (an octave below middle C) are difficult to localize. In other words, as long as the subwoofer’s operating range is cut off above 150 Hz or so, you’ll be hard pressed to pinpoint its whereabouts by ear. Drop the crossover point to 80 Hz or so, and it’ll be virtually impossible to sense the subwoofer’s position.

But as you start dreaming up ways to make your subwoofer-to-be “disappear,” keep in mind that placement can be a double-edged sword. While you certainly have some flexibility, optimum fidelity is achieved with most systems by putting the subwoofer

**A subwoofer /
satellite combo
may be the way
to go if tower
speakers are out
of the question.**

PHOTO BY ROBERTO BROSAN

by Daniel Kumin



Definitive Technology's new Celsius system (\$1,069) consists of two 12-inch-tall satellites and the Powerfield 15 subwoofer, which packs a 185-watt amp and is rated down to 28 Hz.



JBL's Pro III Plus system (\$660) combines two 9¼-inch-tall satellites with a subwoofer that operates in the 35- to 125-Hz range.

Satellite speakers often image superbly.

NHT's popular SuperZero minispeakers (right, \$230 a pair) can be teamed with the SW1P powered sub (below, \$500), which includes a 60-watt amp and crossover.



on roughly the same plane as the satellites—even though the glossy photos in some sub/sat brochures suggest that placement at the opposite end of the room is fine. More often than not, the changeover between sub and sats begin the critical lower mid-range, so locating the sub on a plane that's more than a couple yards away from the satellites often upsets imaging and midrange smoothness. The exception is a system with larger, bookshelf-size satellites that play below, say, 100 Hz. Since a lower crossover point is used, subwoofer placement is less critical.

One more friendly footnote on sub/sat systems: Satellite speakers are subject to the same rules of acoustics (and common sense!) that apply to any speaker. Yet precisely because they tend to be small, they often wind up too high, as on a mantel or elevated shelf, too low, as on the floor in dark corners, or—all too frequently—badly “shadowed” behind furniture, plants, or other obstructions. Satellite speakers should be positioned like any other speaker: With a clear line of sight to the preferred listening position, approximately equidistant from each other and from the listener. When they are positioned with care, satellite speakers often image superbly because their small cabinets tend to minimize diffraction problems.

Space 'n' Bass

Sub/sat trios come in a variety of shapes and sizes, ranging from genuine micro systems with tiny satellites to packages that team bookshelf-size speakers with a hefty subwoofer. One way to narrow the playing field right from the start is to decide whether you want a system with a true subwoofer—one that dips down into the lowest octave—or are willing to settle for a more compact system with a smaller bass module that only plays down to, say, 45 or 50 Hz.

An example of the former is a \$570 package from BIC America combining the bookshelf-size (14½-inch-tall) V62si speakers with the 16½ x 21 x 18½-inch V12 subwoofer, which uses a 12-inch driver and is rated down to 28 Hz. A side benefit of the larger satellites (which have 6-inch woofers and ¾-inch tweeters) is that they provide enough bass output to permit the use of a fairly low crossover point (85 Hz), which

LISTENING TIPS

Begin auditioning a three-piece system the same way you would any pair of speakers: Zero in on specific musical characteristics and listen carefully. Is the treble smooth yet extended? Or is it sizzly? (Pay particular attention to cymbals and horns.) Do vocals, strings, and other midrange-oriented instruments sound natural? Or are they boxy or honky? Is the upper bass solid and defined? Or is it flabby—or too thin? (Songs with an acoustic bass are a good demo tool here.) Is deep bass a part of the sonic picture? Or is it nonexistent? It should be palpable yet retain tonal color. These are just a few of many sonic details to listen for.

When you complete the general evaluation, there are a few specific things to check out as well. Some of these will be tough to perform reliably, especially in typical audio-shop listening rooms, and all should be reality-checked against a pair of conventional full-range speakers you know to be excellent.

High-volume performance. Does the system play loud enough to satisfy you? Systems that use subcompact satellites may be vulnerable to breakup at high volumes. Crank it up and listen, paying particular attention to the midrange and treble. Does it sound overly harsh? (Just make sure the system is being driven with at least 75 to 100 watts of clean power.)

Satellite-subwoofer integration. Home in on the lower-midrange/upper-bass region. It should sound full and smooth, not tubby or overly lean (as if there's a hole in the bass). Either problem may indicate a poorly chosen crossover point or a driver mismatch. Note that this test is tough to conduct reliably in a dealer listening room, so try to get a home trial (which is always a good idea anyway). Don't make a final judgment after just one session—you need to experiment with bass-module placement before drawing any conclusions.

Bass-module localization. The whole idea behind three-piece systems is that you "can't" locate the subwoofer by ear. But don't take that as divine law—it's not universally true. Play a well-recorded pop-music cut that has a clean and distinctive bass-guitar line and stand about twice as far from the satellites as you are from the bass box (12 feet from the sats, say, but only 6 feet from the sub). Now close your eyes and listen: If you can pinpoint the bass guitar, the subwoofer is too far from the satellites (and the system has a relatively high crossover point). Try moving the sub closer to the satellites.

High-volume, deep-bass troubles. The Achilles heel of compact bandpass-type subwoofers can be "chuffing" or whooshing from their ports when strong deep-bass tones appear in the program material. Play a selection with powerful low-bass content (below 60 Hz) at a very solid level—loud, but not loud enough to approach amplifier clipping or satellite distress. If the sub suffers from "port-noise complaint," you'll know it right away. Fans of music that is rich in deep bass—classical, pipe-organ, synth-pop, etc.—typically find this flaw to be grounds for immediate rejection. On the other hand, if you listen mostly to pop music, you'd never uncover the problem even if it existed because most pop tunes contain little if any really low bass.

Dynamic bass limitations. Generally, as you turn up the volume of everyday pop music, it will subjectively become increasingly (and satisfyingly) bass-rich before leveling off at a quite-high volume (a function of the way we humans hear). If a system fails to exhibit this effect, it may be because its subwoofer cannot "keep up" with the satellites' midrange-treble output as the volume increases. That, of course, is a problem only if you like your music loud. —D.K.



ADS's AW4 weather-resistant minispeaker (rear, \$379 a pair) can be mated with the MS2 subwoofer (shown, \$799) or the MS1 (\$599), rated down to 30 and 38 Hz, respectively.



RDL Acoustics' ThreePiece System, which combines the 11½ x 7¼ x 4¼-inch AV-1 satellite with the roughly 11-inch-square W-1 bass module, at \$385, is quite modestly priced for a sub/sat system. The subwoofer plays in the 50- to 150-Hz region.



The HMT-2 package (\$450) from Design Acoustics includes three CS minispeakers (one for the center channel in a home theater setting) and the CLW subwoofer. All are magnetically shielded.

Many
three-
piece
systems
have
powered
subs.



You can adjust the tonal character of the satellites in Cambridge SoundWorks' New Ensemble II system (\$439) via a pair of back-panel switches. The subwoofer uses an 8-inch long-throw driver.



Atlantic Technology's 252 PBM subwoofer (above, \$569) has three 40-watt amps, two of which can power two 251 LR satellites (\$299 a pair).



means subwoofer placement is not as touchy as it tends to be for more compact systems with higher crossover points. The same can be said of many "mid-size" three-piece systems, including the \$750 SubSat7 system from Boston Acoustics, whose 19⁵/₈ x 15 x 9-inch bass module with dual 7-inch drivers is rated down to about 40 Hz. Though the 8¹/₂-inch-tall satellites use only 4-inch woofers (and 1-inch dome tweeters), they are designed to respond down into the upper-bass region—in this case, below 150 Hz—again easing the transition from woofer to satellite.

Of course, the downside of "large" satellites and subwoofers is that they don't blend into the background quite as easily as "disappearing-act" combos like Bose's Acoustimass 3 Series II system. That \$499 package, featuring pint-size "cube" satellites and a slender bass bin that measures 18¹/₂ x 7³/₄ x 8¹/₂ inches, suits rooms and decors where larger speakers might not be tolerated. Each satellite is approximately 4 inches square and employs a single 2¹/₂-inch midrange/tweeter, while Bose's proprietary Acoustimass bass module contains one 5¹/₄-inch woofer. (The Acoustimass design is a variation on the "bandpass" enclosure, in which multiple internal chambers are used to squeeze astonishing low-frequency extension and output from small woofers. The bandpass concept is exploited in one form or another by many sub/sat bass units.)

Despite its Lilliputian layout, the Acoustimass 3-II system produces satisfyingly full sound, though because its tiny satellites play only so low, bass-module placement is a bit more critical than with larger systems—including Bose's own \$799 Acoustimass 5 Series II system, which uses swiveling double-cube satellites and a larger bass bin with two woofers to deliver more oomph.

Power Play

If you haven't yet thought about how you might power a three-piece system, it may come as good news that many such systems include a powered subwoofer—that is, a bass module with a built-in amplifier (and usually a crossover). The powered-sub option makes good sense for buyers who are thinking about driving a new speaker trio with a modestly powered

stereo amplifier or receiver but worry that it may not be quite up to the task. A powered sub diminishes that worry by dramatically reducing the wattage demands placed on the main amplifier or receiver (because bass reproduction consumes the most power). The other key advantage of a powered subwoofer is that the system's design team knows better than anyone just how much power the bass bin really needs and is therefore able to build in ample wattage. Finally, most powered subs offer a level control—important for balancing the system—and, in some cases, an adjustable crossover.

Of course, systems with powered subwoofers usually cost significantly more than unpowered combos. For example, KEF's new three-piece system, which teams the Model 40B powered subwoofer with a pair of Model 70S satellites, carries a \$1,700 price tag. The 40B subwoofer has dual 8-inch drivers whose magnet structures are physically joined by a rigid metal rod to cancel extraneous vibrations. The two drivers, in a bandpass-type enclosure measuring 22 x 11 x 7 inches, are powered by a built-in 150-watt amplifier. The sub is said to produce response down to 35 Hz at 110 dB sound-pressure level. Thanks to the use of KEF's Uni-Q driver—a 6½-inch woofer with a concentrically mounted ¾-inch dome tweeter—the Model 70S satellites are remarkably compact (10 x 7 x 5 inches) yet can play down to 120 Hz. Besides saving space, the two-in-one driver is also said to deliver smooth response both on- and off-axis.

M myriad other powered-sub trios crowd store shelves. Companies offering satellite speakers and powered subwoofers either as a combo or separately include NHT, Definitive Technology, ADS, Polk Audio, Design Acoustics, M&K, and Energy, to name a few. Some companies even offer a powered upgrade option: The BIC V12 subwoofer mentioned earlier, for example, can be converted into a powered sub with an optional outboard 100-watt amplifier that sells for \$329. Then there are several three-piece systems whose subwoofers contain on-board power for the satellites as well. Atlantic Technology's 250 series includes the \$569 Model 252 PBM subwoofer, which contains a 12-inch driver and three 40-watt amp channels—add a source

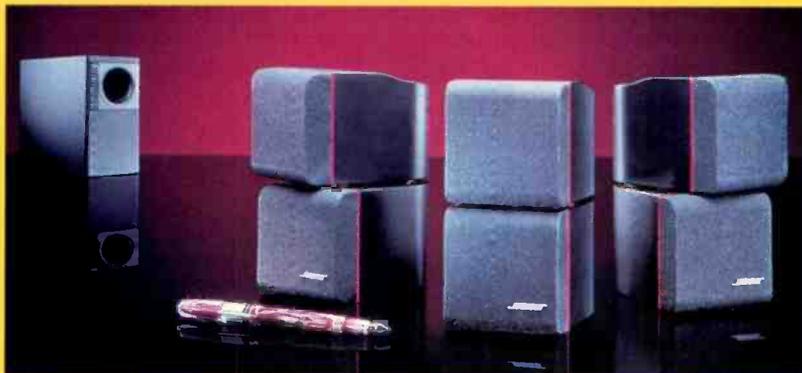
FOUR'S A THEATER

Making the leap from a three-piece speaker system to a full home theater suite is a relatively easy process for a couple of reasons. First, a solid majority of the satellites now on the market are magnetically shielded, which means that they can be placed close to your TV without screwing up the picture. (Not all bass modules are shielded, however, so don't plan to use the sub as a TV stand unless you're sure it's shielded.)

Second, a growing cadre of trio makers offer optional center-channel and surround speakers that are tailored to match—or at least complement—the tonal character of the satellites they offer. In many cases, the add-on center speaker is nothing more nor less than a third satellite. Using a center speaker that is identical to the satellites is the preferred upgrade path because it guarantees perfect tonal

similar center-channel add-ons, either in the form of a duplicate third satellite or as a TV-top horizontal configuration engineered to tonally match the left/right satellites. Celestion's new Soundstyle line follows the latter route: The horizontal Center 2 speaker is available as a \$249 add-on for a sub/sat system that mates the futuristic looking, 11½-inch-tall MP1 satellites (\$299 a pair) with the CSW powered subwoofer (\$449), which teams an 8-inch woofer, a 75-watt amplifier, and a crossover in a 10 x 20½ x 18-inch box.

Of course, a true home theater demands a pair of effective surround-channel (or "rear") speakers, as well. Many sub/sat makers offer compact two-ways designed specifically for surround use, or at least with one eye toward it. In some cases they are quasi-dipole speakers purposely designed



Bose's Acoustimass 7 system (\$949) has three tiny satellites and a subwoofer.

balance across the front—something most home theater experts consider fundamental to excellent surround sound.

Cambridge SoundWorks offers the \$149 Center Channel speaker, which except for its horizontally oriented logo is identical to the satellite speakers used in the company's New Ensemble II sub/sat system, a \$439 trio comprising a pair of 8-inch-tall satellites and a compact bass module with two 6-inch woofers. Interestingly, each satellite has midrange and high-frequency contour switches on its back panel for fine-tuning the sound.

Many other sub/sat system makers offer

to produce the diffuse soundfield that many believe advantageous for top-notch surround reproduction. Examples are the Cambridge SoundWorks Surround II (\$349 a pair), Atlantic Technology's 254 SR (\$299 a pair), and KLH's V-01 (\$200).

One caution: When you convert a three-piece system into a home theater ensemble, use the crossover network in the system's bass module, rather than a subwoofer crossover that might be included in your A/V receiver or surround processor, in order to preserve the proper acoustic integration between the satellites and subwoofer. —D.K.



KEF's new sub/sat system teams the Model 40B powered subwoofer (\$1,200) with a pair of 10-inch-tall Model 70S satellites (\$250 each). The 40B—which contains two 8-inch drivers, a 150-watt amp, and a crossover—has a bandwidth of 35 to 150 Hz.

In Boston Acoustics' SubSat7 system (\$750), the crossover between the 8½-inch-tall satellites and the PV14 PowerVent subwoofer begins at 150 Hz. The PV14 packs two 7-inch woofers and plays down to 41 Hz.



**There's
a sub/sat
system
to fit any
audio
taste.**

Polk Audio's RM3000II system (\$849), an update of the popular RM3000 trio featuring improved satellite and subwoofer drivers, is due out early next year. System bandwidth is given as 25 Hz to 22 kHz.



component and a pair of Model 251 LR satellite speakers (\$299 a pair), and you're in business. The 251 LR's, which use a pair of 4-inch woofers and a ¾-inch dome tweeter, are rated down to 80 Hz. If you decide the system needs more bass, you can bridge two of the 252 PBM's amp channels to more than double subwoofer power to 90 watts, leaving the satellites to be energized by an onboard receiver or power amplifier. Bose also supplies several Acoustimass systems that incorporate power for the satellite speakers and subwoofer.

Given the variety of three-piece combos—in terms of size, shape, finish, power, and so on—you should have no trouble finding a handful of systems to fit any audio preference, room type, or aesthetic bent, however unusual. And the field gets wider still if you consider the dozens of three-piece combos that a knowledgeable salesperson can help you assemble from the diverse range of speakers that are not prepackaged as such. PSB's popular \$199-a-pair Alpha bookshelf speakers can be mated with the company's \$299 Alpha Sonic bass module, for example, to form a remarkably inexpensive and compact, yet highly capable, trio. And B&W's Rock Solid minimonitor, a modern-looking two-way speaker that is available in several designer colors, complements its sleek Twin Bass powered subwoofer in similar fashion with a combined ticket of \$650.

In the final analysis, shopping for speaker threesomes is largely an exercise in reductive synthesis. Identify your price range, decide what sort of system suits your needs (large versus small, powered versus passive, traditional versus contemporary styling, etc.), and make a list of the remaining candidates. Then you can begin listening (see "Listening Tips," page 87). Sub/sat systems start at only a bit more than a decent pair of bookshelf speakers—say, around \$300—and extend up to near-stratospheric territory. Don't expect a three-piece system to save you money per se: A \$1,200 sub/sat array probably won't outperform a \$1,200 pair of conventional floor-standing speakers, but it won't give up much in the way of sound quality, either. And it may well save your marriage, or, at the very least, your living room, from the effects of encroaching audio gear. □

Introducing the first speaker System to realize even Mozart fans like a good chase scene.



Some consider **Lynnfield VR** video reference speakers from **Boston Acoustics** to be the first home theater components that do justice to, say, an impeccably recorded symphony. Others see them as the first **audiophile speakers** flexible enough to reproduce an Arnold Schwarzenegger film without muscling in on the rest of the living room furniture. To accomplish this, our Lynnfield VR speakers use advanced **technology from our acclaimed Lynnfield Series** (which sell for over \$5000 a pair). Like our patented AMD mechanical filter, anodized aluminum tweeter dome, DCD bass units, crossovers with bypass capacitors and heavy windowpane-braced cabinets. Plus all VR components feature MagnaGuard® shielding so they're not finicky about being placed next to video equipment. A full explanation of these **engineering achievements** is available at your **local Boston dealer**. Why not drive there? Carefully.



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CIRCLE NO. 14 ON READER SERVICE CARD

Stuffers

BY BOB ANKOSKO

'Tis the season to be jolly—and to finish up your shopping. If you're like me, you also want to make sure your nearest and dearest know what you'd rather find under the tree than another sweater or bottle of cologne. Here are some novel gift ideas that just might save you or a friend a trip to the mall on the day *after* Christmas.

1. Visor Gear CD Holder. Jewel boxes and driving don't mix, which is why a ten-disc velour CD holder that attaches to the sun visor makes so much sense. \$19.95 (plus \$3.99 shipping). Visor Gear, 1515 E. Burr side, Suite 300, Portland, OR 97214; 503-234-8548.

2. Novex RadioActive FM Stereo Board for PC's. A natural for computer jukies, this plug-in radio card lets you listen to the your favorite FM station while running a spreadsheet or balancing your budget on the PC. It runs on 286 and newer machines and requires 2 megs of hard-disk space and Windows. \$49.95 (plus \$7.50 shipping). Novex, 2738 E. 51st St., Suite 280, Tulsa, OK 74105; 800-725-8324.

3. Doc's Musician's Protective Earplugs. Transparent earplugs for the image-conscious person who frequents rock concerts, drag races, or other places where excessive sound-pressure levels can cause permanent hearing damage. \$8 (plus \$2 shipping). Doc's Proplugs, 203 Eighth Ave., Suite 170, Santa Cruz, CA 95062; 800-521-2982.

4. Zelco Long Reach Flashlight. Perfect for the compulsive tinkerer, this palm-size flashlight has a 9-inch rubber neck so you can illuminate the back of your receiver and other cramped spaces. \$17 (plus \$4.95 shipping). Museum of Modern Art (item #70863), Mail Order Dept., 11 W. 53rd St., New York, NY 10019-5401; 800-447-6662.

5. Chase WH-5500 Wireless Headphone System. It's a bit large (and pricey) to be a true stocking stuffer, but it delivers good, static-free performance within 100 feet or so of its transmitter. And because it operates in the 900-MHz band, it works through walls, floors, and glass. \$200. Chase Technologies, 4275 34th St. So. #325, St. Petersburg, FL 33711; 800-531-0631.

6. MacTec EZ-CD Jewel-Box Opener. Tired of fighting jewel-box packaging? This matchbook-size device has a small blade that cuts effortlessly through the shrink-wrap. \$2.99 (plus 50¢ shipping). MacTec, 21416 Velicata St., Woodland Hills, CA 91364; 800-622-8321.

7. PowerStar PocketSocket AC Power Inverter. Ideal for campers, RV enthusiasts, or camcorder nuts who need to recharge batteries on the go, the PocketSocket delivers 100 watts of AC power from a 12-volt car battery. Plug it into the cigarette lighter and it'll power all kinds of electronic gear. \$80. PowerStar Products, 1050 E. Duane, Suite D, Sunnyvale, CA 94086; 800-645-4004.

8. Emerson AR2515 Bike Radio. A water-resistant AM/FM "handle-bar" radio that kids will love. It provides surprisingly good reception and packs an electronic horn to boot. \$29.95 (plus \$7 shipping). Emerson Radio Corp., 9 Entin Rd., Parsippany, NJ 07054; 201-428-2105.

9. PLUS Tape Printer. Yes, it's expensive, but it works like a charm—a neat gift for anyone who makes compilation tapes and is tired of cutting up little strips of paper. \$100. PLUS Corp. of America, 80 Commerce Dr., Allendale, NJ 07401; 800-289-7587.

10. Cabot ER-20 Hi-Fi Earplugs. Another practical stocking stuffer for live-rock fans. True, these plugs are more noticeable than Doc's, but they provide better protection and what comes through them sounds more natural. \$25. Etymotic Research, 61 Martin Lane, Elk Grove Village, IL 60007; 708-228-0006.

11. Amtel Stereo Mute. A clever gift for households in which loud music rules, this little box automatically mutes the stereo system whenever the phone rings or when someone picks up the phone to make a call. \$39.95 (plus shipping). Amtel Systems Corp. 8701 100th St., Kenosha, WI 53142-9508; 800-999-8903.

12. Terk CD-25 CD Rack. An elegant organizational solution for that batch of hot discs that's usually stacked haphazardly atop the CD player. It holds twenty-five discs. \$20. Terk Technologies, 65 E. Bethpage Rd., Plainview, NY 11803; 800-942-8375.

PHOTO: JOSHUA MENCH; LETTERING: DAVID MCGRIER



9

★

11

10

Our Home Theater Speakers are a product of their environment

Dear Movie Lovers,

If you have always believed that high quality Home Theater components were out of your reach, I invite you to audition the new Atlantic Technology System 250 at your earliest convenience.

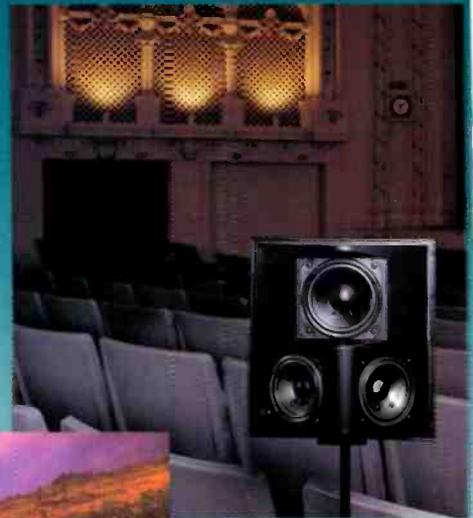
The truth is that only a small group of manufacturers really know how to design good Home Theater equipment — and Atlantic Technology is one of the best. Our designers spend as much time at the movies as they do at their Macs. In fact, many of us here were involved in creating the world's first Home Theater back in 1981. That's why when it came to System 250, we had our toughest critics in mind — ourselves. This is the system we want to live with: compact, accurate, powerful and affordable.

Our System 250 speakers are a product of their environment — both the home and the movie theater. And, unlike some manufacturers who merely re-label their existing speakers as "Home Theater," we've built each Atlantic Technology model with a specific task in mind, whether it's a timbre-adjusting center channel speaker, a "power directed" subwoofer, minimum diffraction front speakers, or spatially enhanced surround speakers.

There's an old expression that says "things like that only happen in the movies." Atlantic Technology makes it happen in your home.

Peter D. Tribeman

Peter Tribeman
President, Atlantic Technology



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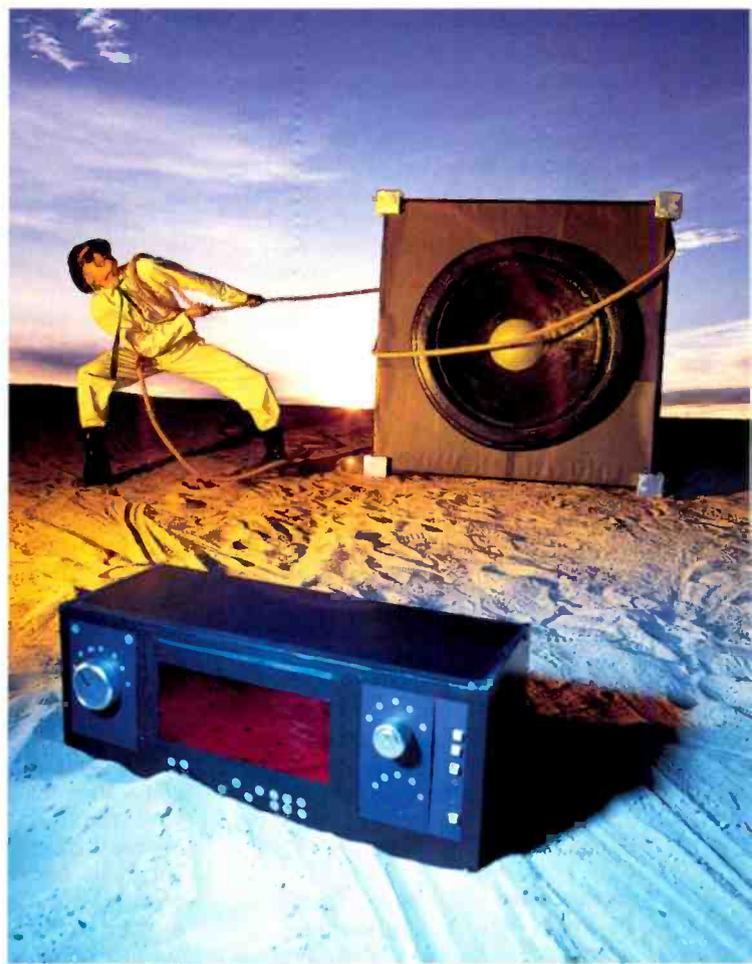


As the name implies, an audio or audio/video “system” is not a single product, but rather a group of components working together as a team. The performance of the system as a whole therefore depends very much on how well its various parts operate together. And of all the compatibility problems that can arise in an audio system, the most complex (and potentially the most serious) tend to be at the interface between the amplifier and the loudspeaker.

The Amp/Speaker Interface

We often say that an amplifier delivers so many watts of power to a loudspeaker, but the amplifier actually produces an output voltage in response to the input signal. The current that flows through the speaker, and propels its voice coils into motion, is equal to the amplifier’s output voltage divided by the speaker’s impedance (the lower the impedance, the higher the current). Electrical power is the product: voltage multiplied by current. So an amplifier’s actual power output depends on its ability to deliver current to the loudspeaker’s impedance.

As an analogy, think of the voltage as a force that must push water (current) through a system of narrow pipes. Widening the pipes (lowering the impedance) makes it easi-



er to pump water through them, but unless the water supply can deliver a correspondingly increased volume of water, the pressure will drop. In other words, when the pipes are narrow, the rate at which water flows through them at a given pressure is limited by their size, but as the pipes are widened, eventually the rate becomes limited by the capacity of the water supply and cannot be further increased. A similar rule applies to amplifiers, based on the capacities of their power supplies (and sometimes other factors). For example, any two "40-watt" amplifiers can deliver the same output voltage, but one may be able to deliver more current on demand than the other (and thus more power into low impedances).

A speaker's rated impedance is a single number, typically 8 ohms. But that's just a rough average, since a speaker is a combination of several circuit elements. Voice coils have resistance and inductance, crossover networks typically contain resistance, inductance, and capacitance, all three, and the woofer/cabinet resonance involves more capacitance. Only a pure resistance impedes current equally at all frequencies, so the combined impedance of all these elements depends on the frequency of the input signal. A typical "8-ohm" speaker may have a minimum impedance of 5 or 6 ohms at some frequencies and a maximum of 15 or 20 ohms at others. If a speaker's rated impedance is 4 ohms, its minimum impedance may be as low as 2 or 3 ohms.

In most speakers the minimum impedance occurs at upper-bass frequencies, between 100 and 200 Hz. That is also the frequency range in which music often has its greatest energy. (The frequency spectrum of a drumbeat, for example, typically has its highest peak around 160 Hz.) Thus, the greatest power demand in your music is likely to be at the frequencies where your speakers' impedance is lowest. Since low impedance means high current, a thrilling musical climax may cause your speakers to demand more driving current than your amplifier was designed to deliver.

 With musical transients, such as the initial impact of the stick on the drumhead, the situation becomes even more complex. Capacitive and inductive impedances in a speaker are "reactive," meaning that variations in cur-



Music often demands the most power at frequencies where speaker impedance is lowest.

rent don't remain in phase with the driving voltage. Peaks of current may precede or follow peaks of voltage. Such an out-of-phase condition can cause an amplifier's "safe-area" protection system to limit its output current in order to prevent transistor failure. As a result, the amplifier may not be able to deliver its full rated power into some speakers.

Reactive phase shift is particularly severe in electrostatic loudspeakers. In conventional dynamic speakers, the worst reactive phase shift often occurs at bass frequencies, around the woofer/cabinet resonance. Consequently, a change in the character of the bass may be the first sign of current-limiting in an amplifier.

Following a transient impulse, energy stored in a capacitance or inductance (such as the magnetic field around a driver's voice coil) may flow

back toward the amplifier; this is called "back-EMF" current ("EMF" stands for electromotive force, or voltage). Because of these effects, there are instants when the current flowing between speaker and amplifier is disproportionately large relative to the driving voltage. Since high current corresponds to low impedance, the *effective* impedance of an 8-ohm speaker may be only 2 or 3 ohms during a transient.



How is all of this related to recorded music? In a study reported at last fall's convention of the Audio Engineering Society, engineers at NAD Electronics found a statistical pattern that occurs in music of widely differing types. Bursts of sound that last approximately 0.2 second (the typical duration of the individual notes in music) require approximately twice as much power as the loudest continuous tones. Brief transient peaks require still higher power: Transients lasting just 20 milliseconds (0.02 second, the duration of the tone bursts in the standard dynamic-headroom test) involve power levels that are at least four times greater than the highest continuous power level. Believe it or not, the same power-versus-duration pattern was found in music as disparate as a classical work for piano and orchestra (Tchaikovsky's Piano Concerto No. 1), jazz (a Miles Davis trumpet solo with percussion), and a New Age ballad (a vocal by Enya with multiple synthesizers).

In virtually all music, the highest power levels occur in transients. And, as mentioned earlier, dynamic loudspeakers tend to exhibit their lowest effective impedance during transients. So although amplifiers are rated on the basis of continuous power into 8 ohms, their actual ability to play music at satisfying levels may be more closely related to their dynamic power at 4 or 2 ohms.

In theory, an ideal amplifier would have a virtually unlimited ability to supply output current regardless of load impedance. If the impedance were 4 ohms rather than 8 ohms, the current flow would be doubled—as would the power (voltage times current). But in reality, most amplifiers have a restricted ability to deliver output current. A low-cost amp may deliver no more power into 4 ohms than into 8 ohms.

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real loudspeakers, the amplifier that can deliver the greatest current (that is, the highest power into low impedances) is likely to perform best. But this is a compatibility issue: Whether these aspects of amplifier performance are audibly significant depends on your loudspeakers and your listening habits. They may make little or no difference if you play music at modest volume and your speakers are a rela-

tively "easy" load to drive (see "The Easy Life" below).

Delivering high current for low impedances costs money. High current normally translates into a need for multiple pairs of output transistors to carry the current, large heat sinks to dissipate heat, large filter capacitors to store energy, and a massive power-supply transformer. It's no accident that large, heavy amplifiers tend to

sound good even in situations that would cause audible distress for lesser models.

On the other hand, it is possible to get carried away with worry. Many amplifiers and receivers have a notice on the back panel that specifies the use of 8-ohm speakers only, for example. Warning notwithstanding, it is usually okay to use a pair of 4-ohm speakers (or dual pairs of 8-ohm speakers in

THE EASY LIFE

Part of the amplifier/speaker compatibility issue is whether the speaker is an "easy" load for an amplifier to drive. Most amplifiers are designed, specified, and tested primarily with an 8-ohm resistor in place of a loudspeaker. So in general, the more closely a speaker's impedance resembles that of an 8-ohm resistor, the easier a load it will be to drive. That means its impedance is neither much lower nor much higher than 8 ohms at any frequency. A speaker that is an easy load tends to sound the same with all amplifiers, so you can choose an amp straightforwardly on the basis of power and price.

On other hand, a speaker is a "difficult" load if its impedance at some frequencies is very low or highly reactive (causing the current to be out of phase with the signal voltage) or if its impedance varies rapidly with frequency. For example, if a sharply tuned woofer/cabinet resonance produces an impedance that rises above 30 ohms at 50 Hz and drops steeply to 4 ohms at 100 Hz, this sharp change is likely to be associated with a large reactive phase shift. The sound of such a speaker may be affected by your choice of amplifier. A highly reactive woofer resonance, for example, may yield slightly thick and boomy bass with one amplifier, but deep and powerful bass with another having a similar 8-ohm power rating. In such cases, matching of amplifier to speaker is both more important and more complicated than usual and may require some experimentation.

Most speakers, especially those of fairly

conventional design, actually fall somewhere between the two extremes. That means that their sound will remain pretty much the same regardless of what amplifier you use to drive them, provided the amplifier is not seriously deficient in some way and is not pushed beyond its power limits. At the same time, however, careful amplifier selection may net you cleaner sound on program peaks and greater maximum volume without distortion.

A speaker's timbre may also be affected by an amplifier's output impedance. In theory, an ideal amplifier would have zero output impedance, and most solid-state amplifiers are close to that ideal, with output impedances of 0.1 ohm or less. (Dividing an amplifier's output impedance into 8 ohms yields the "damping factor" quoted in specifications, so you can figure the output impedance by reversing the calculation, dividing the damping factor into 8 ohms.) But many vacuum-tube amps (and a few transistor designs) have significant output impedances, up to a full ohm or two in some cases.

This high impedance forms a voltage divider with the speaker's impedance curve, imposing the latter onto the system's frequency response. That is, the amplifier's response will be slightly depressed at frequencies where the speaker's impedance is low and boosted at frequencies where the speaker's impedance is high. The greater the amplifier's output impedance, the greater the variation. In an experiment that he described in the June 1991 issue of STEREO

REVIEW, E. Brad Meyer found that this effect was easily heard in a blind comparison between a tube and a transistor amplifier driving the same loudspeaker. If you observe that your own speakers sound a little better (or worse) when driven by a tube amplifier, impedance interaction may explain why.

In this interaction the impedance of your speaker cable becomes part of the amplifier's output circuit. If your speakers are 10 feet from your amplifier, the signal must travel through 20 feet of wire going and coming. (Current from the amplifier must go through the speaker and return to the "ground" terminal in order to complete the circuit.) That amount of ordinary 18-gauge copper lamp cord has a resistance of 0.13 ohm. To keep the total (amplifier plus cable) under 0.1 ohm, you would need thicker wire. The lower the wire's resistance, the lower its "gauge" number. For example, 12-gauge wire has only one-fourth the resistance of 18-gauge wire, a mere 0.03 ohm per 10-foot length. If a speaker cable is not a simple pair of wires but is braided or more elaborately constructed, its impedance may include significant capacitance or inductance as well as resistance. These factors may in some cases have a subtle effect on the sound, particularly at high frequencies.

In any case, the easy way to minimize speaker-cable effects is to keep the connection as short as practical; if you must have long runs, use low-gauge wire. Even for short runs, don't go lighter than 18-gauge or, better, 16-gauge copper wire.

—P.W.M.

parallel, whose combined impedance is 4 ohms).

The caution is essentially an artifact of the UL (Underwriters' Laboratories) certification process, since without it the manufacturer might have to put in more heat sinking and make other design changes that would add cost and bulk simply to get the product approved. The notice concerns the possibility that the amplifier could overheat if required to deliver full power constantly into a low impedance. But music is not constant: Its power varies with every note and beat. And, as we have seen, the highest power levels occur in brief transients, while sustained power levels are at least 6 dB lower (one-fourth of full power if the transients are at the amplifier's clipping level).

A serious risk of overheating will arise only if you overdrive the amplifier, causing the transients to distort and raising the sustained levels to one-third or one-half of rated power. If you pay attention to the sound and don't allow it to become distorted, low-impedance speakers shouldn't present a problem. Just don't abuse the privilege: Two 4-ohm speakers in each channel, wired in parallel, would have a combined impedance of only 2 ohms, requiring high current indeed.

Getting the Connections Right

An amplifier's speaker terminals are normally color-coded, with red indicating the positive terminal and black the negative. Usually the black terminals also represent the circuit ground, but take care—that is not always true. In some amplifiers one channel is internally inverted in polarity and the black terminal is driven, which is fine as long as you're just connecting the amplifier to a pair of speakers. Simply connect wires from amplifier to speaker in the normal way (from amp red to speaker red and from amp black to speaker black in each channel). But do *not* connect anything that ties the negative (black) terminals of both channels together, such as an adaptor for electrostatic headphones, without first checking the owner's manual.

The single most important physical interface issue is the lack of an industry standard for amplifier/speaker connections. In almost every other class of consumer product (including such complex devices as VCR's and com-



**Hooking up
the speakers in
a home theater
system may
take twenty-
four separate
connections.**

puters), the manufacturers have agreed on standard connectors that enable simple "plug and play" installation. Nowadays the large multipin connectors that are used with computer peripherals have captive thumbscrews, so you don't even need a screwdriver to get everything working.

But when you install a stereo system, you're on your own. To attach a single pair of speakers to an amplifier, you must make a total of eight individual connections (attaching wires to four amplifier terminals and then to four speaker terminals). You may be able to accomplish this without tools, but since several different types of terminals can be found on amplifiers and speakers, you might need a particular tool (a screwdriver, a hex wrench to tighten binding posts, or wire strippers to remove insulation).

Speaker wires are sold with pre-in-

stalled pin connectors, banana plugs, U-shaped spade lugs, or just bare wire ends. Amplifiers and speakers often have pairs of five-way binding posts, which accept all of the wire terminations listed above. But a universal plug-in speaker connector would be vastly preferable. Ironically, cheap one-brand systems often have RCA phono jacks or DC power jacks for easy plug-in speaker connection. But mainstream audio components force you to connect wires individually.

Until recently this situation was merely an annoyance, not a crippling fault. With eight connections, it's easy to wire the two channels of a stereo system in reverse or out of phase, but these errors are also fairly easy to detect and fix. Home theater systems are more complex—five speakers for Dolby Surround, plus, in many cases, a subwoofer. Hooking up such a system may require making as many as twenty-four individual connections, attaching wires to six pairs of terminals at the amplifier end plus six more pairs at the speaker end. With so many connections, the odds of an error can't be ignored. Worse, standard Dolby Surround test signals don't tell you if one or two of the speakers are wired out of phase relative to the rest of the system. If the left front or right surround speaker is wired out of phase, the performance of the system will be audibly impaired, but you may never discover the mistake.

There's no excuse for this situation. Audio manufacturers could have agreed on the design of a standard speaker connector three or four decades ago—a simple plug and socket that would provide a secure low-resistance connection and prevent out-of-phase wiring errors. But the industry never got around to it. The reason, perhaps, is that many design engineers have never outgrown the habit of regarding audio as a hobby. The truth, of course, is that stereo components are not merely toys for grown-up boys; they are an important category of products for the wide variety of people who care about music and want to enjoy it at home, including many with little interest in what makes it all work. Perhaps the obvious and urgent need to simplify home theater installations will embarrass manufacturers into finally adopting a standard plug-in speaker connector for two-speaker stereo as well. It's only forty years overdue. □

“One System. Movies *and* Music.”

INTRODUCING POLK'S NEW LS SERIES HIGH PERFORMANCE HOME THEATER/AUDIO SYSTEM

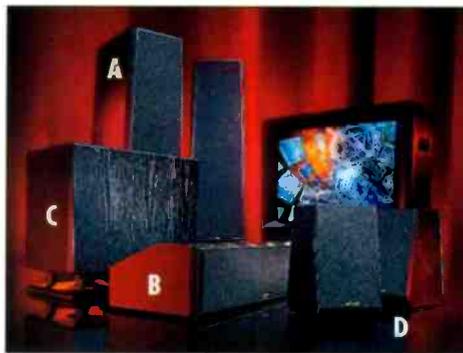
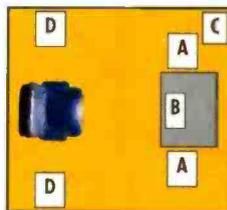
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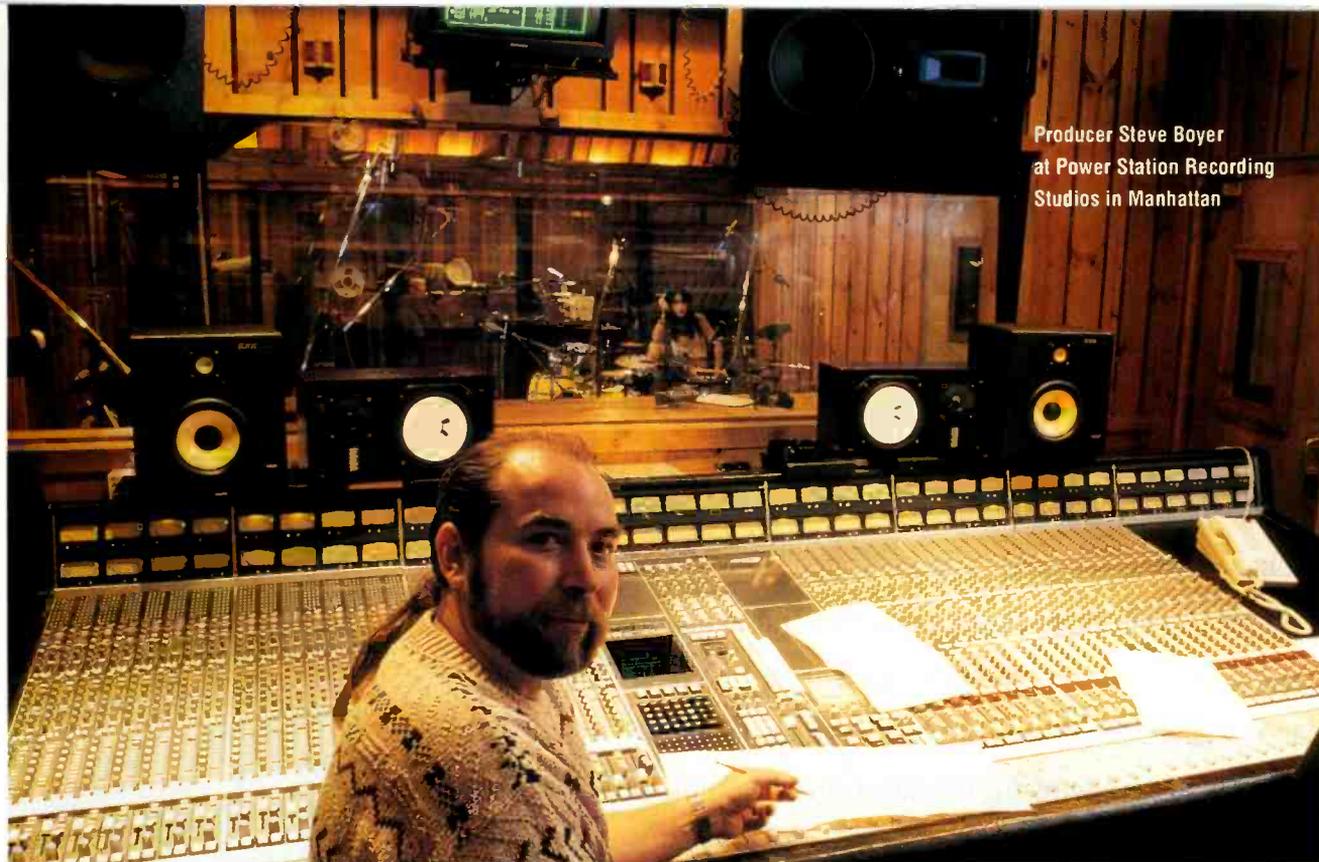
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Matthew Polk
Co-founder, Polk Audio



Producer Steve Boyer
at Power Station Recording
Studios in Manhattan

TRICKS OF THE TRADE

**An insider's guide
to how modern pop-music
recordings are made**

**BY BRUCE
BARTLETT
WITH JENNY
BARTLETT**

"The lead vocal sounds too thin—add some lows."

"How about some more reverb?"

"Make it sound like Carnegie Hall."

"Put a little slap echo on those harmony vocals."

"Can you get those cymbals to sound any crisper?"

Making a pop-music recording is full of sonic manipulations. Engineers process the sound, change its dynamics and tone quality, and do fancy edits. Even when the goal is a natural sound, sometimes it takes a lot of tweaking to get there. Surprising as it may seem, there are usually good reasons for all this tampering, and as a recording engineer I'm going to reveal some of the secrets behind what engineers do to the sound when making a recording—all in the name of musicality.

Take It from the Top

When engineers record an orchestra, sometimes they can get good results with just two or three microphones placed several feet from the ensemble. The mikes pick up a pleasing blend of the orchestra and the concert-hall acoustics. But in a pop-music recording, such distant miking would sound muddy; we're used to a close-up sound. So each instrument is given its own microphone. A drum set alone might have seven or more mikes. Often the microphones are placed just a few inches away from the instruments for clarity and "presence." Close miking also insures that each microphone picks up only its intended source.

The signals from the microphones are amplified and sent to a tape recorder having anywhere from four to forty-eight tracks. It's like having several stereo tape recorders locked together in perfect synchrony. Typically, each instrument is recorded on its own track. The instruments can be recorded all at once or one at a time—a process called overdubbing.

After the recording session comes a mixdown session in which all the tracks are blended together to two-track stereo. During the mixdown, engineers can adjust the volume of each track (or instrument) to get a satisfying musical balance. In this process, the tracks are fed through a mixing console, a big control panel that is used to adjust various aspects of sound quality: tonal balance, special effects, stereo imaging, and so on.

Equalization

The most commonly used processing is called equalization, or "EQ" in studio jargon. EQ means "tone control." It's the adjustment of strength of

the various frequency bands relative to each other. Equalization can be applied to individual instruments or to the whole ensemble.

To understand EQ, we need to understand the concept of frequency response. All sounds, including musical ones, consist of vibrations in the air at frequencies within the range audible to the human ear (from approximately 20 Hz in the deepest bass to 20 kHz in the most extreme treble). An audio device's frequency response indicates how evenly it passes signals across that range. If a constant input level produces a constant output level at all frequencies, the response is said to be "flat." The maximum amount by which the response deviates from flat is specified in decibels (dB) above and below the level at a selected frequency (usually 1,000 Hz, or 1 kHz) or the mean level, as in "20 Hz to 20 kHz \pm 3 dB." The smaller the tolerance, the flatter the response.

Flat response has no effect on the incoming sound. The frequency balance of the input signal is preserved in the output, and so, therefore, is the balance between fundamentals and harmonics, which helps to determine the timbres of musical instruments.

When you adjust a bass or treble tone control, you're changing the frequency response. If you turn up the bass, the low frequencies are raised in level. If you turn up the treble, the high frequencies are emphasized. The ear interprets these effects as changes in tone quality—warmer, brighter, thinner, dul'er, and so on.

Studio equalizers are like the bass and treble controls in your stereo sys-

tem, only more complex and more adjustable. Engineers can control the exact frequencies that are boosted or cut and can adjust many bands of frequencies at the same time. In fact, each microphone channel is equipped with its own EQ. If no equalization is applied, the mixing console has a flat response and does not change the sound passing through it.

Why not use a flat response to get the most natural, accurate sound? Well, we do *start* with a flat response. But, paradoxically, it doesn't always sound natural. Here's why:

Each microphone is placed close to a musical instrument or singer. This is done so that each mike picks up only its intended source. The engineer doesn't want to hear the piano in the acoustic-guitar track! But close mike placement can color the sound. The mike hears the part of the instrument it's closest to, rather than the whole thing. A guitar miked close to the sound hole sounds bassy, a sax miked close to the bell sounds bright and harsh, and so on. EQ can partly compensate for these effects. We're aiming for a natural sound, but EQ is needed to get there.

Sometimes we simply don't want a flat response. With a rock vocalist, for example, we might add some bass boost for warmth. Many singers want their voices enhanced this way; they like to sound larger than life. And a treble boost will help the sibilant sounds ("s" and "sh") be heard over an instrumental background.

Another use for EQ is to clarify a mix. If a guitar and piano both play at the same time, they might blur together because they occupy about the same frequency range. By emphasizing different frequencies in the guitar and piano, we can make their sounds more distinct from one another. Used in this way, EQ can give each instrument its own place in the frequency spectrum. Suppose we're mixing a recording of a rock band. The bass fills in the deep lows, synthesizer adds some warmth, guitar adds "edge" in the upper mid-range, and cymbals supply the highs. Thanks to EQ, the instruments don't "step on" or mask each other, so the mix is clearer.

On the other hand, EQ can cause a strained, unnatural sound if it's overdone. So we try to choose the right mike and mike placement to get the sound we want before resorting to EQ.



A mixing console at the Power Station

Panning

Another crucial control on a mixing console is the pan pot, which works like the balance control in a home system, shifting the sound to one side or the other when you turn it. On a mixing console, there's one pan pot for each microphone or each track, enabling individual placement of each instrument on the stereo stage between your speakers—left, right, center, or anywhere between.

Using pan pots, engineers can create a spatial layout for the instruments in an ensemble that is totally different from the one actually used during the recording. No matter where the musicians were playing in the studio, the engineer can place them anywhere between the speakers. Typically, the bass, kick drum, and lead vocal go in the center for a sense of solidity, with drums and keyboards spread out across the stage. Two electric guitars are often placed far left and right.

Artificial Reverberation

Probably the second most common type of signal processing, after equalization, is artificial reverberation, or "reverb." Reverberation is what you hear just after you shout in an empty gymnasium, or the decay of sound in a large room after each note of music, created by a series of acoustic reflections from the walls, ceiling, and floor. These echoes are so closely spaced in time that they merge into a single continuous sound that our hearing system interprets as spaciousness.

Over the years, many techniques have been used to generate artificial reverb, but most studios now use sophisticated digital reverberators. When we pass a signal through such a reverb unit, it adds hundreds of closely spaced, randomly delayed, progressively attenuated replicas. This process mimics the way reverb occurs in a real room.

Used in almost all pop-music recordings, artificial reverb adds a sense of space. Even if the recording was made in a small, dead studio, reverb can make the music sound as though it were being performed in an auditorium, a concert hall, or a garage.

If we want reverb in a recording, why not just record the musicians in a live, reverberant room? One reason is that you can't remove the recorded reverb if it turns out you want less of it. Also, reverb tends to make bass gui-

Using pan pots, engineers can create a spatial layout for the instruments.



Yael of 1st Born 7 in the studio

tar sound muddy, so that instrument is normally recorded dry (without any reverberation).

Some musical ensembles can be recorded well in a live acoustic space, but the recording equipment has to be transported there. In most cases, it's more economical to record in a studio with little or no reverberation and supply artificial reverb as needed.

On rare occasions, engineers add artificial reverb to recordings of classical music made in an acoustically dead hall. Suppose we're forced to record in a less-than-ideal venue in which the reverberation dies out too quickly. We can make an accurate recording of the sound in this hall, but it will seem amateurish and small-scale. With artificial reverb, however, the recording can be made to sound as if it were made in a splendid hall with a long reverberation time. Then the sound will be more pleasant, more suitable for the music. Although the recording may not convey the original hall acoustics, it sounds better. Listeners usually don't know whether a recording is true to the original, but they do know whether it sounds good!

Compression

Another common type of signal processor is a device called a compressor. Acting like an automatic volume control, a compressor makes quiet sounds louder and loud sounds softer. That is, it reduces the dynamic range of whatever signal you pass through it.

Doesn't compression rob the music of its expressive dynamics? Yes, if it's overdone. But a little compression can tame a dynamic range that is excessive. Consider a vocalist singing with a band. Singers tend to have a wider dynamic range than their instrumental backup. Sometimes singers hit loud notes that would blast the listener. Other times they sing softly and get buried in the mix. A compressor can even out these extreme level variations, making the sound more listenable. That is, the compressor makes the lyrics easier to understand when instruments are playing behind the singer.

As an alternative to compression, some engineers "ride gain"—adjust the microphone level manually. Skillfully done, gain-riding gives more natural-sounding results than electronic compression. This technique was used

Big Speaker Sound...

without the Big Speaker.



The typical home theater system consists of a subwoofer, left and right stereo speakers and a center channel speaker. Not hard to spot are they?



Here's the Polk RM7000 home theater system. The stereo speakers are mounted on the wall. The center channel speaker and the subwoofer are inside the cabinet!

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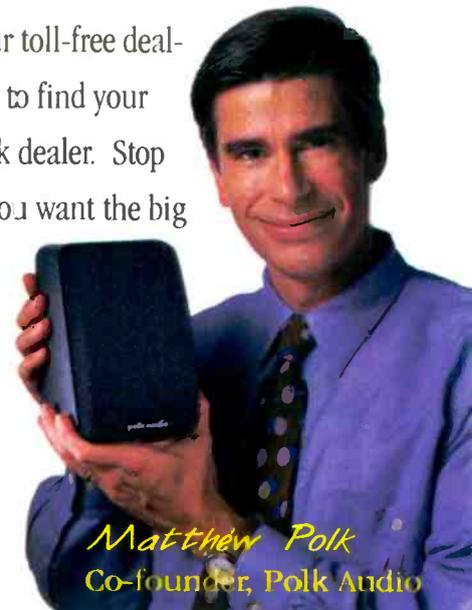
Wait till you hear the RM7000 system. You'll be astonished. Its true-to-life sound results from the same groundbreaking technology, Dynamic Balance[®], used to create our acclaimed flagship speaker, the LS90. Yet the RM satellites are so small, they fit into your palm. Most importantly, so small they disappear into your room.



The powered subwoofer fits easily into your furniture and, thanks to its revolutionary technology, guarantees more bass in less space.

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Matthew Polk
Co-founder, Polk Audio

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for the vocals in Linda Ronstadt's "Lush Life" album, for example. It's hard to anticipate the jumps in volume and compensate for them, however; a compressor tracks the volume changes almost instantaneously.

Compression can also be used to beef up the weak notes in a vocalist's range or to tame the loud pops in a bass line. Used to extreme, compression can give a punchy sound to electric guitars and drums. Check out the compressed lead guitar in *Funk 49* by the James Gang.

Effects

Effects are unusual changes in the sound intended to make it more exciting or interesting, not more accurate. Below are brief descriptions of some of the special effects used in many pop-music recordings.

Echo repeats a sound after a short delay ("Hello-lo-lo"). Echo was used on many 1950's rock-and-roll recordings, such as Elvis Presley's *Heartbreak Hotel*.

Doubling repeats a sound after a very short delay. It's used to make one singer sound like two, giving a fuller sound. Paul McCartney doubled his voice on many Beatles records.

Chorus repeats a sound after a very short delay that varies slightly in duration. It gives the sound a wavy, shimmering effect.

Flanging puts a series of peaks and dips in the frequency response and sweeps them up and down the frequency spectrum, imparting a hollow, swishing, ethereal effect like a jet plane passing overhead. One of the earliest uses was in *Itchycoo Park* by the Small Faces.

An **exciter** adds brilliance (treble) by introducing a slight amount of distortion to the sound.

Stereo processing (Q-Sound, Spatializer) puts sound images outside the bounds of the speaker pair, to the left or right side of the listener, even though the speakers are up front. An example can be found in Roger Waters's *Amused to Death*.

Editing Tricks

In addition to controlling the sound, engineers can create a musical performance that never existed. For example, a tape recording can be edited to remove mistakes, either by razor blade or by computer. What's more, musicians and engineers can create or assemble a performance in the process

Compression can be used to beef up the weak notes in a singer's range.

of editing. Unlike a typical live performance, an edited performance can be completely error-free. Some common editing tricks are described below.

Looping. A computer is made to repeat a musical phrase, or a drum part, several times. For example, the computer plays a few measures of a drum riff and bass line over and over to generate a musical background. Then vocals and solos are added. Looping is standard procedure in making a rap recording.

Flying in. The engineer records a musician playing a section of a song until it is performed perfectly. This section is copied and placed at several points in the song, almost like cut-and-paste in a word processor. An example is the phrase "Oo la la la" in Gloria Estefan's *I Live for Loving You*.

Composite performances (comp-ing). The engineer records several takes of a vocal performance on different tracks of a multitrack tape recorder. During playback, the engineer turns various tracks on and off to combine the best parts of each take into a composite track. The result is a better performance than the singer can do in a single stretch.

Although most recordings need some tinkering, many have been made with a minimum of technical intrusion. The engineer sets up just a few microphones in a good-sounding room and records with little or no processing. Such recordings can sound superb—very clean and realistic. They are the best ones to use in judging the accuracy of loudspeakers.

Often, though, engineers must resort to control-room trickery in order to make a recording that sounds natural and pleasant. In fact, sometimes the goal is not accuracy at all—it's to intrigue the listener with unusual sounds. In any case, the aim is always to serve the music. □

Bruce Bartlett, senior microphone design engineer at Crown International, has been a recording engineer for twenty-five years and runs a small studio.

SOME TRICKY DISCS

Lots of effects

Smashing Pumpkins, "Siamese Dream" (Virgin)

Equalization

The Beatles, "The White Album" (Parlophone), *Honey Pie*: low-frequency cut in the vocal line, "Now she's hit the big time"

Bryan Adams, "Reckless" (A&M): high-frequency boost in the vocals

Wide panning

Dave Brubeck Quartet, "Time Out" (Columbia): drums far left, piano far right

No reverberation

Tom Petty, "Full Moon Fever" (MCA): lead vocals

Reverb turns on and off

Pink Floyd, "Dark Side of the Moon" (Capitol), *Money*: guitar solo

Echo

John Lennon, "Shaved Fish" (Capitol), *Instant Karma*: vocal and drums

Much reverberation

Simon & Garfunkle, "Bridge

Over Troubled Water" (Columbia), title track: snare-drum hits

Doubling

The Beatles, "Magical Mystery Tour" (Capitol), *I Am the Walrus*: vocal

Flanging

Jimi Hendrix, "Electric Ladyland" (Warner/Reprise): drums, some vocals

Holdouts

Some record labels and recordings that use little or no processing:

Sheffield Labs

Binaural Source (dummy-head recordings)

Telarc Records (and some other classical labels)

Mapleshade Studios

Chesky Records

Water Lily Acoustics

Old-time folk music and acoustic jazz
The Beatles, "Sgt. Pepper" (Capitol), *When I'm 64*

The three most important letters in home theatre...



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The KEF Reference Series: (From left to right) Models One, Three, Four, and Two. Shown in Rosewood finish. Also available in Rosetta Burr or Black Ash.



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its ability to place the performers accurately, left to right and front to back.

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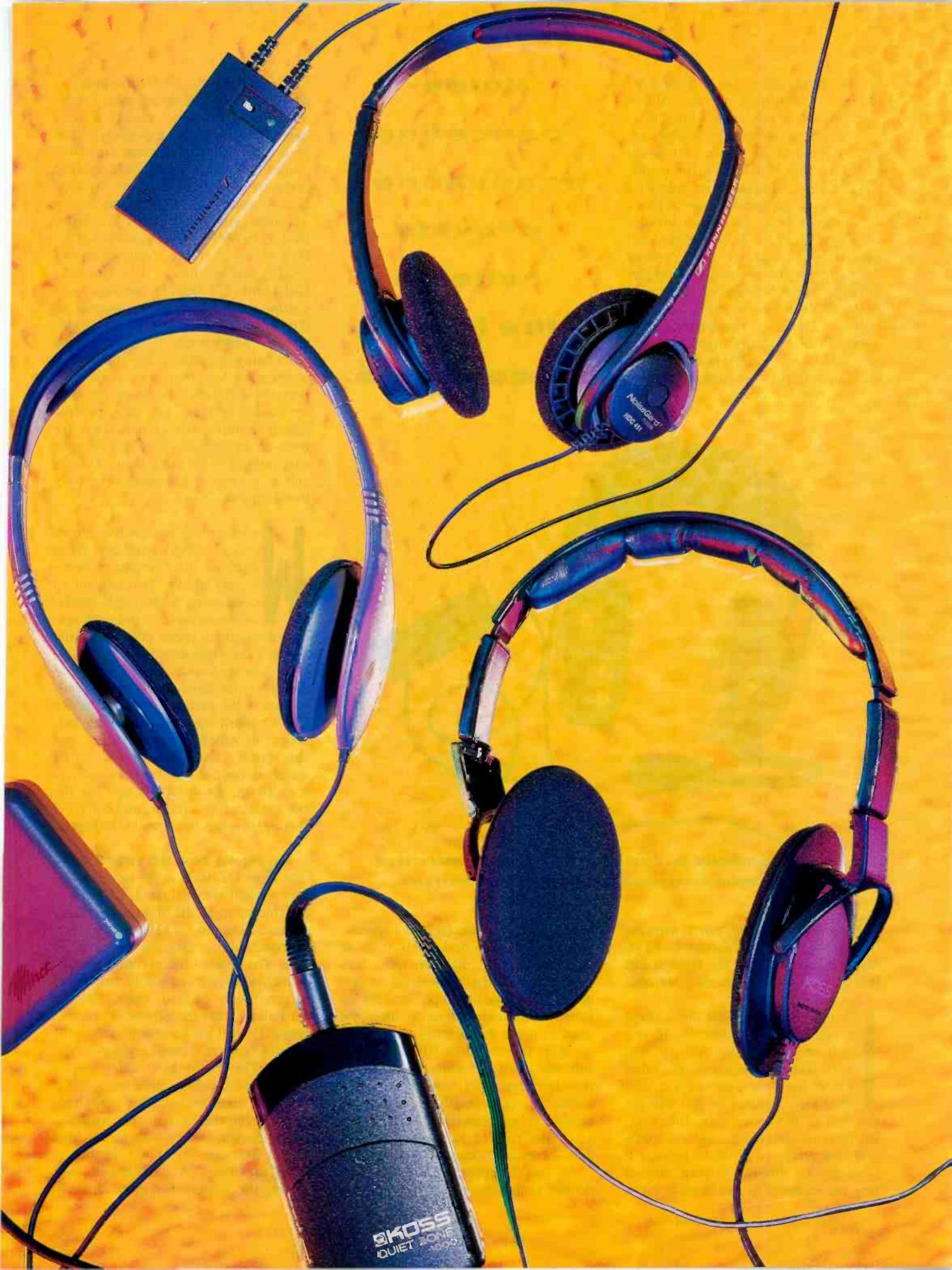
**BY MICHAEL KLASCO
AND ROB BAUM**

Ever watch a movie on a plane? It's a great way to shorten a flight, but between squinting to see the picture and straining to hear the dialogue, you're lucky if you can follow the storyline, let alone pick up on subtle plot twists. And you can't put all the blame on those miserable headphones you get in coach; it's just too noisy to really hear what's going on. Same thing when you listen to your Walkman while you're mowing the lawn, using a leaf blower, or vacuuming—even with the volume cranked, the music is largely drowned out by mechanical racket.

The good news is that there's a new kind of electronic headphone system now on the market that uses special circuitry to cancel out unwelcome

PHOTOS BY JEFFREY KOBEN





background noise, be it from a jet turbine or a Hoover upright. And—surprise!—they don't cost a bundle.

The first noise-canceling headphones were developed by Bose and Sennheiser in the mid-1980's for pilots, who up until then had relied solely on bulky closed-cup headphones to block out the high-level noise that invades an aircraft cockpit. Bose initially targeted private pilots who had to endure the extremely high noise of propeller aircraft, while Sennheiser responded to the needs of commercial pilots. The problem: "Passive" headphones did a good job of blocking high-frequency noise, but they were less effective at quieting the (low-frequency) rumble

Noise- canceling headphones provide relief in the lower frequencies.

\$1,000 a pop) and are far too bulky—and acoustically isolating—for everyday use. Still, there's clearly a need among the rest of us, especially music lovers, for relief from noise on trains, planes, and buses or while operating leaf blowers and dishwashers. At least three companies, Noise Cancellation Technologies (800 Summer St., Stamford, CT 06901-1023), Koss (4129 N. Port Washington Ave., Milwaukee, WI 53212), and Sennheiser (P.O. Box 987, Old Lyme, CT 06371), are now providing some relief to the masses in the form of relatively low-cost, lightweight headphone systems. Apart from being somewhat less effective at attenuating low-frequency noise, the primary difference between the new consumer systems and their professional counterparts is that they use open-air headphones that rest on your ears instead of covering them. The result is a system that blocks out only low-frequency noise.

We examined three active noise-canceling systems, one from each of the companies mentioned above. In addition to conducting a thorough hands-on inspection, we put each system through its paces on an airplane and in a car while driving in the vicinity of a noisy construction site. All of the systems have adjustable headphones with pivoting earcups and a small control module, containing batteries, to which the headphones and the source component attach. Other standard control-box features include a belt-clip, an on/off switch for the noise-canceling circuit, and an LED that lights when the circuit is engaged.



The Bose Aviation Headset uses closed earcups to seal out high-frequency noise and a patented electronic noise-canceling circuit to reduce low-frequency noise.

• Koss Quiet Zone QZ/1000 (\$300).

The Koss QZ/1000 is the most expensive system we evaluated. It's said to provide up to 18 dB of attenuation between 30 Hz and 1.4 kHz, and its overall bandwidth is given as 20 Hz to 20 kHz. The headset has pivoting earcups (which also swivel back to front) and is generously padded, but it's also a bit bulkier than the others; its cord is about 3½ feet long and connects to the control box via a small eight-pin connector. The control box, which houses the noise-canceling circuitry and the two AA alkaline batteries (supplied) that power the system, resembles a small electric shaver with its rounded top; it measures 2½ x 4 x 7/8 inches. Koss says two AA alkaline cells will power the system for more than 40

of the aircraft's engine, not to mention the wind noise. The solution: Build an electronic circuit into the headphones that generates noise-canceling signals.

It sounds high-tech, but the concept is actually pretty simple. If you push on a swinging door, it will open. But if someone on the other side of the door pushes on it with equal force, neither of you will get through to the other side. Likewise, active noise-canceling headsets create a mirror image of noise to prevent it from getting through to your ears. A tiny microphone in the headset picks

up surrounding noise (within a specific frequency range) and sends it to an electronic circuit that generates "opposing" noise that's identical in frequency but opposite in phase. This so-called "anti-noise" signal reduces the level of noise that reaches the headset speakers by more than 10 dB. As a result, the clarity of voice communication between pilot, copilot, and the control tower is greatly enhanced and headset volume can be decreased, lowering the risk of long-term hearing loss—a serious occupational hazard.

As you'd expect, aviator headsets do not come cheap (they cost about

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10 disc changer

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when you purchase your new

Ford Contour or

Mercury Mystique, make sure you ask for the AM/FM stereo CD radio with Premium Sound or a dealer-installed CD player... it's worth every decibel.



hours, presumably under ideal conditions. Accessories include a 4-foot audio cable with a gold-plated right-angle mini-plug at each end, a phone-plug adaptor (for use with a home stereo system), and a two-pin adaptor that's said to be compatible with the armrest jacks used in most airline audio systems.

The QZ/1000 headset is comfortable and easy to adjust thanks to its pivoting/swiveling earcups. When you switch the noise-canceling circuit on, there's a click and a split-second delay before it kicks in. The system does a very good job of filtering out low-frequency noise, and its headset delivers excellent sound quality. One quirk: Audio play-through is terminated when the system unit is switched to the off position, which means you can't directly compare the difference between listening with noise reduction and listening without it. Such instant A/B comparisons are possible with the other two systems.

• **Noise Cancellation Technologies (NCT) NoiseBuster NB-DX (\$150).** The NoiseBuster is the least expensive system of the lot—and on the market, for that matter. It's made in mainland China to NCT's specifications, which undoubtedly helps keep its price down. If you haven't heard the name NCT before, that's because the company specializes in active noise- and vibration-reduction systems for industrial applications. The NoiseBuster is NCT's first consumer product. The system is said to provide a 50- to 95-percent reduction in noise between 20 Hz and 1.2 kHz. The 3-foot cable running from the headset is permanently connected to the squat 3 x 3 x 1-inch control box, which houses the noise-reduction circuitry and a 9-volt battery (not included). NCT says the system should remain operational for 15 hours before the battery runs out. Accessories include an 18-inch audio cable with an in-line volume dial and a phone-plug adaptor.

The NCT headset isn't quite as comfortable as the other models, partially because the earcups' pivoting action is somewhat restricted, but it's still perfectly acceptable. The thing that strikes you right off the bat is that it takes a full three seconds for the noise-quieting circuit to engage (with a click), compared with a fraction of a second for both of the other models; it also

All three noise- canceling systems that we evaluated were quite effective.

boosts the level of the incoming audio signal a decibel or two. When the circuit does kick in, however, it is quite effective, particularly at extremely low frequencies. While the NCT headset is not an audiophile headset, it delivers decent sound quality and is certainly far better than any headset you'll ever find in a first-class airline cabin (noise-canceling function or not).

• **Sennheiser HDC 451 NoiseGard Mobile (\$249).** The NoiseGard system bears the distinction of having a control box that at 1 $\frac{3}{8}$ x 2 $\frac{7}{8}$ x $\frac{7}{8}$ inches is about half the size of those used by the competition. The reason for the tiny box is that it houses only two AA batteries (not included), an LED, and a tiny switch—the noise-canceling circuitry is stashed away in the headset. The system is said to provide 10-dB attenuation between 400 Hz and 1 kHz. Unlike the other systems, the HDC 451 has both its headset wire and audio-source cable permanently affixed to the control module. The source cable is 22 inches long and terminates with a right-angle mini-plug, while the headphone cable is more than 4 feet long. Sennheiser says two AA alkaline batteries will keep the NoiseGard circuitry active for 80 hours; the system can also be powered by a pair of rechargeable 600-mA NiCd batteries, but operating time is said to drop to 20 hours. The only accessory Sennheiser supplies is a two-pin airline adaptor.

The NoiseGard headset is comfortable and easy to adjust. There's one caveat here, though: because a tiny microphone is located in the outer shell of each earcup (rather than being hid-

den away as in the NCT and Koss systems), you get horrendous feedback if your hands happen to cover both mikes while you're adjusting the headset (we learned the hard way!). As with the Koss unit, the noise-canceling circuit engages almost immediately (with a slight pop) when you switch it on. The NoiseGuard does a great job at keeping extraneous low frequencies away from your ears, and the headset delivers excellent sound quality.

The Bottom Line

All three of the noise-canceling systems we evaluated were quite effective at doing what they're designed to do—reducing objectionable background noise while leaving the frequency range of speech largely intact so you don't become oblivious to the outside world. In fact, when it came to watching movies on an airplane, quite frankly, we were amazed at the dramatic improvement in soundtrack intelligibility. We were even able to hold a conversation as we walked out on the runway to board our flight, jets whizzing by and all. Without the headsets it was impossible to hear one another without screaming. Needless to say, we received some very strange looks from other passengers!

While these systems have some limitations and idiosyncrasies, none are fatal. For example, a faint whisper of electronic noise can be heard through each headset when its noise-canceling circuit is engaged; it's most noticeable in NCT's NoiseBuster. Of course, when you consider how quiet it has to be before you can detect circuit hiss in the first place, there isn't really much to worry about. Another minor annoyance: All of these systems can be overloaded if the external noise is loud or deep enough. The Koss system, in particular, didn't like rough takeoffs and landings; its headphone element bounced painfully along with the clunks and clatters of the airplane's landing gear.

Finally, all three systems produce what we would describe as a pressurization effect—the sensation that a sort of vacuum exists between your ear drums and the earcups. The effect, which was most pronounced with the Sennheiser NoiseGard system, is most conspicuous when high levels of extreme low-frequency noise are present and can become somewhat oppressive over long listening periods. The prob-

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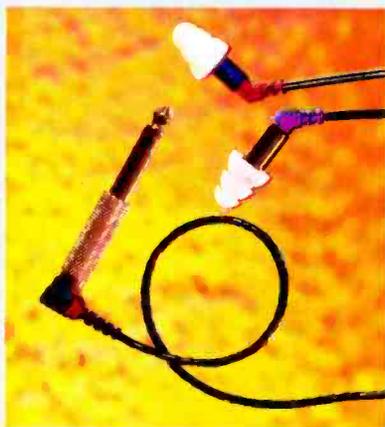
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* Quote excerpted from a review of the SRS (●) technology from the April 1992 issue of *Audio Magazine*. The Vivid 3D sound enhancement system won the Retail Vision "Best Product" award in May 1994, and the Innovations award from the International Consumer Electronics Show in June 1994. Vivid 3D systems incorporate SRS (●) technology which won the "Ultimate" award from *Game Players* magazine in July 1993. © 1994 NuReality. All rights reserved. SRS (●) is a registered trademark of SRS Labs. All product names are trademarks or registered trademarks of their respective holders. SR1

ETYMOTIC'S SOUND-ISOLATING EARPHONE



There's a headphone that takes the traditional approach to low-noise headphone listening—sound isolation—to the extreme. Actually, the ER-4S from Etymotic Research is more appropriately called an earphone: A small cylindrical driver for each ear is partially inserted into a soft-plastic earplug (photo shows a pair with a 1/4-inch phone-plug adaptor for size comparison). Each assembly is in turn carefully inserted fairly deep *into* the ear canal, though it remains a safe distance from the eardrum.

Sound isolation was not why the earphones were developed, however. An outgrowth of Etymotic's work on high-fidelity hearing aids, they were originally designed to be a laboratory standard producing as flat a perceived frequency response as possible. And they do that very well, as can be verified by comparing ear-canal measurements of the sound produced by the ER-4S to that produced in a typical ear canal by a reference "diffuse" sound field.

While other headphone companies use an ear-canal/diffuse-field match as their design ideal, no other phones come as close to realizing it as the Etymotic ER-4S, which is specifically designed to operate in the predictable and controlled sonic environment created by earplugs. The result is sound that's more neutral and uncolored than from any headphones or earphones I've ever used, though a few

very expensive—and hardly portable—electrostatic models have come close.

To achieve that level of sound quality, however, each earplug must be sealed as tightly as possible. Instructions accompanying the ER-4S repeatedly remind the user that "you'll lose bass response" if you don't have a good seal. And both the foreign presence in the ear canals and the practice-makes-perfect insertion procedure take some getting used to. Even with a tight seal, if you're accustomed to typical headphones, which often have deliberately overemphasized lows and many high-frequency faults, you may think that the ER-4S has a rolled-off bass response—until you play a pipe-organ recording with fundamentals below 30 Hz.

When using the ER-4S—and, indeed, any headphone, noise-reducing or not—keep in mind that you'll be partly deaf to sounds of the outside world due to the masking effect of the music. That caution is more important than usual with the ER-4S because of its ability to attenuate external noises by some 20 to 25 dB across the audio band. It's certainly more effective at keeping out high frequencies than some of the sealed-cup and active noise-canceling headphones I've tried.

When the ER-4S is used outdoors, it's quite possible to miss important auditory cues such as approaching emergency vehicles, people talking to you, public-address announcements, and, in New York especially, nearby mayhem of various types. Nonetheless, the small, light, unobtrusive (noise stays out, music stays in), and unostentatious ER-4S is a nearly ideal subway, train, airplane, or live-recording earphone, albeit at \$330 a rather pricey one. With the extreme noise isolation provided by its earplug-based design and its reference-standard sound quality, the ER-4S is the closest thing yet to a direct sonic connection to the brain. —David Ranada

Etymotic Research, 61 Martin Lane,
Elk Grove Village, IL 60007

lem occurs when the headset's speaker elements operate outside of their linear range—a phenomenon known as dynamic nonlinearity—and it will more than likely be eliminated in future models.

In case you're wondering whether noise-canceling headphones can be used to tame excessive sound-pressure levels at a concert, the answer is no. The circuitry only works in the presence of continuous low-frequency sounds, like the drone of a jet engine or diesel locomotive. Music is too transient. The other problem, of course, is that these devices operate in a frequency bandwidth that is critical to music. You're better off at a real loud concert with a high-quality pair of earplugs, like Musician's Earplugs from Etymotic Research (see panel at

**We could
even hold a
conversation
on the
jet runway
without
screaming.**

left), which are designed to provide uniform attenuation across the full frequency spectrum.

The next time you're struggling to hear your Walkman over your lawn mower, though, consider taking a break for a trip to the local electronics store so you can hear for yourself what noise-canceling headsets can do. If you're feeling particularly nery that day, ask the salesman to pull the vacuum cleaner out of the back room and really put 'em to the test. And if you decide to take one home, just remember this advice: Don't lend it to anyone. Not even your mother. You may never get it back. □

Michael Klasco is an acoustical engineer and Rob Baum an audio engineer at Menlo Scientific in Berkeley, California.

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ROLL OVER, BEETHOVEN!



BY MARION S. JACOBSON

Last summer, as usual, I received a fall season brochure from the Alexandria Symphony, a community orchestra serving the inhabitants of the tidy brick colonials across the Potomac River from Washington, D.C. I began leafing through the brochure indifferently, expecting the usual lineup of Great Masterworks from Mozart and the Three B's. I found instead a seasonful of Debussy, Bartok, and Barber, along with a healthy sampling of living composers. "As we approach the 21st century, we boldly return to the 20th," the brochure announced.

A few readings of *La Mer* and *The Firebird* for ladies in pearls and gentlemen in Burberrys hardly amount to a revolution in Virginia. But the brochure hints at a gradual meltdown of the once-ironclad idea of a standard repertoire from the period 1750 to 1868, or from Bach to Wagner. Musicians and the business interests behind them are rethinking those endless repetitions of Bach, Beethoven, and Mozart that have threatened to turn concert halls into museums and the classical shelves in record stores into reliquaries. Not just early twentieth-century music but even music from the second half of our century is lunging to the public attention.

At one time a relatively small coterie of connoisseurs looked to specialized labels like New Albion, Bridge, and Composers Recordings, Inc. (CRI) for their new-music fixes. Although Warner's Elektra/Nonesuch label has been a stalwart in recording contemporary music, most musical megaconglomerates have treated contemporary composers like unwanted stepchildren. But now a number of major powers in the record business are dedicating entire labels to beyond-the-basics repertoire. BMG Classics distributes ECM's New Series and has started its own Catalyst label for adventurous projects. Philips Classics handed composer Philip Glass the reins of its Point Music label. London relaunched Argo mainly to record American and British minimalists.

Few support the repertoire's overhaul more than concert musicians. A whole generation of younger artists—such as the soprano Dawn Upshaw, the guitarist Eliot Fisk, and the violinist Maria Bachmann—are broadening

their horizons in a way that would have amounted to professional suicide twenty-five years ago, building recitals and solo albums around new music and even premières. "There are more and more performers becoming involved in new music," observed Dennis Russell Davies, the Brooklyn Philharmonic's conductor and a new-music advocate, when we spoke recently.

Indeed, there are some pragmatic reasons for this involvement. As the pianist Alan Feinberg once pointed out, it's nearly impossible to put one's own stamp on the hundred-and-first recording of a piece of standard repertoire. Dawn Upshaw, the radiant vocalist in the best-selling Elektra/Nonesuch recording of Henryk Gorecki's Third Symphony and a veteran of many premières, told me. "We need to get out of the mode of recording the same old warhorses over and over again, not only to expand the repertoire but to expand the listener's capability to take in all different styles."

And Meredith Monk, whose music-theater projects have thrived on the cutting edge of music and performance art since the late Sixties, said she has noticed a warming trend in this country. "For a while I felt that Europe was ahead of the U.S. in appreciating my music. But now I feel that [American] audiences are allowing themselves to experience all different aspects of the music. They're enjoying themselves more."

What Upshaw and Monk are witnessing isn't a new trend but a return to the idea of art music as a living tradition. "Older is better" wasn't always a rule of thumb. The Renaissance madrigalists turned out multipart vocal music for home enjoyment alongside card games; Bach and Handel wrote music to accompany royal banquets and less grand affairs. True, as early as 1738 England supported groups like the Concert for Ancient Music, but "ancient" then meant twenty or thirty years old.

The nineteenth century changed everything. A growing fascination with the past—and the emerging conviction that cultural superiority rests on a gradual pile-up of masterpieces—created a flood-tide of revivals, most notably Felix Mendelssohn's groundbreaking performance of Bach's *St. Matthew Passion*. Widening the gap between living composers and their audiences was the Romantic idea of the rebellious artist who never gave his audience a second thought.

Matters hardly improved in the twentieth century. Following Schoenberg's example, many composers retreated into thorny dissonances and complex harmonic structures, and new "serious" music became of interest mainly to other composers or to academics. The rift between composers and music lovers prompted Milton Babbitt to defend difficult music and its retreat to the ivory tower in his infamous 1958 article in *High Fidelity*, "Who Cares If You Listen?"

These days, composers *do* care if you listen. A whole new generation is writing music that sounds engaging to listeners, even those without music-theory degrees. Of course, cynics would argue that composers have suddenly focused on writing lovable tunes because they've suffered funding cuts from every institution that has supported them, from universities to community arts programs.

One thing is certain, though: Audiences are changing too—they're tolerating and enjoying a wider range of sounds. As the globe shrinks, political boundaries erode, and technologies develop beyond our wildest imaginings, the range of what's acceptable in classical music has broadened. "It's a fabulously schizophrenic age," exults the composer Robert Moran. "People are finding the new flavors and colors to be quite valid."

Trying to explore the full variety of new music available on CD today could cause sensory overload. Following are pointers to a few recordings of music by twentieth-century composers who are not part of the current mainstream repertoire, grouped according to certain themes and ideas central to our age. Wherever you choose to start exploring, you may end up agreeing with Philip Glass, who has said, "To listen to the music of your time is the most exciting thing you can do."

GROUNDBREAKERS

From the ruins of the European classical tradition in the early twentieth century came new generations of composers eager to liberate music from the old rules. Some of them developed new scales and modes (Schoenberg and Webern). Others focused on limiting their material (the minimalists). And others concentrated on "letting sounds be sounds," as John Cage pleaded with his generation to do. The pieces in this category represent the

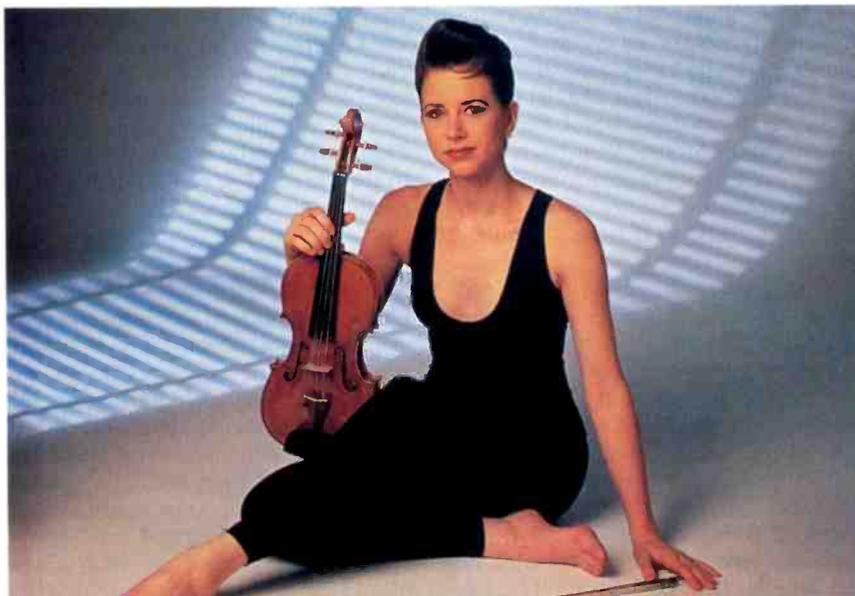
On facing page: the Kronos Quartet, David Bowie with composer Philip Glass, and soprano Dawn Upshaw

wide range of styles that have, in their time, been on music's sharpest cutting edge.

ADAMS: The Chairman Dances; other works. San Francisco Symphony, Edo de Waart cond. ELEKTRA/NONESUCH 79144. I can't top the message on the Internet newsgroup rec.music.classical posted by Mr. J. Petree of Medford, Massachusetts, who said that John Adams "saved [his] life": "After one-year-plus at yet another s--- job, it gets awfully hard to get to work in the a.m. I thought . . . maybe my favorite rhythmically challenging, bursting-climax, lay-it-all-out-on-the-line minimalist could help matters. I popped 'The Chairman Dances' into my Walkman, and by the time I got to work I was almost in a good mood!"

CRUMB: Songs, Drones, and Refrains of Death; Apparition; A Little Suite for Christmas. Jan DeGaetani; Speculum Musicae. BRIDGE 9028. Few composers can sustain an eerie, dreamlike state the way that George Crumb can. The late mezzo-soprano Jan DeGaetani remains the definitive interpreter of much twentieth-century vocal music.

MILHAUD: La Création du Monde. Works by Debussy and Prokofiev. Orchestre de Chambre de Lausanne, Alberto Zedda cond. VIRGIN 61104. Darius Milhaud's brilliant 1923 jazz ballet *La Création du Monde* (*The Creation of the World*) still sounds fresh and exciting.



Violinist Maria Bachmann records new music for the BMG/Catalyst label.

NANCARROW: Studies for Player Piano; other works. Ensemble Modern, Ingo Metzmacher cond. RCA 61180. Conlon Nancarrow's idea in these pieces was to create rhythms so complex that no human being could reproduce them, yet the music is surprisingly accessible and easy to follow.

REICH: Drumming. Steve Reich and Musicians. ELEKTRA/NONESUCH 79170. The label "minimalism" ignores the many contrasts that Reich's music brings into play: textures, drone-like notes against a flurry of rhythms, and patterns against patterns.

SATIE: Piano Works. Aldo Ciccolini. ANGEL 49702/03, 49713/14, and 49760 (five CD's). Many listeners never get beyond the *Gymnopédies* or the attractive surface of Satie's often whimsical, pretty music. There is substance beneath, and moods that are often melancholy and viciously satirical. Only repeated hearings will reveal them.

VARESE: Ionisation; Amériques; Arcana; Density; Intégrales. Ensemble Intercontemporain; New York Philharmonic, Pierre Boulez cond. SONY 45844. After listening to Edgard Varèse's brilliant and forward-looking *Ionisation* for thirty-seven percussion instruments (written in 1929-1931), you may return to everyday life with refreshed ears, hearing music in ringing phones and beeping garbage trucks outside your door.

WEBERN: Five Pieces for Orchestra; Passacaglia; Variations, Op. 6.

SCHOENBERG: A Survivor from Warsaw. Vienna Philharmonic, Claudio Abbado cond. DEUTSCHE GRAMMOPHON 431 794.

Webern's sparse, crystalline, finely wrought music can resonate with modern listeners who give it a chance, and the luminous colors Abbado brings out serve the *Five Pieces for Orchestra* very well. Schoenberg's *A Survivor from Warsaw*, for narrator, male chorus, and orchestra, is one of his most powerful and effective pieces.

A CHANCE OPERATION: THE JOHN CAGE TRIBUTE. John Cale; Yoko Ono; Laurie Anderson; Oregon; others. KOCH 3-7238 (two CD's).

"A Chance Operation" assembles a vibrant crowd of younger composers inspired by Cage's ability to make music from just about anything: furniture, street noises, pianos "prepared" with paper clips, wood splinters, and all kinds of other objects to interfere with or enhance their sound. The notes encourage you to use your CD player to reprogram the twenty-three selections into any of a gazillion different sequences, creating a Sixties-style "happening" in your own home. Just hit the Random button.

MERIDIAN BRASS ENSEMBLE:

Smart Went Crazy. CHANNEL CROSSINGS/ALLEGRO IMPORTS 4192. A sense of mischievous fun crackles through the Meridian Brass Ensemble's explosive new arrangements of pieces by the avant-garde rockers Captain Beefheart and Frank Zappa. It's worth tolerating some long-windedness from Kurt Nurock, who composed the title cut, to hear one of the most energetic and technically incisive young ensembles in the new-music scene today.

GLOBALISTS

John Cage once said, "There is no longer a question of East and West." Over the last fifty years, Western composers have sought out the scales and instruments of non-Western cultures, not only for their exotic appeal but to explore other ways of thinking about music.

CURRAN: Songs and Views of the Magnetic Garden. BMG/CATALYST 61823. Alvin Curran's haunting, lush-textured, and highly atmospheric tape

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HOVHANESS: Mysterious Mountain; Lousadzak. HARRISON: Elegiac Symphony. Keith Jarrett; American Composers Orchestra, Dennis Russell Davies cond. MUSICMASTERS 7021.

Lou Harrison and Alan Hovhaness draw on many Asian and Middle Eastern musical traditions. In *Lousadzak*, a concerto-like work that involves some chance operations, Hovhaness calls upon the piano to imitate the sounds of Arabic instruments. His *Mysterious Mountain* and Harrison's *Elegiac Symphony* are some of the most appealing, unabashedly lyrical works for orchestra written in this century.

TAKEMITSU: Music of Takemitsu. Soloists; Tashi; Boston Symphony, Seiji Ozawa cond. DEUTSCHE GRAMMOPHON 423 253.

Bewitching music combining Western orchestral sounds with piercing Japanese flute and vocal melodies from the *bunraku* theatrical tradition.

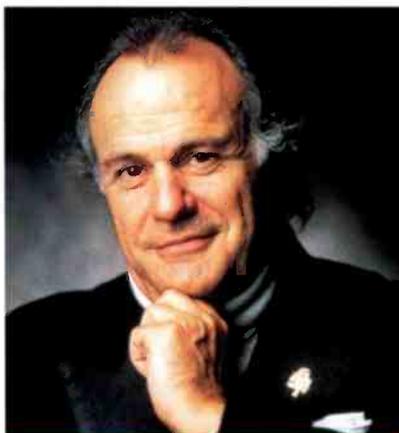
KRONOS QUARTET: Pieces of Africa. ELEKTRA/NONESUCH 79275.

The blend of Western rock and African drumming is now a fixture in pop music (Paul Simon, Youssou N'dour), so why not mix a classical string quartet with an African percussion ensemble? Most of this album plays on contrasts and tensions, but in Hassan Hakmoun's *Saade* ("I'm happy" in Arabic), the listener senses an uncanny convergence between the players on the oud (a near-Eastern lute) and the kora (an African harp). Other notable selections are *White Man Sleeps* by Kevin Volans and Dumisani Maraire's *Mai Nozipo*.

MYSTICS

Your hard drive crashed? Stressed out from a rough commute? If you want to slow things down and travel inward for a few hours—and if New Age music bores you—composers such as Olivier Messiaen, Henryk Gorecki, and Meredith Monk have your number.

The modern mystics are eagerly rediscovering music's spiritual and ritualistic connections, and audiences are responding in kind. To Monk, mystical music answers a real longing: "We live in such a fragmented and violent reality. There's a sense that we have to re-think our values, to cleanse ourselves. Music has the capacity to do that."



"As the world becomes more complicated, people are looking for less complication in their music."

—conductor David Zinman

GORECKI: Symphony No. 3. Dawn Upshaw; London Sinfonietta, David Zinman cond. ELEKTRA/NONESUCH 79282. Henryk Gorecki's Third Symphony has enthralled both novice and experienced listeners with its ripe agonies and ecstasies rendered in shimmering orchestral textures. Upshaw's soaring vocal performance is one of the main attractions of this recording.

TAVENER: Last Sleep of the Virgin; The Hidden Treasure. PÄRT: Fratres; Summa. Chilingirian String Quartet. VIRGIN 45023.

An unlikely (but effective) combination of austere minimalism and trance-inducing rapture—rooted in a solid Eastern Orthodox faith—pervades the music of Britain's John Tavener and Estonia's Arvo Pärt.

MUSICA SACRA: Of Eternal Light. Richard Westenburg cond. BMG/CATALYST 61822.

An intelligent and well-balanced selection of *a cappella* works that showcase the Musica Sacra chorus's elegant, polished vocal textures. Like "Sergeant Pepper" and your favorite pop concept albums, the four Gregorian-chant-inspired pieces here—by Ricky Ian Gordon, György Ligeti, Robert Moran, and Meredith Monk—

combine to create a unified listening experience.

TRADITIONALISTS

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FELDMAN: Rothko Chapel. UC-Berkeley Chamber Choir; others. NEW ALBION 39.

The works of Morton Feldman, a determined independent, tend to evade easy labeling. *Rothko Chapel*, a finely crafted work for soprano, chorus, and small ensemble, is typical of Feldman's music, with stunning textures, a muted range, and a sense of stasis.

GLASS: Low Symphony. Brooklyn Philharmonic, Dennis Russell Davis cond. POINT MUSIC 438 150.

A complete departure from Philip Glass's earlier minimalism, this piece based on songs by David Bowie embraces solid, Haydnesque symphonic construction and shimmering orchestral textures.

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Tearing apart and ultimately sacrificing a Bach theme to a ferocious orchestra, Sofia Gubaidulina's violin concerto, *Offertorium*, approaches tradition in a novel way.

ROCHBERG: Caprice Variations. Eliot Fisk (guitar). MUSICMASTERS 67133. Another refugee from strict serialism, George Rochberg, with variations on Paganini's famous caprice that revel in glowing melody and the guitar's rich textures. □

MARION S. JACOBSON, a former music critic of the *Washington Post*, is a freelance writer based in New York City.

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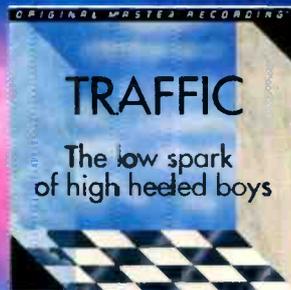
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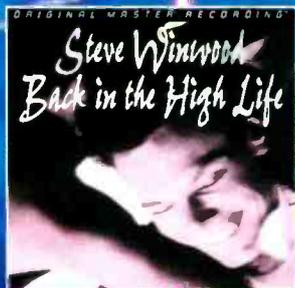
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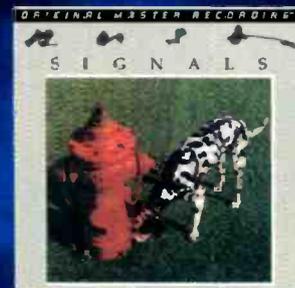
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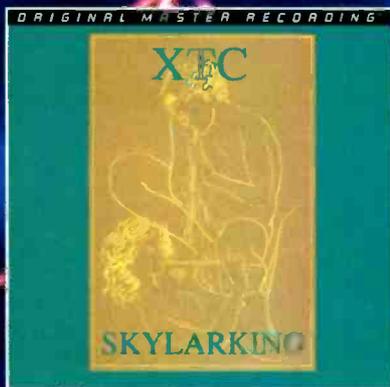
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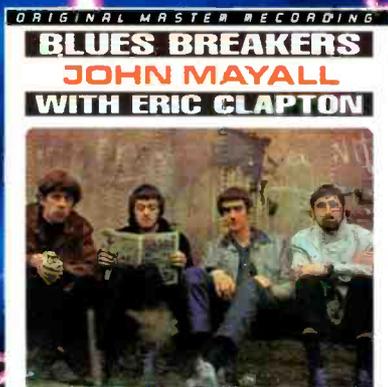
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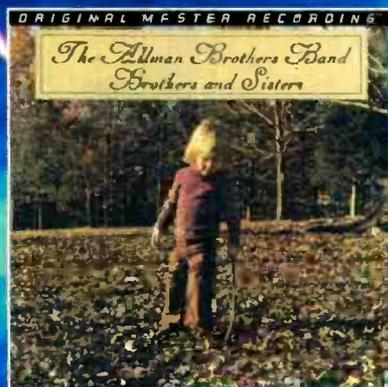
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BEST OF THE MONTH REVIEWS

STEREO REVIEW'S
CRITICS CHOOSE
THE OUTSTANDING
CURRENT RELEASES

Walter Becker, Whacked Out?

Walter Becker, who has always been the nonsinging member of Steely Dan, is making his debut as a vocalist in his mid-forties. But that's just part of the improbable appeal of his new solo album, "11 Tracks of Whack," which is uncompromisingly personal and serenely indifferent to prevailing commercial fashion. His voice won't make anybody forget Luther Vandross, his words meander from dead-on autobiography to cosmic metaphor, and the music vamps and grooves in a no-man's land between jazz, funk, and rock. But since I got this CD, I haven't been able to go a whole day without slapping the thing on and riding shotgun with Becker through his committed/detached, doped-up/rehabilitated, angry/indifferent, pop/antipop cruise through bad neighborhoods of the mind.

Drugs are a frequent topic here. Becker writes about addiction in the drily journalistic style of a William Burroughs, managing to come across as both an insider (who knows his way around the block) and a critic (who is not unscathed). In the album's opener, *Down in the Bottom*, he lays his cards on the table from the first lines: "In case you're wondering it's alive and well / That little habit you left with me / How could you know that it would take me down / Down to the bottom of the wine-dark sea." This horrific tableau of a drug-wracked life is ironically sweetened by vibes, a bubbling bass line, and a comely melody. But relief pumped from a needle is ultimately self-destructive, and Becker makes that point, too, in his unsentimental but oddly affecting way. *Junkie Girl*, for example, moves over the course of its verses from a commitment to stay with a junkie companion to a decision to leave.

In the album's larger story, related in cool and measured tones, the narrator stands indicted no less than any other character. In *Book of Liars*—a number whose powerful, pensive mood is heightened by a simple, repeated figure played on electric piano by Steely Dan partner Donald Fagen—Becker includes himself when he sings, "There's a star in the book of liars by your name." As a guitarist, he's a compulsive noodler, decorating the



sleek, skeletal grooves with fluid runs rather than loading them with overfamiliar riffs and progressions the way a more rock-oriented player would. But he doesn't allow craft alone to pass for content. The album is deliberately raw in places, from Becker's plain-spoken voice on down to some of the sparse, boxy arrangements over which he declaims (*Surf and/or Die*).

At the end, after eleven tracks of whack, Becker closes with a twelfth track, a disarmingly sweet ode to his son depicting familial domesticity in a series of vignettes that are as touching as they

are amusing. And from there he seems to embark upon a new chapter, noticeably free of demons. If ever an artist has gotten his demons out of his system and onto a record, Walter Becker has done so on this endlessly intriguing, musically mesmerizing album. *Parke Puterbaugh*

WALTER BECKER 11 Tracks of Whack

Down in the Bottom; Junkie Girl; Surf and/or Die; Book of Liars; Lucky Henry; Hard Up Case; Cringemaker; Girlfriend; My Waterloo; This Moody Bastard; Hat Too Flat; Little Kawaii
GIANT 24579 (57 min)

Poignant Polish Masterpieces

In a new EMI recording devoted to the music of Poland's Karol Szymanowski (1882-1937), Simon Rattle and the City of Birmingham Chorus and Orchestra, augmented by excellent vocal soloists, perform the brief but telling *Litany to the Virgin Mary*, the cantata-like Symphony No. 3, and the composer's choral masterwork, the *Stabat Mater*.

Anyone who responds to the now famous Symphony No. 3, or "Symphony of Sorrowful Songs," by Szymanowski's compatriot Henryk Gorecki will surely respond to the deep poignancy of this setting, fifty years earlier than the Gorecki work, of a Polish translation of the *Stabat Mater*, the medieval poem about the Virgin Mary's grief at the Crucifixion. For

BEST OF THE MONTH REVIEWS

all the lamentation and drama that suffuses its six verses, it is the exquisite *a cappella* scoring of Verse 4 that truly haunts the heart and memory; the entire work, however, is masterly and very moving. Of the three soloists, I was most impressed by the rich contralto of Florence Quivar in Verse 3. The chorus does itself proud in the highly dramatic fifth verse with its massive climax.

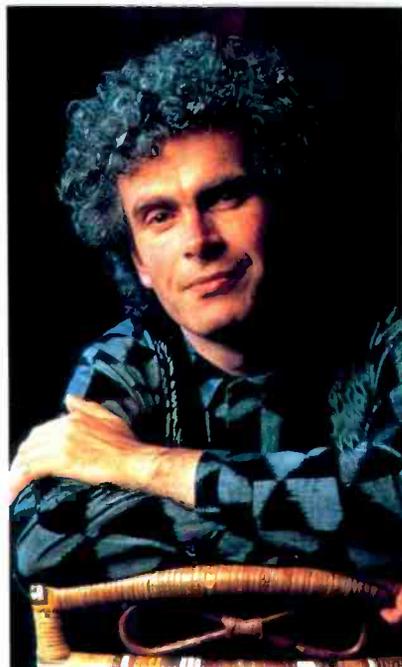
The *Litany to the Virgin Mary* was to be a choral-orchestral setting of seven verses by the Polish poet Jerzy Leibert, but only Verses 2 and 6 were completed. The first of these is for soprano and women's chorus, and the second is in the nature of a prayerful soprano aria, sung here with controlled plangency by Elzbieta Szmytka.

The grandiose Third Symphony, or "Song of the Night," for tenor, chorus, and orchestra, the culminating work of

Szymanowski's early, Scriabinesque period, revels in orchestral textures of enormously variegated color and richness, including huge climaxes complete with room-shaking organ-pedal sonorities. The impassioned verses of the first and third movements, Polish translations from the Persian mystical poet Jalal ad-Din ar-Rumi, are assigned primarily to the tenor and are ably sung here by Jon Garrison. The middle movement is a lighter-textured *scherzando* with wordless chorus.

Conductor Simon Rattle seems completely at home with this music and in complete control of his forces, and he has the added advantages of the fine acoustics of Birmingham's new Symphony Hall and a top-notch EMI production team. This is a recording where musical values and effective production are superbly matched. Try it—you'll like it!

David Hall



VICTORIA MIKHICH/ANGEL

Conductor Simon Rattle

SZYMANOWSKI:
Stabat Mater; Litany to the Virgin Mary; Symphony No. 3

Soloists: City of Birmingham Symphony Chorus and Orchestra. Rattle
EMI 55121 (56 min)

Marshall Crenshaw, Plugged In



Leave it to Marshall Crenshaw, heretofore among the most fastidious of studio craftsmen, to make his live-album debut with one of the most appealingly slapdash, for-the-hell-of-it, this-is-not-a-greatest-hits-package things of its type ever released. "My Truck Is My Home," culled from live shows at various venues from the beginning of his career to the present, does include some songs you might expect to find on a Crenshaw jukebox (*Cynical Girl, You're My Favorite Waste of Time*), but the bulk of it is less familiar fare from his later albums along with no fewer than five smartly chosen covers—spirited takes on the Byrds' classic *Have You Seen Her Face*, the MC5's *Tonight*, Alvin Cash's *Twine Time*, Bobby Fuller's *Julie*, and ABBA's immortal *Knowing Me, Knowing You*.

The various backing groups—brilliant bassist Graham Maby is here, as well as the star's lately-missing-in-action brother Robert on drums—provide the kind of telepathic support that's long been a staple of Crenshaw's live shows, and Crenshaw's vocals and guitar remain the definitive expression of the achingly winsome school of Sixties pop/rock revivalism. True, the sound quality is variable, and an occasional bum note surfaces (refreshing, actually), but none of that seems to matter much in the face of the almost physically pleasurable rush the music in-

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duces. Marshall Crenshaw may have made more ambitious albums in the past, but certainly none more entertaining than "My Truck Is My Home." Grab it.

Steve Simels

MARSHALL CRENSHAW

Live . . . **My Truck Is My Home**

Fantastic Planet of Love; Wanda and Duane; You're My Favorite Waste of Time; Vague Memory; Tonight; Calling Out for Love (At Crying Time); Twine Time; Julie; Cynical Girl; Have You Seen Her Face; There She Goes Again; Girls; Knowing Me, Knowing You; You Should've Been There
RAZOR & TIE 2815 (51 min)

Kyoko Tabe Plays "Songs Without Words"

Every now and then a musician comes along who seems to have been born to perform a certain work or the music of a certain composer. In such cases it is usually not a matter of a radically different interpretation, but simply of bringing out more of the essential character that makes the music so appealing in the first place by projecting a closer and deeper identification with the material, a more evident feeling for the idiom, a more unreserved commitment.

Those impressions certainly came to my mind as I listened to Kyoko Tabe's new Denon recording of twenty-five of Mendelssohn's *Songs Without Words*. The young Japanese pianist—twenty-six when she made this debut recording in Switzerland a year and a half ago—seems to be absolutely in love with these pieces, and she responds wholeheartedly to Mendelssohn's distinctive way of balancing sentiment and warmth of heart, on the one hand, with elegance and fastidiousness, on the other. The generous program includes most of the best-loved pieces—such as the *Spring Song*, the three *Venetian Gondola Songs*, the *Spinning Song*, and the *Hunters' Song*, to name a few—and every one of these miniatures radiates conviction, affection, freshness, and utter joy on Tabe's part in sharing what she finds in the music.

There is one oddity in the sound here that has to be mentioned: While the piano reproduction is otherwise exemplary, some of the bass notes sound almost as if they were plucked on the strings of a double-bass rather than struck on the keyboard of a Steinway. This effect is bound to be noticed but unlikely to detract from any listener's profound enjoyment of this disc. It is downright cherishable, "pizzicato" and all, and should create a good deal of eagerness for the announced follow-up. Schubert's valedictory Sonata in B-flat Major.

Richard Freed

MENDELSSOHN:

Songs Without Words (excerpts)

Kyoko Tabe (piano)
DENON 75657 (71 min)



Pianist Kyoko Tabe

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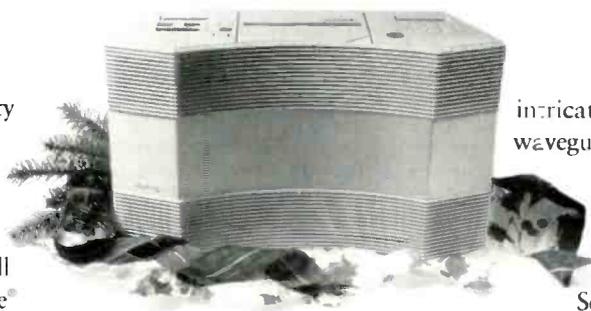
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POPULAR MUSIC

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



BUCKWHEAT ZYDECO
Five Card Stud
 ISLAND 524 018 (35 min)
Performance: Spirited
Recording: Good

You've got to hand it to Stanley "Buckwheat" Dural, Jr. The man who largely brought zydeco music to the attention of the American public can get more mileage out of the accordion than Goodyear can get out of tires, whether you want him to or not. On this collection of Louisiana hot-sauced originals and covers from the likes of Van Morrison (*Bayou Girl*), Willie Nelson (*Man with the Blues*), and Bruce Channel (*Hey Baby*), Buckwheat veers from souped-up R&B to more zydeco-flavored offerings,

scoring his most direct hit with *Hey, Baby*. The album also springs to life on the Nelson tune, where Willie shows up for guest vocals, and on the traditional *This Train* with Mavis Staples. But without the guests on hand to supply most of the Tabasco, "Five Card Stud" would be a strictly back-bayou offering. *A.N.*

ANN HAMPTON CALLAWAY
Bring Back Romance
 DRG 91417 (55 min)
Performance: Swellegant
Recording: Very good

If Classic Pop is going to survive into the next century as something more than nostalgic old standards it will be thanks to singers like Ann Hampton Callaway. She not only has something fresh and energizing to say about the songs of Arlen, Gershwin, Mercer, Van Heusen, and their like, but she also writes romantic new songs that definitely belong in the same league. And what an elegant mixture of "theirs" and "hers" this new album offers. Richard Rodney Bennett, Lee Musiker, Bill Charlap, and Jay Leonhart are among the completely in-tune musicians who help her prove that songs about love don't have to be soft and squishy. With Callaway, romance is back with a capital R. *R.H.*

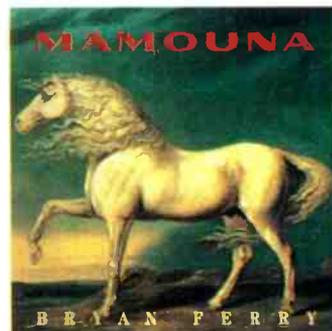
GLEN CLARK
Looking for a Connection
 DOS 7006 (44 min)
Performance: In Delbert's shadow
Recording: Good

Once half of a duo with Texas country-blues rocker Delbert McClinton. Glen Clark eventually went on to play keyboards in the bands of Kris Kristofferson and Bonnie Raitt. Clark learned a lot from each collaboration, and on his new album, "Looking for a Connection," he's not shy about exposing his roots by co-writing with fellow Kristofferson keyboardist Billy Swan and Raitt's husband, the actor Michael O'Keefe. But the album's kicker, *Old Enough to Know Better*, establishes that Clark is cast in the McClinton mold, right down to playing harmonica in the instrumental breaks and calling in some Memphis-style horns. Clark's voice is less raspy than McClinton's, but it isn't as involving or worldly wise, and it lacks McClinton's self-effacing humor (ditto for the bulk of Clark's songs). That said, Clark does know how to get to the heart of the matter, both in his ballads and uptempo material. Whether or not he's capable of fronting the show is another question. *A.N.*

BRYAN FERRY
Mamouna
 VIRGIN 39838 (48 min)
Performance: Tired
Recording: Okay

Bryan Ferry is in a slump; if he was a baseball player, he'd probably be glad they called the season off. First, there was last year's limp, lifeless covers album, "Taxi." Now comes "Mamouna," a much-anticipated magnum opus that turns out to be another dull downer.

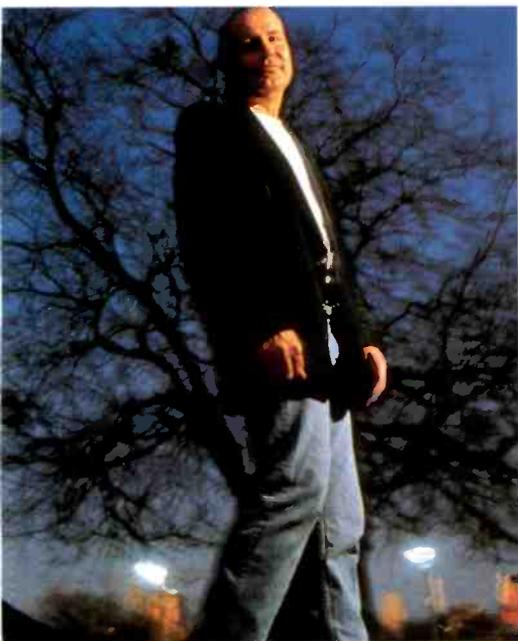
Basically, Ferry is exploring and reworking themes he treated definitively twenty years ago, circa *Love Is the Drug*. The al-



bum's ten songs simmer over a low flame that all but flickers out to a thin ribbon of smoke. Unlike Ferry's finest work, its textures are more threadbare than diaphanous; he murmurs involuted lyrics about obsessions and fatal attractions, suffering over every trembling syllable. The result is an album that barely has a pulse, ticking wanly to the metronomic beat of urbane, stylized, and painfully outré dance music. *P.P.*

FIVE CHINESE BROTHERS
Singer Songwriter Beggarman Thief
 1-800-PRIME-CD (51 min)
Performance: Low-budget gem
Recording: Good

Okay, so they don't practice truth in advertising—they're not Chinese, and they're not brothers, either. But what's a little white lie when you write music this amiable and fun? On their debut, this New York-based roots-rock (via country, folk, and soul) hands run the gamut from faux intellectualism (*Paul Cezanne*) to classic home-town nostalgia (*Baltimore*), trotting out several familiar themes (*She's a Waitress* and *I'm in Love, The Real Fast Car*) and tweaking them a new twist. The Five Chinese Brothers will remind you of the best of a lot of your favorite groups, but



Glen Clark: roots exposed?

PHOTO: WYATT MESPADEN/DOS RECORDS

most often they demonstrate the same rock-et-in-the-pocket pluck as the early Beatles. Who could resist *My Dad's Face*, which captures that wonderful/terrible moment when you look in the mirror and see your same-sex parent's features perched on the top of your neck? Buy this and smile—you won't even mind the accordion. *A.N.*

HOODOO GURUS

Crank

ZOO 11094 (48 min)

Performance: Hot stuff

Recording: Good

Producer Ed Stasium has done for Australia's Hoodoo Gurus what he did for the Smithereens on their breakthrough third album: he's turbo-charged the sound, making the guitars roar like fuel-guzzling funny cars at some Saturday night racetrack. But he's really only bringing out a noisy *joie de decibels* already latent in them.

"Crank" has the potential to straddle both alternative and mainstream camps. The combination of pop tunefulness and hard-rock whomp works to good effect on *The Right Time* (a sort of *Monkees' Theme* with a bad attitude), *Form a Circle* (a sex-mad incantation with insistent drum beats for exclamation points), *I See You* (groovy electric sitar), and *Hypocrite Blues* (whose double-time chorus is very mosher-friendly). On the downside, some of the tunes sound a little stale. Lines like "I wish tonight could last forever" smell like the ooze from some faceless hair band's inevitable power ballad, and two songs about religious hypocrisy (*GoSpel Train* and *Judgment Day*) are about two too many at this late date. Still, there's enough top-drawer Hoodoo Gurus here to keep old fans content and maybe even attract some new admirers. Let's hope so. *P.P.*

JOE JACKSON

Night Music

VIRGIN 39880 (48 min)

Performance: Classical gas

Recording: Superb

Of all the New Wavers who displayed potential for a lasting career beyond the bounds of the movement—Sting, Elvis Costello, Thomas Dolby, Ric Ocasek—it is Joe Jackson who has arguably led the pack in terms of sustained artistic growth. He has fronted a spunky New Wave quartet, recorded a lively tribute to R&B pioneer Louis Jordan, scored movies, cut neoclassical pieces of his own composition, and made brainy, audacious pop for adults. "Night Music" may be his boldest stroke yet—a classical-pop fusion that interlaces instrumental nocturnes with dark-themed vocal songs.

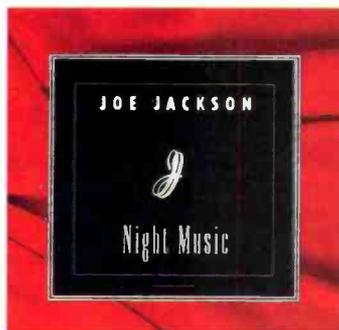
Jackson confesses self-doubt from the outset, singing "The older I get, the more stupid I feel" in *Flying*, the first of the vocal numbers. The music surrounding him—a swirl of pizzicato strings, shifting tempos and tonalities, woodwinds echoing plaintive vocal lines—reinforces the air of uncertainty in this dark night of the soul. The aura of middle-aged inventory-taking and the acute awareness of major life chapters ending re-



Robert Earl Keen: heading for trouble?

curs in *Ever After* and crescendos in *Danny Boy*, wherein Jackson strikes a deal with the devil to obtain his life's ambition: "I told him my dream was to live for all time in some perfect refrain, like the man who wrote *Danny Boy*."

The nocturnes that buffer these bleak but



emotionally acute confessions are soothing and unobtrusive. I'm partial to *Nocturne #2*, in which two-note grand-piano fragments ricochet around spare orchestral effects laid out on synthesizer. "Night Music" makes for absorbing listening—particularly in those wee quiet hours when the rest of the world is slumbering. *P.P.*

MAHALIA JACKSON

The Apollo Sessions, 1946-1951

PAIR 1332 (66 min)

Performance: Sublime

Recording: Excellent transfers

I couldn't begin to count the number of concerts I've attended over the years, much less remember them all, but Mahalia Jackson's 1952 European debut remains crisp in my memory. It took place at an ancient Copenhagen church where, for centuries, sedate assemblies had listened to the Word and absorbed the music of previous generations. By 1952, Danish pastors were used to low attendance (except on Christmas Eve), but Jackson's appearance had them turning people away because of the

popularity of her Apollo release of *Silent Night* backed with *Go Tell It on the Mountain*. Danish radio couldn't keep up with requests for the single, and it's said that fully one quarter of Denmark's population eventually purchased it.

In 1954, Jackson's overseas triumphs led her to Columbia, a label whose generous budget and more commercial approach did little for her artistry but helped establish her as a major star. Jackson does sound wonderful on most of her Columbia sides, even with large orchestras, string sections, Percy Faith's choir, and the kitchen sink. But the earlier Apollo recordings remain definitive. You won't find *Silent Night* or *Go Tell It on the Mountain* on "The Apollo Sessions 1946-1951," but this new CD release—which contains twenty of her sixty-five Apollo recordings—demonstrates the stunning beauty of the unadulterated Mahalia Jackson. You have never heard *Amazing Grace* so live up to its title, and *Just As I Am*... well, they could have named the whole collection after it. *C.A.*

ROBERT EARL KEEN

Gringo Honeymoon

SUGAR HILL 1044 (53 min)

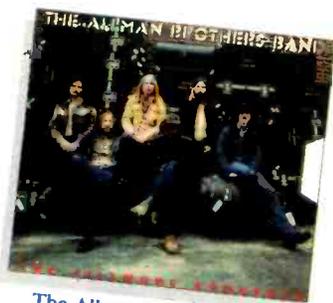
Performance: He's been better

Recording: Very good

Robert Earl Keen proved himself to be one of the Texas singer-songwriter school's most promising new players in 1989 with "West Textures," still his most cohesive and fully rounded album. Keen's gift is crafting small scenes from big novels in his head, summoning colorful characters out for the adventures of their lives, which usually means heading straight for trouble. In the title track of his latest album, for example, a couple of newlyweds slip across the border only to embark on a somewhat hallucinogenic encounter with a variety of American cultural refugees.

While his early work set him up as something of a goodtime performer, Keen has grown more somber of late. Here, despite an ode to God's—or maybe the Dev-

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POPULAR MUSIC

il's—finest food (*Barbeque*), he continues to move away from whimsical material toward stuff that's darker (Steve Earle's chilling *Tom Ames' Prayer*, the morosely reflective *Dreadful Selfish Crime*). The most powerful number, aside from the Earle tune, is Keen's own *The Raven and the Coyote*, which indulges his fascination with nineteenth-century cowboys and soldiers in a stirring and meticulously detailed story of war, romance, and faith. But too often these songs are more memorable for a line or two than for anything else. And while Gurf Morlix, Lucinda Williams's evocative guitarist, and harmony singer Gillian Welch add more than a modicum of texture and color, on the whole this is a step down from Keen's usual fiery fantasy. **A.N.**

LONESOME VAL NYC

BAR/NONE 045 (47 min)

Performance: Harder-edged
Recording: Good

For the follow-up to her acclaimed debut, Lonesome Val invited Suzzy Roche along as producer. If you're a fan of the eccentric Roches, you'll probably view that as a plus; if you're not, well, try to remember that this could have been a lot perkier than it is, despite the subject matter—tales from Manhattan's Hell's Kitchen, where Val has lived for the last ten years. Essentially, the album was recorded in Roche's living room, where both women played acoustic guitar and tried to hear the pant-leg percussion, keyboard fills, and occasional electric guitar they'd dub in later. Maybe that's why the whole thing has a sort of unfinished sound, which isn't necessarily bad—it lends a plaintiveness to this New York City country girl's increasingly harder-edged songs. On *Truth Is Like a Dirty Word*, for example, Val lays out the everyday atrocities of her neighborhood—such as twelve-year-old girls who've already been sold a time or two—with a resigned sadness.

At times, Val recalls Mary-Chapin Carpenter, as on *Bottle in the Mailbox*, a well-written character study of a desperately unhappy and emotionally barren woman. Like Carpenter, Val isn't really country at all; her brand of contemporary acoustic music defies simple classification (although it comes closest to folk). You can search almost to



the end of "NYC" before you find the first skittish cowpunk track (*Lone Prairie*), and scout all the way to Wyoming before you find any pedal-steel guitar. All well and good, I suppose, but if the album doesn't cry out for references to fence posts or honky-tonks, it definitely needed a direction, something producer Roche apparently didn't see. That said, there's a lot to like here as long as you remember to keep an open mind. **A.N.**

TERRY MCBRIDE & THE RIDE

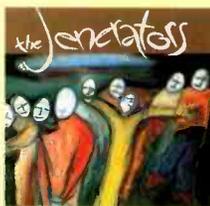
MCA 11049 (34 min)

Performance: Surprising
Recording: Very good

Of all the country-pop groups vying for attention in the Nineties, McBride & the Ride seemed to be the least able to distinguish itself with a recognizable sound, despite such hits as *Sacred Ground*, *Just One Night*, and *Going Out of My Mind*. But after a big shakeup (McBride parted from the other original members, took on a new band, went for voice lessons, and began using more outside material), Terry McBride & the Ride, as they're now called, have re-emerged as a far stronger outfit.

The most surprising change is how uniformly strong the new material is, from the infectious Texas dance shuffle of *Teardrops* to the midtempo ballad *I'd Be Lyin'*. For that they can thank producer Josh Leo (Restless Heart, Alabama), who knows how to fashion smooth instrumental tapestries and soaring vocal washes on record, even if it means using only one actual member of the Ride—steel player Gary Morse—and employing studio pickers and background singers, including ex-Eagle Timothy B.

TO BOLDLY GO WHERE NO BAND HAS GONE BEFORE



Hey folks, here's a CD with a surprising pedigree: the debut by the Jenerators (Asil 1004).

Apart from its unexpectedly accomplished bar-band/punk/country fusion and amusing lyrics, it turns out the group is fronted by Bill

(a.k.a. Billy) Mummy, the former kid actor fondly remembered for his role on the Sixties TV sci-fi hoot *Lost in Space*. Also a Jenerator: fellow Hollywood brat Miguel Ferrer (son of José), perhaps most familiar as the obnoxious FBI agent on *Twin Peaks*. Mummy, by the way, is still schlepping around the TV galaxy when not rocking out; these days, he can be glimpsed under alien makeup as a regular on the current sci-fi hit *Babylon 5*. **S.S.**

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Schmidt, for everything else. To be sure, the sound is strictly commercial—bound and determined to score at radio—but for the most part McBride keeps the hokey puns out of his repertoire and goes for either a sturdy good-time groove (*I Can't Dance*) or a solid emotional connection (*I'll See You Again Someday*, a song of hope he wrote to his late father).

McBride has a somewhat generic tenor and standard Texas accent (he hails from just outside Austin), which will probably still keep him from becoming an immediately identifiable voice despite his improved vocal prowess. But look for the band to make it on the songs alone. Soaring melodies, tight vocal harmonies, and lyrics that tell a story—more and more, it's what country's all about these days. *A.N.*

CARLA OLSON

Reap the Whirlwind

WATERMELON 1026 (42 min)

Performance: Great partners!

Recording: Good

On her tenth album of roadhouse rock-and-roll, Austinite (and former Tex-tone) Carla Olson calls in her pals—ex-Stone Mick Taylor, former Go-Go Kathy Valentine, soul singer Percy Sledge, ex-Small Face Ian McLagan, and Paul Revere and the Raiders' Mark Lindsay—for a bluesier record than she's made in some time. "Reap the Whirlwind" sinks into a

couple of gullies in the middle, especially on *Kinderwars*, which makes a half-hearted stab at the senselessness of inner-city crime, and on *Rock of Ages*, a sort of tribute to the Rolling Stones. But mostly this is just terrific party music. Most exhilarating tracks: Sledge and Olson dueting on the aching soul ballad *Honest as Daylight* and the harmonica rave-up of Willie Dixon's great *Bills, Bills and More Bills*. Olson may not have the kind of soprano that cuts to the bone, but it's hard to fault her enthusiasm or her taste. *A.N.*

PRINCE

Come

WARNER BROS. 45700 (48 min)

Performance: Orgasmic

Recording: Very good

Prince is dead. Long live the weird little fellow, who apparently expired sometime last year only to be reincarnated with a symbol for a name. His last blast for Warner Bros. (and as Prince) is a no-holds-barred sexathon, complete with graphic intimations of the pleasures that await those who enter his lair. In Prince's universe the profane is sacred and sex is a sacrament to be received at every opportunity. He makes a pretty convincing case with his first-order funk and hard, ultra-rhythmic adornments, which create a seductive mood that will no doubt set groins to grinding from coast to coast.

These songs, all ten of which bear a one-word title, aren't just closet-cluttering rejects that Prince pulled off the shelf to dispense with a contractual obligation. They are of a piece thematically (s-e-x, in case you haven't gotten the message) and otherwise. Prince shares "player" credits with five others, making this a group effort, and he plays off the collective fire on such red-hot jams as *Loose!* Matters take an eerie turn on *Papa*, in which the details of an abused childhood are recalled with a tactile rage: toward the end of the tale, Prince inserts the intriguing line, "Don't abuse children, lest they turn out like me." Prince's darker alter ego, the one that created the widely bootlegged "The Black Album," pops in and out of the proceedings, cursing, cajoling, and getting black thoughts off his chest to a deadly funky, nearly naked beat. In other words, if you like your Prince straight up and uncut, this is a good dose of the hard stuff. *P.P.*

DAWN SEARS

Nothin' but Good

DECCA 11056 (35 min)

Performance: Big voice

Recording: Good

In 1991, Warner Bros released a terrific album from newcomer Dawn Sears. Unfortunately, the record bombed and Sears lost her deal, but fate came calling in the form of Vince Gill, who asked Sears to open



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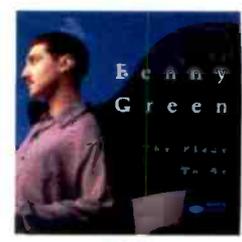
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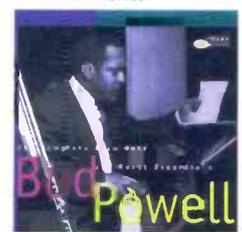
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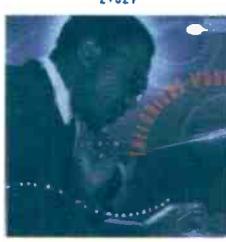
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for him on tour. Now her recording career has been resurrected—her second album is the first release on the newly activated Deca label.

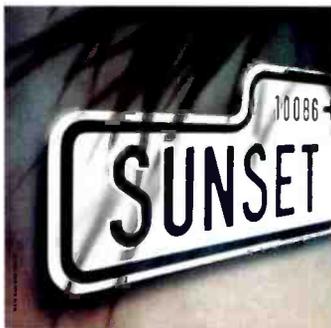
Unlike her debut, "Nothin' but Good" doesn't quite ring every bell. But as before, Sears, who hails from Minnesota, knows how to find the blues in country music, and with a voice as big as the entire land mass of the Twin Cities she can let you know what she's thinking. From the esoteric country-swing of Jim Lauderdale's *Planet of Love* to the rockin' attitude of the title track and Carlene Carter's irresistible *Uh Oh (Here Comes Love)*, Sears has an eye for good, left-field material, even if it isn't always quite right for her (the old-fashioned, rangy ballad *That's Where I Wanna Take Our Love*) or if she sometimes sings full-tilt where a little subtlety would do. Mostly, though, what we have here is a young torpedo, ready to explode. After this woman gets a little fine tuning, better run for cover. *A.N.*

SUGAR

File Under Easy Listening
RYKO 10300 (40 min)

Performance: Short and sweet
Recording: Crisp

"File Under Easy Listening" harks back to a time when vinyl reigned and AM radio ruled. The whole album runs just over 40 minutes—approximately half the storage capacity of a CD—but you'll be grateful to have a straightforward batch of good tunes for a change instead of the lumpy programs that promote earwax formation in the digital age. Sugar daddy Bob Mould must have been feeling pretty fit and focused for this album, for there isn't an ounce of fat on it. Concise, 4-minute songs, an uncluttered guitar trio, hard-candy pop hooks and choruses, tempos made for banging heads and tapping feet . . . that's what pours forth from Sugar here. "File Under Easy Listening" is such a bash-and-pop gas that its title really isn't as ironic as you might expect. Less-is-more rules! *P.P.*



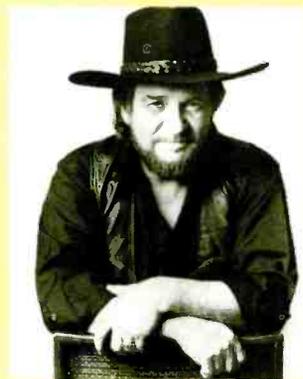
ANDREW LLOYD WEBBER'S SUNSET BOULEVARD (Original-Cast Recording)

POLYDOR 3145 23507 (two CD's, 123 min)

Performance: Slick
Recording: Excellent

Is Andrew Lloyd Webber the Antichrist or just the most successful hack in the history of twentieth-century musical theater? Given his financial and political clout,

Waylon Jennings, Grunge Rocker



"Lately I'm listening to 'The Downward Spiral' by Nine Inch Nails. I'm not real crazy about the lyrics; I think that guy [Trent Reznor] is a musical genius, but he might be a lyrical idiot. You know who else I like? Primus. Les Claypool kills me . . . what a bass player. And Enigma: I love the new mix on *Return to Innocence*." —Country legend/original Outlaw **Waylon Jennings** on the music he's currently digging.

that's not an altogether fanciful question, but in any case here's an original-cast album that lets you make the call—and at a fraction of the cost of a night out on the Great White Way. Yes, the man so shameless he once had to be sued into admitting that the late Gaston Leroux wrote a novel called *The Phantom of the Opera* has returned with another theme park masquerading as a Broadway show. And yes, once again, the results seem to validate Stravinsky's assertion that great composers steal while mediocre ones merely borrow; this

time out, having apparently reached his credit limit with Puccini, Verdi, Fauré, and Lennon and McCartney, Webber has put the touch on superior Hollywood film composers like Miklos Rosza, Max Steiner, and Franz Waxman.

Meanwhile, star Glenn Close demonstrates that she can sing, sort of, although it's hard to imagine that the famously fired Faye Dunaway would have done so much worse. All in all, then, this is Sir Andrew's latest example of what critic Gene Lees, writing in these pages some thirty years ago, correctly dismissed as "quack opera." And here's another not-so-big surprise—the name of Charles Brackett, co-writer with Billy Wilder of the film *Sunset Boulevard*, appears nowhere in the credits. *S.S.*

Collections

DUENDE: THE PASSION AND DAZZLING VIRTUOSITY OF FLAMENCO

ELLIPSIS ARTS 3350 (three CD's, 178 min)

Performance: Very good
Recording: Very good

Students in American colleges from the 1940's to the early 1960's had to have a couple of flamenco recordings from Spain in their record collections because the rhythmic hand-clapping and the click of castanets and tap shoes were thought to have an aphrodisiac quality that promoted making out. With the current vogue for world music, a flamenco revival is overdue, and this new three-disc set fills the bill surprisingly well.

The first disc ("Passion") gives a good taste of traditional flamenco with such big-name singers as Terremoto, Camaron de la Isla, and the legendary La Nina de los Peines. I love those raspy voices, and if the instrumental accompaniment sounds a bit prettified, it's probably because we flamenco purists are not accustomed to technically up-to-date recordings of this traditional music. The second disc ("Magic") focuses on the guitar, providing lively, all-purpose background music. I dreaded the third disc ("Exploration"), current flamenco that has



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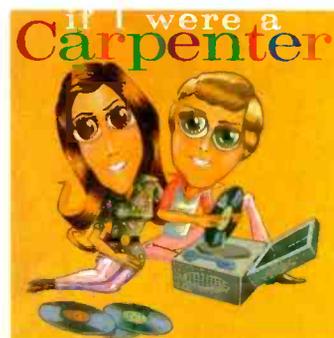
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POPULAR MUSIC

absorbed influences from other countries, because I find most fusion music disappointing. But I liked the creativity with which the spirit of flamenco is blended here not just with Western influences, but with music from Africa and Asia. A welcome and enjoyable set. *William Livingstone*



IF I WERE A CARPENTER

A&M 31454-0258 (54 min)

Performance: Runs the gamut
Recording: Very good

The Carpenters may have recorded some of the most syrupy pop of the Seventies, but revisionist history proves them more complex than they once seemed. Beneath the miracle of Karen's dusky voice (and mediocre drumming), her brother, arranger and keyboardist Richard, crafted startlingly lush tapestries of sound, an interweaving of instruments and voices that was near-orchestral. That in itself made them incredibly uncool in certain circles, but anyone who took a closer look at many of their lyrics might have found the utter sadness that fueled Karen's effortless alto (and, perhaps, her death from complications of anorexia nervosa in 1983).

Just how abidingly melodic the Carpenters' songs were comes across brilliantly in this new tribute album by current alternative-rock practitioners, many of whom you'd expect to hoot derisively at the very mention of the Carpenters. Several of the performers offer fairly straight renditions of the old radio staples (Matthew Sweet with *Let Me Be the One*, Grant Lee Buffalo with *We've Only Just Begun*, the Cranberries with *Close to You*), while others attempt to blast the songs to rock smithereens or serve up totally dispassionate readings (Dishwalla's *It's Gonna Take Some Time*, the Dutch band Bettie Serveert's *For All We Know*). The most haunting cut is Sonic Youth's take on the Carpenters' chanciest song, Leon Russell's pathetic groupie plea, *Superstar*; it sounds like a heroin user midway through a fatal tumble.

The album works terrifically well about two-thirds of the time, but the flops (most notably Babes in Toyland's *Calling Occupants of Interplanetary Craft*) keel over with a resounding thud, and by the end of the album, the novelty starts to wear thin. Also (no surprise) not one of the vocalists here is half as memorable—or as subtly skilled—as Karen. Still, something about this album stays with you. At the least, it's a reminder that even good music sometimes needs a dusting off to endure. *A.N.*

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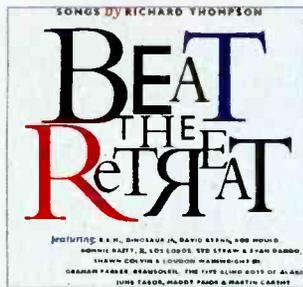
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At Last! A Tribute Album That Works!



The tribute album has become a commonplace and overworked invention, but every now and then something like "Beat the Retreat: Songs by Richard Thompson" comes along to redeem the concept. In the case of Thompson, possibly the pre-eminent songwriter of our time, the only way to make compositions so resonant and deep work in other hands is to carefully match songs with performers—and the assemblers of "Beat the Retreat" have done just that. No one save Richard and ex-wife Linda could pull off *Shoot Out the Lights* more believably than X's John Doe and Exene Cervenka, heightening the song's apocalyptic finality by virtue of their having at one time been married to each other themselves. Bon-

nie Raitt, who has covered a Thompson tune or two before, doesn't have to step out of character to put across her sparkling version of *When the Spell Is Broken*. Likewise, Bob Mould—who already sounds like a punkier version of Thompson, both in his dusky, low-timbre voice and stentorian guitar squalls—blows like a natural through *Turning of the Tide*.

A little more unexpected is the interpretation of *Dimming of the Day* by the Five Blind Boys of Alabama, who allow the song's hymnlike quality to rise to the fore. And Beausoleil turns *Valerie* into the wildcat Cajun reel it's always wanted to be. Fittingly, after all the rockers and rollers have had their say, the stage is turned over to Thompson's peers on the British trad-folk scene, June Tabor, Maddy Prior, and Martin Carthy, who breathe nobility and drama into numbers like *Beat the Retreat* and *The Great Valerie*. All in all, an exemplary collection that should further broaden appreciation of Thompson's work. *Parke Puterbaugh*

BEAT THE RETREAT:
SONGS BY RICHARD THOMPSON
CAPITOL 95929 (67 min)

JAZZ REVIEWS

EDDIE CONDON

The Complete CBS Recordings of Eddie Condon and His All Stars
MOSAIC 152 (five CD's/seven LP's, 293 min)
Performance: Remarkable
Recording: Very good

Pick up any comprehensive history of jazz and sooner or later you'll read about the Austin High School Gang, a group of white musicians from the Chicago area who shared a fascination for the new black music. The Gang—Frank Teschemaker, Jimmy McPartland, Bud Freeman, Joe Sullivan, and Dave Tough—may have created a bastardized form of New Orleans jazz, but it was not without merit. And it wasn't long before it took on a life of its own—the Chicago style. By the mid-Twenties, other musicians had joined the Gang, including a banjo player named Eddie Condon, a man whose energy and personality exceeded his musicianship.

The group that for decades rallied around Condon was another matter; here were some of the finest musicians in the traditional jazz idiom. Between November 1953 and September 1957, Columbia recorded a

series of sessions centered around Condon and his regulars. These recordings, which produced some remarkable music, extended into the Bop Era a recorded legacy that began in 1927, when a kazoo-playing jockey named Red McKenzie teamed up with Condon to co-lead the first Chicagoans session. Mosaic, a label to whom all serious jazz collectors owe a debt of gratitude, has now assembled these recordings in a superbly packaged set which adds—for the sake of completeness—two less successful 1962 sessions.

The Fifties sessions were produced by George Avakian, without whom Columbia's postwar catalog would be considerably leaner, and the music is as spirited as anything these musicians had done before. On the other hand, the 1962 dates, produced by Bob Morgan and Teo Macero, suffer from an obvious effort to cash in on the commercial success of Al Hirt, Pete Fountain, and the Dukes of Dixieland; the musicians—including Bobby Hackett and Lou McGarity—are clearly uninspired, and perhaps leaving these sides out (changing the title to "The *Almost* Complete CBS Recordings" and lowering the price a bit?) might not have been a bad idea.

Fortunately, the rest of the album makes up for these lapses. Think of a stomping herd that includes Wild Bill Davison, Bud

Freeman, Edmond Hall, Pee Wee Russell, George Wettling, Gene Schroeder, Basie's Walter Page, and the ever-strumming Condon, and, well, you get the picture. As usual, the folks at Mosaic have been thorough in their research and unsparing in the preparation of the LP-size accompanying booklet, which contains a wide collection of photographs, an authoritative essay by jazz historian and Armstrong biographer Max Harrison, and a detailed discography. *C.A.*

STAN GETZ
Nobody Else but Me
VERVE 660 (54 min)
Performance: Fresh
Recording: Very good

The Stan Getz Quartet recorded this album thirty years ago, mainly because, as vibist Gary Burton observes in his notes, "Stan wanted to get the group on record, and he was worried that bossa nova was burying his jazz identity." Indeed, bossa nova was all the rage in 1964, and Getz was in the eye of the storm. And so it was that "The Girl from Ipanema" pushed these recordings out of the way and into a tape vault where they languished until now. This CD is thus a rediscovery rather than a reissue, and it's a wonderful find.

Burton's vibes give the pianoless group a distinct sound, and Getz is in top form on these tracks, which don't sound the least outdated after three decades. Remarkably, this was the quartet's only studio session, though you'll find them on some live



recordings made that same year at Carnegie Hall and the Cafe Au Go Go. Those recordings, however, are laced with bossa nova and diluted by Astrud Gilberto; this album is the straight, unadulterated stuff, which makes it all the more valuable. *C.A.*

EARL HINES
Earl Hines and the Duke's Men
DELMARK/APOLLO 470 (43 min)
Performance: Old gold
Recording: Clean transfers

"Earl Hines and the Duke's Men" is a misleading title for an album that comprises three orchestras, only one of which is led by or features Hines. Why they decided to make it look like a Hines album is a mystery, but this collection by any other name would sound just as delightful. Originally recorded for the small Apollo label, the superb performances feature some of the Swing Era's greatest musicians at the peak of their careers. The six Hines tracks,

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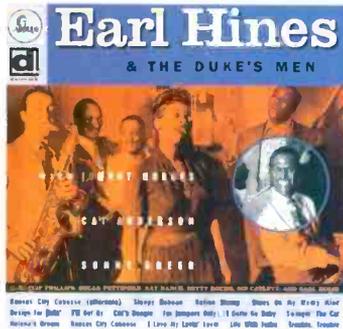
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only one of which has him playing a solo, were made in 1944 with a formidable, Duke-ish sextet featuring Ray Nance, Johnny Hodges, Flip Phillips, Al Casey, Oscar Pettiford, and drummer Big Sid Catlett. Four of the six selections also have vocals by Betty Roche, one of Ellington's singers who never really knocked me out but here does a fine job.

In contrast to Hines, Ellington trumpeter Cat Anderson, who was known for his soaring solos, dominates the four 1947 sides by his big band. Except for drummer Bobby Donaldson, the personnel of this orchestra



is relatively unknown, but obscurity has not curbed their spirit. Finally, there are five selections by Sonny Greer and His Rextet, so named because the group, an octet, gets its most distinguishing features from the growling cornetist Rex Stewart. These are the collection's most interesting sides—strictly Ellingtonian and strikingly musical. Duke veterans Lawrence Brown, Jimmy Hamilton, and Harry Carney complete the horn section, Marlow Morris is at the keyboard, Pettiford on bass, and Teddy Walters on guitar. A welcome reissue. C.A.

CLIFFORD JORDAN

Live at Ethell's

MAPLESHADE 56292 (62 min)

Performance: **Nothing special**
Recording: **Good remote**

Like so many musicians of his generation, the late tenor saxophonist Clifford Jordan came to jazz from a background of rhythm-and-blues. He was never a star in the Coleman Hawkins–Lester Young–Sonny Rollins sense, but his talent placed him somewhere above the average: he had plenty of company on that level, for the jazz world is rife with excellent musicians who have carved out a good career for themselves without achieving sainthood.

"Live at Ethell's" is a quartet recording made during a 1987 Baltimore club engagement. Except for Billy Strayhorn's *Lush Life*, which is said to contain Jordan's only recorded vocal, the set is fairly representative of Jordan's club work—good but not spectacular. The vocal caught the engineer by surprise and, therefore, reflects some technical difficulties. Jordan's tenor, however, is an authoritative voice of experience, even when bassist Ed Howard seems to pull in an opposite direction. Still, there are many Clifford Jordan albums out there that do his memory more justice than "Live at Ethell's." C.A.

KEVIN MAHOGANY

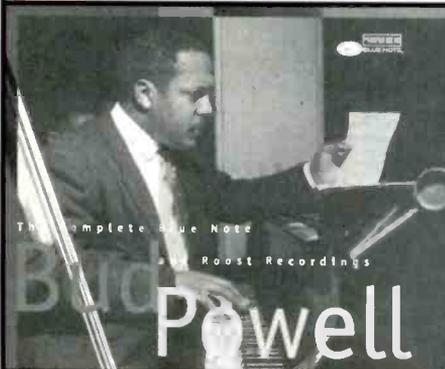
Songs and Moments

ENJA 80722 (66 min)

Performance: **Pliant**
Recording: **Very good**

On "Songs and Moments," his second album, Kevin Mahogany maneuvers deftly through a gratifying program of tunes that you'll think you recognize whether or not you have ever heard them before. Neither his voice nor his style is distinctive, but the former saxophonist delivers a pleasant amalgam of Jimmy Witherspoon, King Pleasure, and Billy Eckstine. Here, he enjoys the company of a fine rhythm section, aggressive brass, a couple of appearances each by Arthur Blythe and Kevin Eubanks, and one vocal back-up by a trio of children. Guitarist Eubanks provides the unadorned but effective accompaniment for Wes Montgomery's *West Coast Blues* and joins the three children on the title song, a sterile Maria Schneider arrangement of a Milton Nascimento number that doesn't quite work for me. Alto saxophonist Arthur Blythe wails in a most appropriate manner on *Next Time You See Me*, a blues into which bassist Ray Drummond injects valuable commentary. Blythe also

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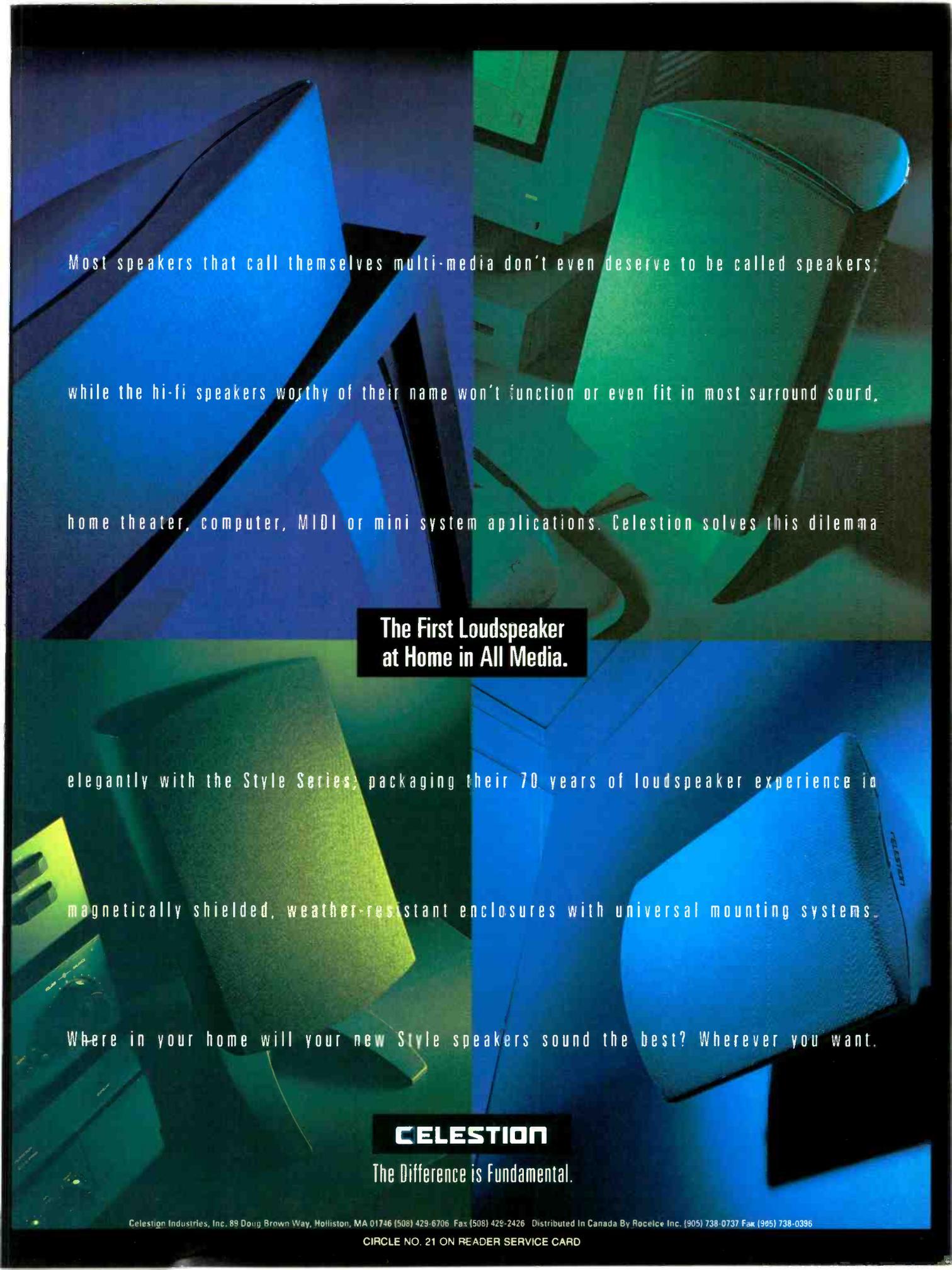
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AIRHEADS

(Original Motion-Picture Soundtrack)
FOX 11014 (51 min)

Efficient headbanging anthems courtesy of such genre titans as White Zombie and Anthrax. Not surprisingly, it all works better in the movie itself, where the parodic premise (doofus rockers take a radio station hostage so that they can get their demo played) deflates the inherent musical pretensions. *S.S.*

ROGER CLINTON

Nothing Good Comes Easy

PYRAMID 71826 (44 min)

Okay, so he got his record deal you-know-how (hint: he's the brother of you-know-who), but this is still respectable, if unexceptional, journeyman bar-band R&B. And just to keep things in perspective, be assured that Clinton *frère* is far more convincing as a bluesman than, say, the late Lee Atwater. *S.S.*



CORRINA, CORRINA

(Original Motion-Picture Soundtrack)

RCA 66443 (53 min)

It wasn't much of a movie, but the jazz, pop, and early rock songs that underpinned it are by and large unarguable. So, like, who's gonna complain about a CD bookending Billie Holiday's *Pennies from Heaven* with Hank Ballard's *Finger Poppin' Time*? *S.S.*

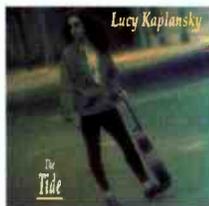
DANZIG

Danzig 4

AMERICAN 45647 (62 min)

Listeners O.

S.S.



LUCY KAPLANSKY

The Tide

RED HOUSE 65 (43 min)

Kaplansky is a folkie from the same school as Suzanne Vega and Shawn

Colvin (who produced). But while she's got a voice that's instantly memorable, her debut album is disappointing. Case in point: a weirdly chirpy version of Richard Thompson's great *When I Get to the Border*. Hey, Lucy, read the lyrics—it's a song about suicide. *S.S.*

MELISSA MANCHESTER

If My Heart Had Wings

ATLANTIC 82444 (52 min)

And if my grandma had wheels she'd be a wagon, but this would still be irredeemable shlock. *S.S.*

NATURAL BORN KILLERS

(Original Motion-Picture Soundtrack)

NOTHING/INTERSCOPE 92460 (76 min)

An extended aural collage—blending film dialogue with effectively creepy music by Diamanda Galas, Duane Eddy, Leonard Cohen, Patti Smith, and other worthies—and guess what? For once, producer Trent Reznor's mondo-depresso approach actually makes sense. *S.S.*

PULP FICTION

(Original Motion-Picture Soundtrack)

MCA 11103 (42 min)

A highly entertaining mishmash of old surfing stuff (Dick Dale, the Tornadoes) and R&B (Al Green, Kool and the Gang), recent cuts by Maria McKee and Urge Overkill (Neil Diamond's *Girl You'll Be a Woman Soon* rendered straight), and dialogue from the film. Great moment: stars John Travolta and Samuel E. Jackson discussing the relative culinary merits of pork and canine. *S.S.*

RAFFI

Bananaphone

MCA 11115 (49 min)

After a lengthy sabbatical working as an environmental activist, the singer/songwriter Raffi has come back to entertaining children, which is what originally put his name up in lights. His first studio recording for children in seven years, "Bananaphone" is another winner combining traditional songs (*Simple Gifts*, *Michael Row the Boat Ashore*) with catchy originals, most notably the amusing title track. Asked to rate the album, our consumer expert, six-year-old Darren Ankosko, puts it just below Joe Scroggs's "Ants," reviewed here last month.

William Livingstone

THOSE WONDERFUL YEARS— MELODIES OF LOVE

ESSEX 7010 (41 min)

Beautifully remastered pop hits from the Golden Age of White Bread (the early Fifties), including many personal Guilty Pleasures (Martin Denny's exotic *Quiet Village*, Hugo Winterhalter's kitschy *Canadian Sunset*). Come to think of it, this is also a canny conceptual anthology illustrating why rock-and-roll was an overwhelming historical imperative. *S.S.*



Susannah McCorkle: balancing act

graces the standard *My Foolish Heart*, complementing John Hicks's lyrical piano and enhancing the singer's smooth reading with articulate obbligatos.

A vocalist's style is often most heavily characterized by his or her manner of scatting, but Mahogany's approach—as on *Take the A-Train*, *West Coast Blues*, and *The Coaster*—is somewhat impersonal, albeit extremely well executed. Most of the arrangements are by Slide Hampton, and they are good, but Freddie Hubbard's chart for *Caravan* takes this set to its peak: it contains a solid trombone solo by Robin Eubanks and brings Marvin Smith favorably front and center—even Mahogany sounds inspired. There being a dearth of male jazz vocalists—as opposed to blues vocalists—these days, Mahogany ought to do well when he finds his own way and is given the right exposure. *C.A.*

SUSANNAH McCORKLE

From Broadway to Bebop

CONCORD JAZZ 4615 (56 min)

Performance: Bull's-eye

Recording: Ringside quality

Today's cabaret singers tend to fall into two categories: those who dig overexpressively into a song's words at the expense of its musical line, and those who are all jazz rhythms and musical pizzazz without conveying much sense of what the words mean. Susannah McCorkle continues to be one of the few who really know how to balance music and lyrics as each individual song requires. She does that here with a typically McCorkle-style program of intimate ballads and nimble swingers, including a festively driving take on Carmen Miranda's *Chica Chica Boom Chic* in both Portuguese and English. *R.H.*

LEW TABACKIN**What a Little Moonlight Can Do**

CONCORD JAZZ (57 min)

Performance: Brilliant**Recording: Good**

The warm-blooded tenor-sax tradition of Coleman Hawkins is alive, well, and decidedly swinging whenever Lew Tabackin expresses himself through that instrument. Just listen to his reinvention of *What a Little Moonlight Can Do*, the title track on his third Concord album: with Benny Green, Peter Washington, and Lewis Nash percolating to a fare-the-well, Tabackin takes the Billie Holiday classic into lunar orbit. One of Tabackin's great assets is his ability to preserve the tenor of Hawkins's times, as it were, while also taking marvelous liberties. These flights of fancy are what separate him from the ordinary Hawkins disciple; in that respect, he is like Picasso, who, having established his mastery of realism, could well afford to take abstraction to its outer limits without being accused of jumping over the low end of the fence.

Tabackin's lyrical side can be heard on *Easy Living*, the last of the set's three Holiday-associated tunes, and even more engagingly on his own composition, *Broken Dreams*, a stunningly beautiful soliloquy. But perhaps we hear his lyricism demonstrated most graphically when he plays the flute, which he does on the delicate *Poinciana* and the more resolute *Leave of Absinthe*. A triumph. C.A.

MEL TORMÉ**A Tribute to Bing Crosby**

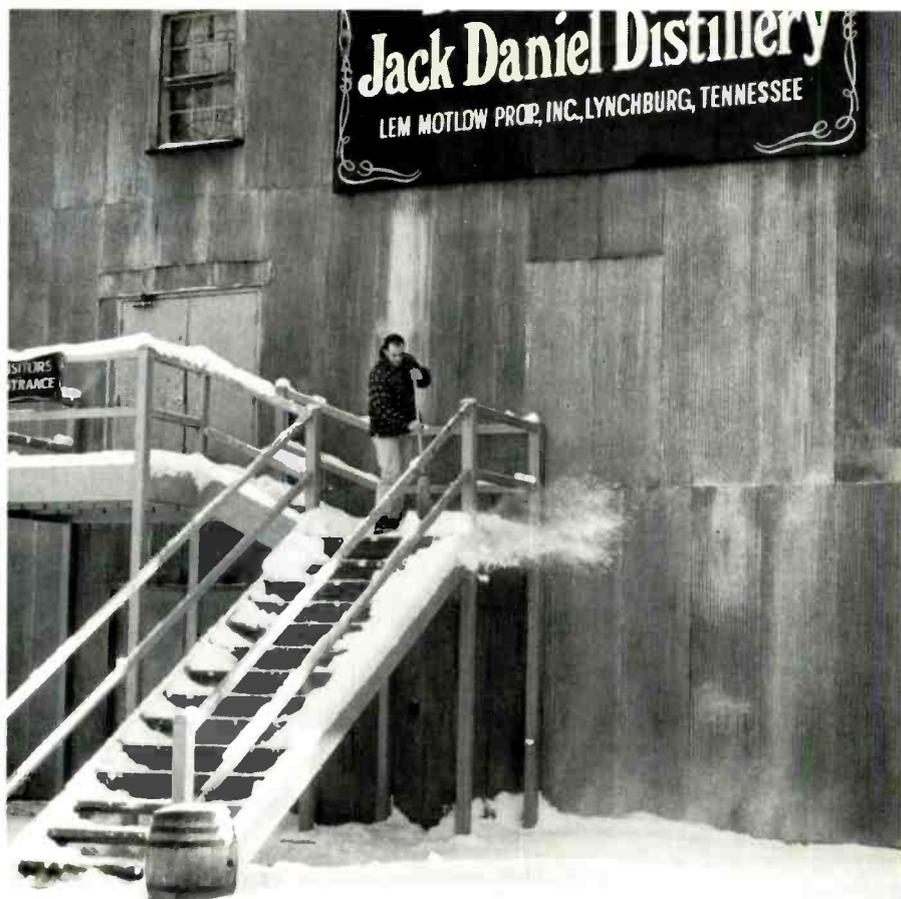
CONCORD JAZZ 4614 (63 min)

Performance: Disappointing**Recording: Good**

As Mel Tormé rightly says in his liner notes, "Without Bing there would have been no Sinatra . . . or any of the rest of us." And Tormé, with his natural jazz instincts and smooth-toned, casual ballad style, would seem ideal for a Crosby tribute, even though the basic timbre of their voices is so different. But in the songs here (primarily from Bing's Thirties movies), Tormé misses the inner verve Bing brought to most of them; he comes much closer, in fact, to the sleepy, ultra-slick Bing of later years. Actually, even late Crosby wasn't this lethargic or lifeless. R.H.

Mel Tormé: velvet fogged-out

CONCORD JAZZ



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CLASSICAL MUSIC



NEW RECORDINGS
REVIEWED BY
ROBERT ACKART,
RICHARD FREED, DAVID
HALL, GEORGE JELLINEK,
ERIC SALZMAN, AND
DAVID PATRICK STEARNS

BARBER: Violin Concerto
KORNGOLD: Violin Concerto; Much
Ado About Nothing, Suite

Shaham; London Symphony. Previn
DEUTSCHE GRAMMOPHON 439 886
(61 min)

Performance: Luscious
Recording: Very good

Samuel Barber's vastly appealing Violin Concerto is now represented by eight CD versions. Few American concertos, other than Gershwin's for piano, have racked up a comparable total. Gil Shaham's new recording ranks right up there with the best. He takes the full measure of Barber's lyrical muse, but it is in the *moto perpetuo* finale that he makes the sparks really fly.

I have mixed feelings about the sweetly lush Erich Korngold concerto, which recycles some of the best themes from his film music. Like Heifetz in his celebrated 1947 recording (reissued on CD), Shaham milks the music for all it's worth, achieving the most convincing result in the dreamy slow movement. As a discmate for the Barber, however, it's a bit rich for my taste.

I like the Mahlerian second movement best in the filler piece, the violin-piano version of Korngold's 1918 incidental music for Shakespeare's *Much Ado About Nothing*. André Previn plays the piano part very stylishly as well as conducting the two concertos. The recording is crisp and clear all the way. *D.H.*

BARTOK: Viola Concerto; Music for
Strings, Percussion and Celesta

Christ; Berlin Philharmonic, Ozawa
DEUTSCHE GRAMMOPHON 437 993
(52 min)

Performance: Exceptional
Recording: Vivid

Splendidly recorded in April 1989, this exceptional account of the Bartok Viola Concerto certainly has an appropriate coupling here in the form of a white-hot Music for Strings, Percussion, and Celeste recorded live two years ago. The contrasts are intriguing. The concerto is presented in a framework that is essentially amiable rather than dynamic, the warmheartedness effectively enhanced by the lambent colors that violist Wolfram Christ seems to delight in calling forth from his instrument. In the Music for Strings, Percussion, and Celeste, on the other hand, Seiji Ozawa pushes the intensity fairly close to what must be its very limit; this is the kind of performance many musicians insist can only happen in an actual concert setting. The sound quality in this work suggests that the sometimes

problematic Philharmonie hall becomes a better recording site acoustically as well as musically with an audience present. *R.F.*

BLOCH: Three Jewish Poems; Two Last
Poems; Evocations

Still; New Zealand Symphony. Sedares
KOCH 3-7232 (60 min)

Performance: Very good
Recording: Impressive

Among the first works Ernest Bloch composed in a Hebraic idiom (1913), the *Three Jewish Poems* are more like post-Impressionist color studies than the power-

ful, fully developed Hebraism he achieved two years later in *Schelomo*. The second movement, "Rite," is the most convincing and substantial. Inspired by Chinese artworks, the three movements of the 1937 *Evocations* (recorded here for the first time) offer gorgeous swatches of orchestral color but are still not Bloch at his best. Sonically, however, the middle one, "Houang Ti (God of War)," is a dream demo track. The brief, brooding, predominantly somber *Two Last Poems*, for solo flute and orchestra, date from 1958, the year before Bloch's death. Flutist Alexa Still is not only a very capable

SHAW THING

The eminent conductor Robert Shaw, whose base is Atlanta, has been leading workshops for chorus conductors, teachers, and singers at Carnegie Hall in New York City for the past four years. The workshops, each devoted to a single great piece of choral music, have been documented on videotape, and a distillation of the latest is now available from Carnegie Hall.

Titled "Robert Shaw: Preparing a Masterpiece, Vol. 4," the 90-minute video captures key moments from the work-

shop's early meetings and rehearsals to the onstage performance of Britten's *War Requiem*. Priced at \$39.95 plus shipping and handling, the tape can be ordered by telephone from Carnegie-Charge, 212-247-7800. The earlier volumes—devoted to the Brahms *German Requiem*, Beethoven's *Missa Solemnis*, and Berlioz's *Requiem*—are still available. Shaw returns to Carnegie Hall in January 1995 for his fifth choral workshop, featuring music of Brahms and Hindemith.



Preparing a masterpiece with Robert Shaw at Carnegie Hall

soloist but also wrote the informative program notes.

James Sedares directs sensitive and well-shaped readings of all these works, and the New Zealand players, as in their previous recordings, display conviction and finesse. The recorded sound is stunning in its richness, detail, and stereo imaging. *D.H.*



BRAHMS: Cello Sonatas
SCHUMANN: Adagio and Allegro
 Starker; Buchbinder
 RCA VICTOR 61562 (65 min)
Performance: High-voltage
Recording: Sharp focus

Janos Starker has recorded the Brahms cello sonatas several times, and these latest versions, with superb keyboard partnering from Rudolf Buchbinder, are as formidable in conception and virile in execution as their predecessors. Starker opts for the first-movement repeat in the E Minor Sonata, Op. 38, and he and Buchbinder exercise iron control in both works, while at the same time bringing enormous drive to their performances. The angry scherzo of the Sonata in F Major, Op. 99, is a prime example. Starker also keeps everything cool and very controlled in phrasing and rhythmic pulse in the Schumann Adagio and Allegro, Op. 70, and yet the allegro is a blazing affair.

While the interpretations are stirring, the recording is a bit too closely focused and high in level. The slightly metallic clang of the piano gave me aural fatigue, and the larger-than-life sound of the pizzicato episode in the slow movement of the F Major was positively startling. Easing off the level control on playback may help. *D.H.*

BRUCKNER: Symphony No. 9
 NDR Symphony Orchestra, Wand
 RCA VICTOR 62650 (65 min)
Performance: Lightweight
Recording: Uneven

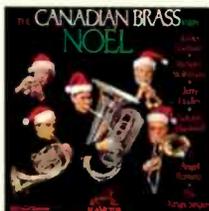
The Bruckner purist can count on the veteran German maestro Günter Wand as a near-infallible guide through the mysteries and terrors of the composer's final symphonic utterance. The opening pages are awesome ("Judgment Day," my late wife called it). The finale ranges in its 27-minute course from *Tristanesque* heartache at the start to a straight-on confrontation with the abyss near the end, relieved at the last by an infinitely consolatory close. Between the first and last movements is a scherzo for Alpine trolls; Wand paces the lively and

NEW CHRISTMAS CD'S

A harbinger of the holidays is always the assortment of new CD's devoted to music of the season. Here are a few that might get you in the mood, be it soulful or cheerful!

THE BALTIMORE CONSORT: Bright Day Star.

DORIAN 90198 (67 min). Old carols and dance tunes from the British Isles, Germany, and Appalachia.



CANADIAN BRASS: Noël.

RCA 62683 (65 min). With contributions from James Galway, Richard Stoltzman, Harolyn Blackwell, Jerry Hadley, Angel Romero, and the King's Singers.

lightfooted (almost Mendelssohnian) middle section more moderately than usual.

For all the merits of the interpretation, however, I find something missing here, and that is the blazing color and weighty sonority of the best recordings of the Ninth from Vienna, Berlin, and Amsterdam. There is ample sense of space in this NDR Symphony recording made in Hamburg's Musikhalle, but the strings seem a bit malnourished and the brass a bit overassertive. *D.H.*

CARTER: Eight Compositions (1948-1993)

The Group for Contemporary Music
 BRIDGE 9044 (79 min)
Performance: Inviting
Recording: Variable but good

If there's such a thing as classical-music machismo, it's found among admirers of Elliott Carter, who is arguably America's most uncompromising modernist. And they're the sort who'd leap on this fine collection of his chamber works—including solo pieces for clarinet, flute, guitar, and violin, duos for flute and cello, violin and piano, and cello and piano, and a trio for clarinet, violin, and cello—since it would appear to be more severe than most. Surprisingly, though, it's one of the friendliest Carter releases ever. Having no more than three instruments to contrast at any given time forced the composer, who has always thrived on musical opposition, to focus himself in some fascinating ways. While these pieces may not be as richly textured as, say, his Symphony for Three Orchestras, they reward close listening more readily.

The fascinating, shrewdly chosen pro-



KANSAS CITY CHORALE: Nativitas.

NIMBUS 5413 (67 min). This Kansas City group is led by Charles Bruffy in American carols—including premières by Rorem, Dello-Joio, Carter, and others.

I SOLISTI ITALIANI: Christmas

Concertos. DENON 78912 (51 min). Baroque orchestral works by Vivaldi, Torelli, Locatelli, Tartini, and more.

THEATRE OF VOICES: Carols from the Old and New Worlds.

HARMONIA MUNDI 907079 (62 min). Paul Hillier arranged the traditional carols from England, America, and Germany and leads the fourteen-member California-based ensemble.

gram combines weighty chamber works, such as the Duo for violin and piano and the Cello Sonata, with exquisite, seldom-heard miniatures, such as *Gra* for solo clarinet, which shares much of the playfulness of the Oboe Concerto, and *Changes* for classical guitar, which is a model of concision, delicacy, and unity. The performances are all very confident, and that of the Cello Sonata, played by the cellist Fred Sherry with composer Charles Wuorinen at the piano, may be a classic. *D.P.S.*



ELGAR: Violin Concerto

Sitkovetzky; Royal Philharmonic, Menuhin
 VIRGIN 45062 (47 min)

Performance: Finely detailed
Recording: Spacious

"It's good! Awfully emotional! Too emotional but I love it!" was Edward Elgar's own reaction to his gorgeous, lush, and complex Violin Concerto in B Minor. Its very first recording, made in July 1932



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with the seventy-five-year-old Elgar conducting the London Symphony Orchestra and the sixteen-year-old soloist, Yehudi Menuhin, remains the touchstone. Now we have the seventy-four-year-old Menuhin accompanying Dmitri Sitkovetsky. Unfortunately, the result is no match for either the 1932 recording or, in modern sound, Nigel Kennedy's superb realization with Vernon Handley and the London Philharmonic recorded a decade ago on EMI.

Sitkovetsky provides an abundance of felicitous shadings and nuances, notably in the many lyrical episodes of the first movement and throughout the infinitely tender slow movement. The mercurial aspect of the finale comes across with great flair and elegance, and the famous *pizzicato tremolando* cadenza is as evanescently magical as one could wish. But the orchestral role is much more than mere accompaniment, and here the performance falls short. What is needed is not just getting all the elements in place, which Menuhin does as if by second nature, but endowing the music with the surge and weight that Elgar and most subsequent conductors on record have given it.

While the sonics offer a virtually ideal balance between soloist and orchestra and a nice feeling of space, as a whole the recording is a near miss. *D.H.*

GOUNOD: Faust

Soloists; Chorus and Orchestra of the Welsh National Opera, Rizzi
TELDEC 90872 (three CD's, 212 min)

Performance: Uneven
Recording: Very good

Although this new version of *Faust* is not among the best, it does offer more of this huge opera than any previous recording known to me. The Walpurgis Scene is substantially enlarged by the addition of an effective song for Méphistophélès and chorus, and two arias are added in the Appendix, together with the ballet music. And while I find Carlo Rizzi's pacing of certain episodes (the Prelude and Act I, the Garden Scene, and the Finale) to be damagingly slow, he brings clarity and vitality to the rest of the opera and secures polished performances from his orchestra and chorus.

Bass Samuel Ramey, a formidable Méphistophélès, stands out among the singers

with a commanding and cruelly sardonic portrayal. The subsidiary roles, too, are in good hands: Baritone Alexandru Agache is a resonant and forthright Valentin, mezzo-soprano Suzanne Mentzer captures Siébel's youthful breathlessness convincingly, and mezzo-soprano Brigitte Fassbaender proves a strong presence as Marthe.

Soprano Cecilia Gasdia's Marguerite is neatly phrased and tonally immaculate, and exquisite in the restored aria "*Il ne revient pas*" and in virtually all episodes of a melancholy nature. But her Jewel Song lacks a rapturous quality, and her "*Anges purs, anges radieux*" in the final trio fails to soar on angelic wings.

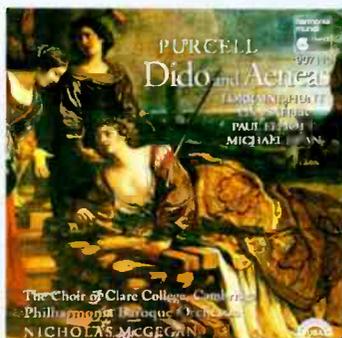
The weakest link, unfortunately, is the Faust. Jerry Hadley can summon the intelligence, passion, stylistic command, and even poetic spirit that the role needs, but his light tenor voice loses focus under pressure and becomes insecure above the staff. (He renders the high C in "*Salut, demeure*" in an ineffective falsetto.) This liability at the core of the opera removes the set from contention. *G.I.*

"Dido and Aeneas," Authentic and Sexy

What a delicious irony: a great seventeenth-century English opera, Purcell's *Dido and Aeneas*, recorded in flamboyant Baroque style at George Lucas's Skywalker Ranch in late-twentieth-century northern California.

And why not?

Soprano Lorraine Hunt was born to sing Dido. And conductor Nicholas McGegan is the man who pushes her to outdo herself. This is a fleshy and passionate reading that starts from the assumption that clear, focused singing and period-instrument playing can be just as sexy as anything else. Not only does the approach not violate the conventions of Baroque style, it actually helps to realize them. McGegan and his singers know how to ornament or bend a line, not for musicological purity but to make it speak in a certain kind of way, which strengthens the affect as well as the effect but never breaks the frame. This is the essence of good period-music performance because it is the essence of a great *Dido*. Now that many scholars believe that this work was not written for schoolgirls, it is time to stop performing it like a schoolgirl piece. That is not easy to do; many are called,



few are chosen. This recording is one of the chosen.

The Choir of Clare College, Cambridge, was available for a series of live performances in the Bay Area, which is also the home of McGegan's excellent Philharmonia Baroque Orchestra. Thus, the performers were able

to shake it down and let it ripen in live performance. The result is a really deep and theatrical performance in recorded form. Hunt's vocal quality has a rounded, supple beauty that is remarkable enough, but her dramatic interpretation takes still another step upward and inward. The other roles, all essentially secondary (even Aeneas), are nicely handled; an attractive and amusing feature is the character treatment of the witches and the sailors. And the period-instrument playing is vivacious and beautifully recorded. *Eric Salzman*

PURCELL:

Dido and Aeneas

Lorraine Hunt, Lisa Saffer, Paul Elliott, Michael Dean, others; Clare College Choir; Philharmonia Baroque Orchestra, Nicholas McGegan cond.
HARMONIA MUNDI 907110 (60 min)



MESSIAEN:

Illuminations of the Beyond

Orchestre de l'Opéra Bastille, Chung
DEUTSCHE GRAMMOPHON 439 929
(65 min)

Performance: Superb
Recording: Fine

Olivier Messiaen's eleven-movement, hour-long orchestral work *Eclairs sur l'Au-Delà . . . (Illuminations of the Beyond)* is certainly a career-capper. Its wide embrace of nature and God in expansive adagios suggests Mahler's more elegiac moments, but unlike Mahler, Messiaen seems to have peered into the next world without a trace of neurotic pathos. While the music has much of the refinement of Wagner's *Parsifal*, it has little of that work's unfulfilled yearnings. And while it would be easy to suggest that Messiaen's use here of his trademark bird calls and spasmodic rhythms signifies some sort of summing up (even though it was recently discovered that this piece was not his absolute last), he was reaching well beyond himself in writing movements with long, emotionally neutral melodies and parallel harmonies that appear to have been inspired by the sacred Parisian *organum* of Leonin and Perotin in the twelfth century, one of the first significant moments in French musical history.

(Continued on page 154)

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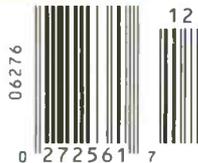
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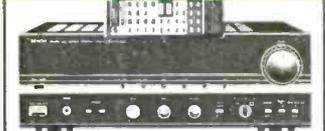


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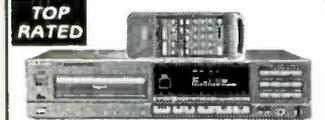


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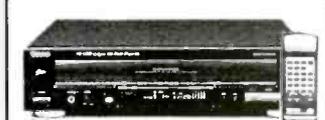


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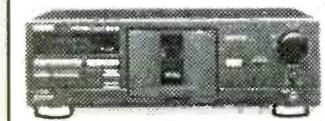


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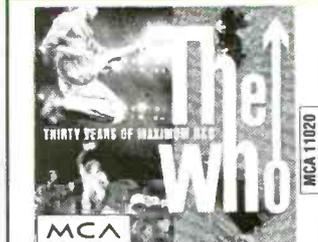
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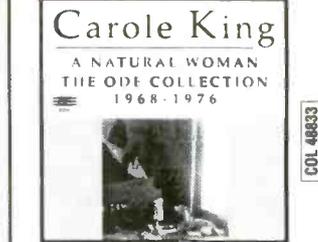
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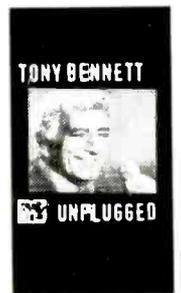


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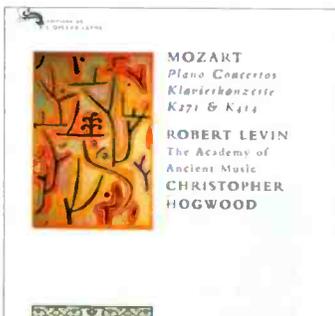
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CLASSICAL MUSIC

The first movement is scored for brass and has all sorts of unresolved dissonances at the cadences, and the last is scored for strings and has far fewer dissonances, no cadences, and a rarefied sense of the sublime. What lies in between them is an elliptical journey in which different musical techniques and gestures come around again and again, always with an increasingly uplifting transformation.

Conductor Myung-Whun Chung worked intensively with the composer, and his reading displays a deep understanding of both Messiaen's use of silence and his taste for uproarious chaos and glittering orchestral sonority. *D.P.S.*



MOZART: Piano Concertos No. 9 (K. 271) and No. 12 (K. 414)

Levin: Academy of Ancient Music, Hogwood: L'OISEAU-LYRE 443 328 (56 min)

**Performance: A revelation
 Recording: Excellent**

Fortepianists are not known for being scintillating, but Robert Levin certainly is, and he even seems to have inspired Christopher Hogwood to some of his liveliest, most strongly characterized conducting in years. One thing that keeps Levin's collaborators on their toes is that he improvises ornaments and cadenzas. While he admits in the album notes that his cadenzas aren't as good as Mozart's (and he's right), they do have a wonderful daredevil quality as well as an occasional hint of madness that may be more authentic in spirit than sticking with the letter of the score.

Those who are used to refined, gentle Mozart should stay away from this CD. Levin is one of the most aggressive Mozart keyboard players ever. Even his trills can be as penetrating as laser lights, and he's not afraid to make a big, theatrical gesture. The slow movements suffer a bit from his straight-ahead, unsentimental approach. But while I wouldn't want to hear Mozart played like this all the time, it's stimulating, provocative, and a bit of a relief to hear it this way occasionally. *D.P.S.*

MOZART: The Marriage of Figaro

Soloists: Chorus and Orchestra of the Maggio Musicale Fiorentino, Mehta
 SONY S3K 53286 (three CD's, 185 min)

**Performance: Thoroughly enjoyable
 Recording: Clear, crisp**

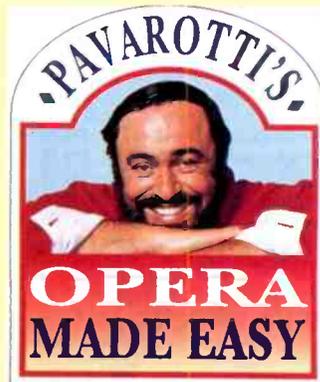
While this recording does not supersede the best of its predecessors, it does offer a reading of enthusiastic vitality, musical taste, and dramatic involvement. If Zu-

bin Mehta's conducting lacks nuance, the lively pulse and cohesiveness of the reading are appealing. The recorded sound itself is clear, crisp, and luminous, letting one hear orchestral details that are sometimes obscured. The chorus and orchestra deserve plaudits for their ebullient contributions.

In the title role, baritone Michele Pertusi uses his clear, somewhat dark voice to good effect both musically and dramatically: he sings his big arias with taste, and his characterization is praiseworthy throughout. As Susanna, the silvery-voiced soprano Marie McLaughlin is a sprightly and engaging foil for Figaro's weighty plotting against the miscreant Count. Lucio Gallo, an imposing singing-actor with a notably expressive baritone voice, makes of the Count an elegant if unlikable philanderer. Soprano Karita Mattila's Countess is dramatically affecting, and her singing is of a high order, especially effective in "Porgi, amor."

Monica Bacelli's engaging Cherubino is musically very satisfying, and Nicoletta Curiel, Angelo Nosotti, and Ugo Benelli—as Marcellina, Bartolo, and Basilio, respectively—do justice to Mozart's sparkling

TENOR'S CHOICE



London Records launched a new midprice opera series this fall, "Opera Made Easy," endorsed by the label's—and a lot of other people's—favorite tenor, Luciano Pavarotti. Each of the twenty individual CD's in the series is more than 70 minutes long, and the thematic groupings range from the reasonably specific, such as "My Favorite Puccini" and "My Favorite Love Duets," to the all-embracing, such as "My Favorite Opera for Everyone." The annotation offers a basic introduction to the operas represented. Although Pavarotti's "favorites" are limited to the London catalog, with the likes of Caballé, Sutherland, Nilsson, Price, Tebaldi, Horne, Von Stade, Vickers, and even Domingo and Carreras to choose from, the tenor with the Midas touch had no trouble striking gold.

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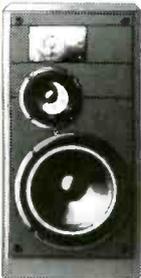
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line and to the comic situations at hand. The recording, uncut, offers the bravura Act IV arias of Marcellina and Basilio; although of musical interest, they are dramatically counterproductive.

Greater than the sum of its parts, this is a thoroughly commendable realization of the opera despite its lack of truly stellar performances. *R.A.*

PROKOFIEV: Symphony No. 3

MOSOLOV: Iron Foundry

VARÈSE: Arcana

Royal Concertgebouw Orchestra, Chailly
LONDON 436 640 (57 min)

Performance: Excellent

Recording: Likewise

Here is a collection of the newest of the new as produced in Moscow (Mosolov), Paris (Prokofiev), and New York (Varèse) in the years 1926-1928. Alexander

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Mosolov's once-notorious orchestral imitation of factory sounds seems rather pointless now but probably deserves documentation as a historical footnote, and nothing is held back in this performance. Prokofiev's Third Symphony, which has established itself as the most successful of the big symphonies he composed during his years in the West, might also be regarded as descriptive music since its materials were adapted from his unsuccessful opera *The Flaming Angel*; it is certainly a very dramatic piece, and Riccardo Chailly brings the drama out with considerable warmth.

Edgard Varèse's *Arcana* is the most remarkable of the three works, and here it receives a performance that not only rivals the legendary Martinon/Chicago LP on RCA Victor in its drive, clarity, and overall orchestral brilliance, but surpasses it and all others by virtue of the stunning realism of the recorded sound. (The piece, incidentally, contains a motif many will recognize as strongly resembling the one used to represent Kashchei in Stravinsky's ballet *The Firebird*.) All by itself, Chailly's realization of *Arcana* makes this disc downright indispensable. *R.F.*

RACHMANINOFF: The Bells; Spring; Three Russian Songs
Soloists: Choral Arts Society of Philadelphia; Philadelphia Orchestra, Dutoit
LONDON 440 355 (64 min)
Performance: Cool
Recording: Very good

The three choral works here, all sung in Russian, come off more persuasively than the purely instrumental ones on the two previous discs in Charles Dutoit's ongoing Rachmaninoff cycle with the Philadelphia Orchestra. He always secures first-class playing, and his commitment is never in question, but his cool, somewhat reserved approach seems dispassionate in the First and Third Symphonies, *The Isle of the Dead*, and the Symphonic Dances.

In the works here, the voices carry some of the emotional burden, and the readings seem positively clarifying—allowing, for example, a violin solo early in *The Bells* to make itself felt as in few other performances. Certainly the contributions of the soprano Alexandrina Pendachanskaya, the tenor Kaludi Kaludov, and the baritone Sergei Leiferkus in that work, of Leiferkus again in *Spring*, an early cantata, and of the fine chorus throughout the disc are fully attuned to the nature of the respective texts, and there is much to enjoy all around. *Spring* is a fairly dispensable work, however, and the competition on CD is formidable in the other two. *R.F.*

RACHMANINOFF: Concerto Elégiaque; Corelli Variations; Vocalise
Kogosowski; Detroit Symphony, Järvi
CHANDOS 9261 (69 min)
Performance: Very good
Recording: Excellent

Australian-born Alan Kogosowski has recast the Rachmaninoff Trio in D Minor as a highly effective piano concerto, which Neeme Järvi conducted in Detroit last October and recorded with him immediately thereafter. The piano part hews reasonably well to the original, and the orchestral accompaniment is a quite convincing simulacrum of the composer's manner. Kogosowski brings ardor and ample virtuosity to his solo playing, and Järvi backs him to the limit.

Aside from a slight lack of focus in the timpani, the sonics are eminently satisfying. The Detroit strings sound lush almost to a fault, and even more so in the orchestration of the 1931 set of Variations on a Theme of Corelli. I don't see much reason for an orchestral version of those highly demanding and rather seldom played variations (in some respects a preparation for the popular Paganini Rhapsody, also in variation form, that took shape in 1934). Nevertheless, the Romanian conductor Corneliu Dumbraveanu has done a colorful adaptation that effectively displays his knowledge of Rachmaninoff's late orchestral style—lots of wood and metal percussion effects of the type encountered in the Third Symphony and the Symphonic Dances. Again Järvi and the Detroiters offer a first-rate performance, as they do with the one piece here orchestrated by Rachmaninoff himself, the famous Vocalise. These orchestral transcriptions may

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be oddball curiosities for Rachmaninoff purists, but nonpurist sound buffs will find them a delight. *D.H.*

SESSIONS: Piano Concerto
THORNE: Piano Concerto No. 3

Taub; Oppens:
Westchester Philharmonic, Dunkel
NEW WORLD 80443 (45 min)

Performance: Committed
Recording: First-rate

The link between Roger Sessions and Francis Thorne is David Diamond, who was a pupil of Sessions and a teacher of Thorne. Sessions's 1956 Piano Concerto, played by Robert Taub, and Thorne's Third Concerto (1989), played by Ursula Oppens, both with Paul Dunkel conducting the Westchester Philharmonic, are imaginative, without being eccentric, in their use of orchestral color and idiomatic writing for the various instruments of the orchestra as well as the piano itself, in their allusions to popular styles, and in the importance given to the idea of melody. If the themes are not really memorable or exceptional in either work, they are nonetheless real tunes and function splendidly in their structural roles—especially in the slow movement of the Thorne, an almost classical cantabile piece with a hint of Gershwin or Cole Porter here and there, and in that work's sassy finale with its surprisingly introspective middle section.

Fine discoveries both, and neither work could have had more effective advocacy. Taub and Oppens play the respective solo parts with the all-out commitment we've come to expect from them, Dunkel has his fine-honed orchestra engaged with them on a chamber-music level of give-and-take, and New World has come through with absolutely first-rate sound. *R.F.*

SHOSTAKOVICH: Symphony No. 8;
Funeral and Triumphal Prelude;
Novorossiisk Chimes

Royal Philharmonic, Ashkenazy
LONDON 436 763 (67 min)

Performance: Lyrical
Recording: Splendid

Vladimir Ashkenazy has made it clear in so many words that he is very much aware of the barely repressed personal urgency underlying the Shostakovich symphonies, but in performing them he seems to have chosen to focus on musical values and let the listener draw his own inferences regarding "inner meanings." While his readings do not compete in terms of emotional intensity with those of such senior colleagues as Gennady Rozhdestvensky, Mstislav Rostropovich, and the late Yevgeny Mravinsky, we may find that they wear pretty well after all.

In any event, Ashkenazy's Shostakovich seems to become a little more interesting from one release to the next, and the very musical, rather plainspoken statement of the grand Eighth Symphony on this CD could at the very least be an intriguing back-up for one of the more highly charged versions. If the two consecutive scherzos—the motoric second one in particular—could do with more raw force, they fit well into

Ashkenazy's appealing overall emphasis on clarity, continuity, and balance, and the largo and allegretto that follow may actually benefit from the restraint that allows their inherent lyricism to come to the fore. Listeners who are interested in having more than a single recording of the Eighth should audition this one—but not with the expectation of being bowled over by it at first hearing. The two brief later pieces that fill out the disc, composed for taped use at memorial sites, are makeweights of the most inconsequential sort, but both they and the symphony are splendidly recorded. *R.F.*

VERDI: Il Trovatore

Soloists: Metropolitan Opera Chorus and Orchestra, Levine

SONY 48070 (two CD's, 129 min)

Performance: Uneven
Recording: Vivid

The notes for this recording make a great deal out of the idea that *Il Trovatore* is "a singers' opera," but only one singer is truly performing here: tenor Plácido Domingo, in the role of Manrico.

Nobody else comes close; even soprano Aprile Millo gets into the neighborhood only sometimes. Her Leonora improves after a

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MET Orchestra, Levine
DEUTSCHE GRAMMOPHON 439 862
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James Levine's latest symphonic recording with the superb orchestra he has molded at the Metropolitan Opera is the most impressive to date—precisely because it moves beyond the "showcase" category into music where depth and substance count for as much as polish and brilliance. The handsomely recorded disc offers as satisfying an account of each work as one will find today. *R.F.*

BRAHMS: String Quartets
Nos. 1 and 2

Cleveland Quartet
TELARC 80346 (68 min)

Fervent yet well balanced, these are among the most attractive performances the Cleveland Quartet has recorded for some time, but the very close sonic focus tends to turn the foursome into a little string orchestra. Those who prefer a more intimate frame for these intimate works may be happier with the Takacs Quartet's similar coupling on London. *R.F.*



IVES: Three Places in New England;
The Unanswered Question; A Set
of Pieces; Symphony No. 3; Set No. 1

Orpheus Chamber Orchestra
DEUTSCHE GRAMMOPHON 439 869
(66 min)

Although the Orpheus Chamber Orchestra gives a wonderfully hushed, atmospheric reading of *The Unanswered Question* and a welcomingly intimate reading of the Symphony No. 3, some of the wilder pieces, such as *Three Places in New England* (with pianist Gilbert Kalish), are too cautious, perhaps because the group plays without a conductor. The seldom-heard collections *A Set of Pieces* (also with Kalish) and Set No. 1 consist of fairly inconsequential scene sketches and mood music. *D.P.S.*

NIELSEN: Symphony No. 2; Snefrid;
Cupid and the Poet, Overture

Odense Symphony, Serov
KONTRAPUNKT 32178 (51 min)

Moscow-horn Edward Serov's somewhat loose reading of the entertaining Symphony No. 2 ("The Four Temperaments") of-

fers no serious competition to the recordings by Blomstedt (London) or Chung (Bis). The early suite from the melodrama *Snefrid* features a dreamy second movement and lovely writing for solo winds in "Snefrid's Sleep." The spicy and delightful overture to *Cupid and the Poet* (after a Hans Christian Andersen story) is prime late Nielsen—lots of fugato interplay and snare-drum work redolent of the Clarinet Concerto. Good sound. *D.H.*

STRAVINSKY: Apollon Musagète;
Concerto in D; Concerto in E-flat
("Dumbarton Oaks"); Danses
Contantantes

Montreal Sinfonietta, Dutoit
LONDON 440 327 (78 min)

Charles Dutoit's new disc of works from Stravinsky's Neoclassical period is played by the Montreal Symphony's chamber-orchestra contingent. That immediately, and laudably, sets this version of *Apollon Musagète* apart from the big-orchestra recordings. The players are pushed to their limits by the music's relentless rhythms and odd chord voicings, but the best moments—as in the other works—convey a sense of color rare in the composer's works of this period. *D.P.S.*



ANONYMOUS 4: Love's Illusion
HARMONIA MUNDI 907109 (64 min)

On the cutting edge of the revival of medieval sacred music, the vocal quartet Anonymous 4 had a huge hit with their debut recording, "An English Lady-mass." Now they turn to thoughts of love with this collection of thirteenth-century French motets. This music makes love in olden times sound innocent and rather uneventful, but it has considerable charm and beauty, and "Love's Illusion" should be another winner for these gifted virtuosic singers. *William Livingstone*

HEINZ HOLLIGER
Concertos and Chamber Music by
Martin, Honegger, and Martinu

Academy of St. Martin in the Fields/Marriner
PHILIPS 434 105 (64 min)

The Martinu Oboe Concerto—elegant, colorful, and poetic—has by far the most character of the pieces here. Honegger's Concerto da Camera for English horn and flute and Frank Martin's Three Dances for oboe, harp, string quintet, and orchestra both belong to the realm of mild-mannered, mid-European, mid-century busy music. The CD is filled out with some odd little chamber pieces. Heinz Holliger is, as always, suave and musically, and so are his collaborators. *E.S.*

wobbly start, but she rarely seems to be operating in the same rhythmic universe as conductor James Levine. Dolora Zajick's Azucena lacks character (is that possible?), and Vladimir Chernov's Luna is at best amiable, at worst flat.

Levine's tempos are brisk, and the orchestra plays well enough, although, astonishingly, there are one or two wrong entrances and many uninspired moments. This great old potboiler of an opera—a collection of astoundingly dramatic scenes, arias, and ensembles—lives at the edge, or it doesn't live at all. It needs full-out, non-stop musical breast-beating and a high level of rhythmic precision and verve. But instead of dash, what it gets here is slapdash. There are lots of cuts and a great deal of "Let's get on with it."

Only Domingo emerges unscathed. Even his big aria is chopped, but he keeps his dignity, makes something of Manrico, and delivers some superb Verdian singing. It is his tone that everyone admires, but the real secret is the sureness of his rhythm and phrasing. *E.S.*

WAGNER: Der Fliegende Holländer

Soloists: Vienna State Opera Chorus; Vienna Philharmonic, Dohnanyi
LONDON 436 418 (two CD's, 145 min)

Performance: Fairly good
Recording: Very good

Among the virtues of this new *Flying Dutchman* I must single out Christoph von Dohnanyi's sensitive and solid conducting—not flashy but vital, sustaining dramatic momentum through coherent and flexible pacing. The chorus and orchestra perform outstandingly for him, though the chorus could have been used more imaginatively (little is made of the Act III confrontation between the jaunty Norwegians and the Dutchman's eerie crew).

The casting is happier in the subsidiary roles than in the major ones. Tenor Josef Protschka is one of the best Eriks on records, his firm tones expressing despair without whining, but the appealing lyric-tenor sound of Uwe Heilmann is almost too refined for the Steersman. In the title role, baritone Robert Hale responds to the text in a way that bespeaks long experience; his anguish seems genuine, creating instant sympathy with his mellow voicing of the second-act duet. But his tone is not always steady, and it becomes effortful in climactic phrases. Bass Kurt Rydl, too, has problems on sustained notes, but his seasoned Daland is more than competent, if short of the highest standard.

Soprano Hildegard Behrens's intense and deeply involved Senta would still be a triumph in the theater, but I wish she had recorded it earlier, when her vocal resources would have better served her admirable dramatic instincts. The opera's finale finds both principals severely tried.

We get the original version here, with two breaks between the acts—a practical option, though one that prevents us from enjoying Wagner's immense skill in creating a seamless continuity. *G.J.*

(Continued on page 166)

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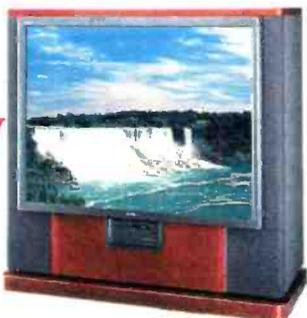
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Performance: Stunning
Recording: Effective

There is a kind of gutsy new music around, represented in this country by the Bang on a Can Festival in New York City and in Britain by the group Icebreaker. Among the composers with works on this CD, Michael

Gordon and David Lang belong to the New York branch. Gavin Bryars and Damian Le Gassick (a member of Icebreaker) to the British wing. Icebreaker was founded to perform the works of the Dutch composer Louis Andriessen, who can be considered the godfather of icebreaking (or icebanging or whatever it should be called).

Most modern classical music these days is well behaved. Not this music; icebanging is mostly not-nicebanging. It has its sources in minimalism but skips the spiritualism for a kind of raucous and relentless rhythmicism or polyrhythmicism that identifies

with the punkier side of rock and jazz. This is hard-edged music, and it cuts. But just when you think you have the style pegged, you get the eerie beauty of a piece like Bryars's *Archangel Trip* (the title is not tongue-in-cheek mysticism; Russia's Arctic icebreakers operate out of the port of Archangel), which floats long, long sinuous lines above distant rhythmic icebergs. Or the dramatic contrasts of Le Gassick's *Evol*. Or the endlessly long sonorities and decidedly arrhythmic slow changes of Lang's punningly titled *Slow Movement*, by far the most problematic item on the menu; it represents the polar opposite of everything that Icebreaker does and, just by being so contrary, makes a perfect Icebreaker piece.

Obviously I didn't like everything equally well—Michael Gordon's *Yo Shakespeare* is a kind of cockeyed rhythm masterpiece, the Bryars is the most "listenable," and LeGassick's makes the most dramatic and formal sense—but it is refreshing to hear a new-music recording that truly stimulates and challenges in a new way. Several new ways, in fact. E.S.

KRONOS QUARTET
Night Prayers
 NONESUCH 79346 (79 min)
Performance: Diverse
Recording: Atmospheric

The Kronos Quartet's "Night Prayers" opens not with anything resembling string instruments but with a trio of Mongolian singers misplaced from their native Tuva. In many ways, that serves as keynote for this absorbing concept album of music commissioned by the quartet from composers representing different nationalities encompassed by what was once the Soviet Union. While often employing nonquartet sounds ranging from electronic effects to the voice of soprano Dawn Upshaw, most of the works express a search for roots, stability, and reality amid chaos, climaxing in the hypnotic title piece, a 23-minute string quartet by the Georgian composer Giya Kancheli that's held together with a relentlessly trudging rhythmic pattern.

The Kronos Quartet's recordings have often had a disposable quality, and at times here the concept takes precedence over the music. Some selections seem intended to make more of a political statement than a musical one, such as *Lacrymosa* by Dmitri Yanov-Yanovsky, a polytonal piece featuring Upshaw that aims to depict a world falling apart, and *K'Vakarai* by Osvaldo Golijov, which presents a cantor's impassioned questioning of Jewish fate. At worst, some sound like "me too" versions of the Gorecki Symphony No. 3 that are about as interesting structurally as one of Rossini's long crescendos. But at best, the music's rhetorical power and the diversity of ethnic styles represented help us understand better what has been happening in the former Soviet Union, which may ultimately be more important than whether the music has lasting value. Nonetheless, the Kancheli piece and the otherworldly thickets of electronically produced sound in Sofia Gubaidulina's String Quartet No. 4 may prove to be music to return to. D.P.S.

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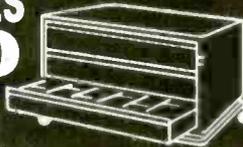
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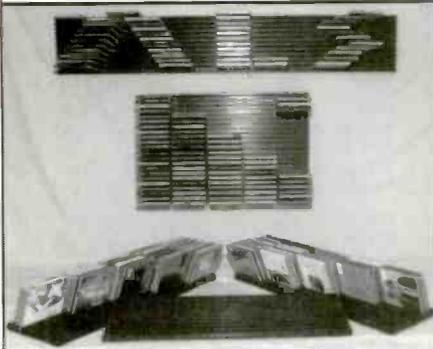
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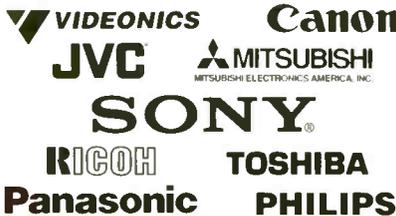
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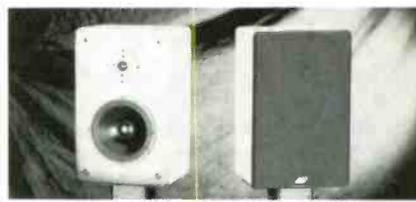
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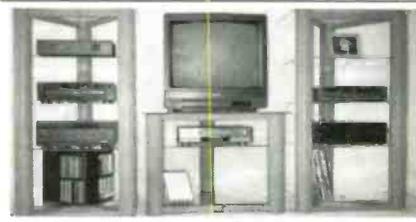
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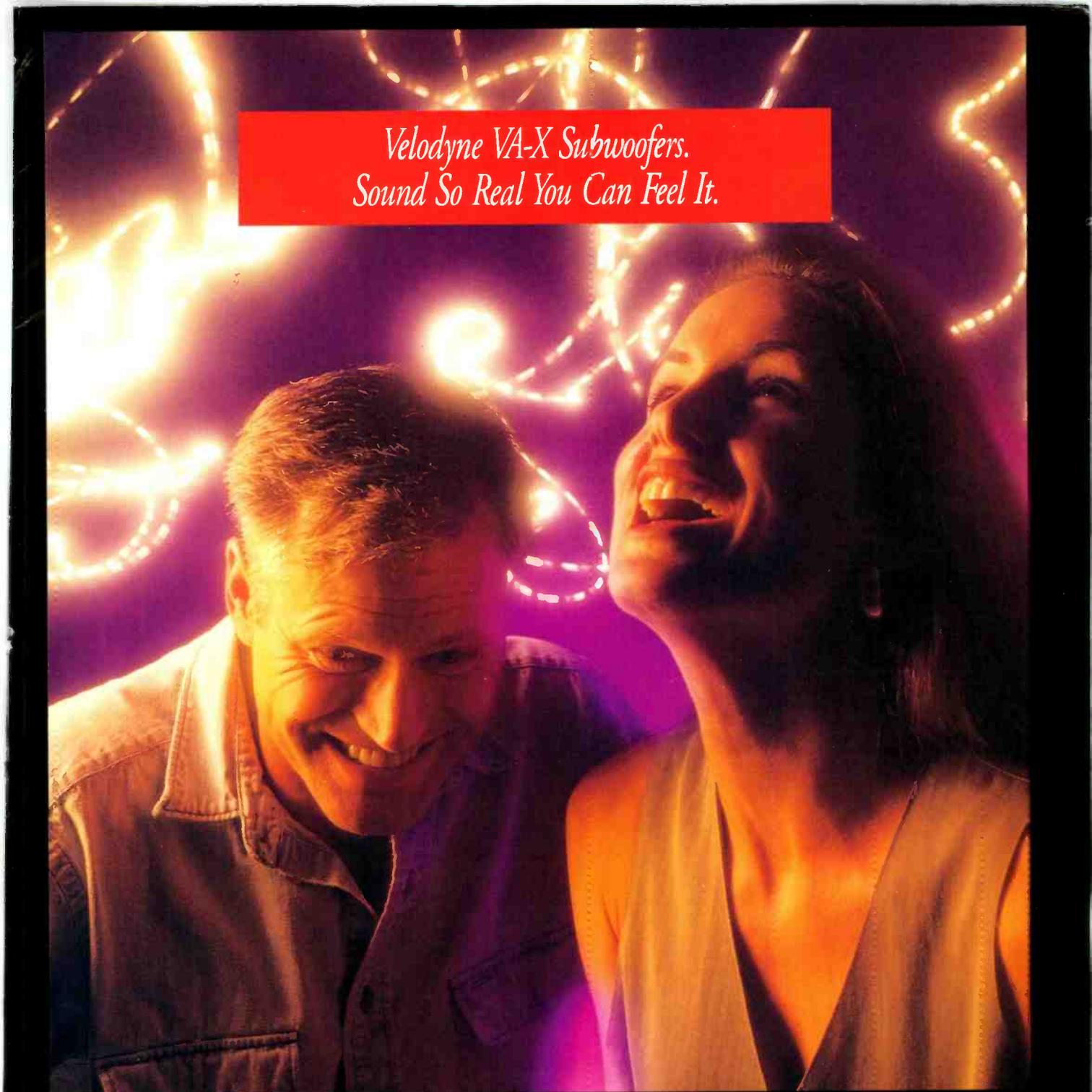
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