

Stereo Review

US \$2.50 • UK £1.95 • CANADA \$2.95 AUGUST 1992

SURROUND CHOOSING AN A/V RECEIVER

POWER: HOW MUCH DO YOU NEED?

KATHY MATTEA'S NEW COUNTRY

TESTED:
Rotel CD
Player,
Marantz
Music Link,
Signet
Speakers,
And More

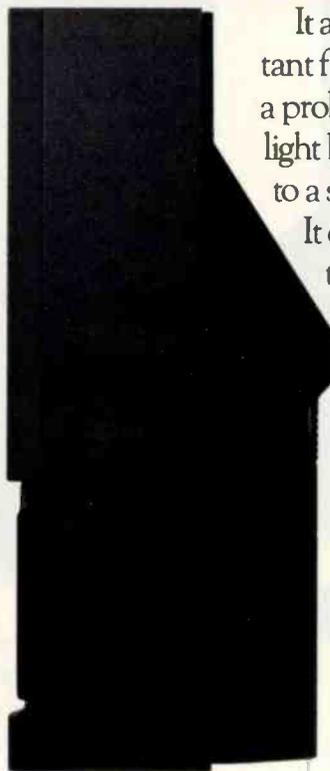
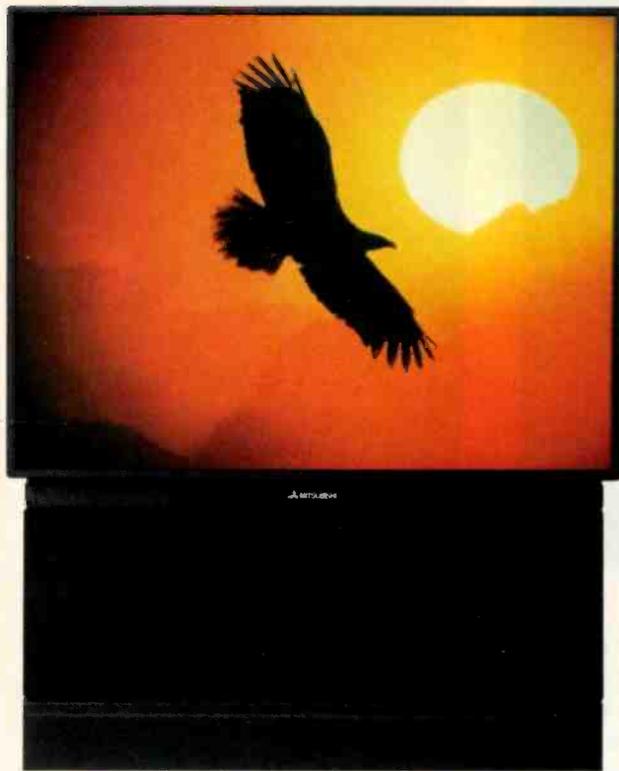


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LOUISVILLE KY 40242-7772



The Mitsubishi
VS-5017S Big Screen
TV features a multi-
element, multi-
coated lens system,
high voltage stability
with less than 5%
overscan, peak white
automatic contrast
and two-dimensional
digital dynamic
comb filter.

That may sound deep. But it's only 22½"



There's an old saying that good things come in small packages.

A sentiment only Mitsubishi engineers would think of applying to big screen television.

Faced with the challenge of designing a 50" big screen projection TV shallow enough for built-in and restricted-space situations, they've done the seemingly impossible.

They've put their most advanced technology to date, plus a few new ideas, into a big screen cabinet only 22½" deep. That's 30% less than a conventional 50" making ours the slimmest 50" projection TV sold in America.

And they did it while actually improving the overall quality of the picture.

The biggest breakthrough came with the construction of a multi-element, multi-coated lens system that contains more elements than most competitive systems (7 vs 3 to 5), yet is considerably shorter.

The improved light path resulting from this innovative Mitsubishi lens system, in combination with new screen materials, delivers this television's impressive 800 lines of horizontal resolution with 390 foot-Lamberts peak brightness.

It also serves another important function, by eliminating a problem associated with any light beam that's projected onto a screen—a center hot spot.

It does this by distributing the light evenly across the entire screen, right out to the corners and edges.

As for all the other unique features of the VS-5017S (set forth a bit more technically on the opposite page), they perform such picture-enhancing functions as:

Sharpening of the screen image by improving light-to-dark transi-

tions and stabilizing the geometric distortion sometimes caused by very intense whites.

Continuously monitoring all of the small white peaks in order to prevent blooming.

More completely separating the black & white and color elements for truer color reproduction and less "cross talk" between those elements.

The result: An incredible big screen picture that feels like it's right on top of you.

In a cabinet that isn't.

 **MITSUBISHI**

TECHNICALLY, ANYTHING IS POSSIBLE®

Quality sound as big as the movies,
from a Virtually Invisible® speaker system.



The Acoustimass®-7 home theater speaker system delivers lifelike sound for TV and video viewing as well as stereo music listening. It includes three Direct/Reflecting® cube speaker arrays and a hide-away Acoustimass bass module (shown bottom of page).

Introducing The New Bose® Acoustimass-7 Home Theater Speaker System.

The new Bose Acoustimass-7 home theater speaker system makes watching your favorite videos at home feel like a night at the movies.

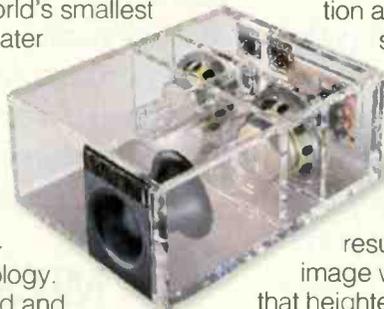
Just as music lovers chose the first Acoustimass system for its superb sound and small size, now home theater viewers can enjoy the same benefits from the world's smallest full fidelity home theater system.

Unlike conventional speakers, the Acoustimass-7 system features Bose Direct/Reflecting® speaker technology. It uses both reflected and direct sound for a full sound

stage almost anywhere in the room. So, no matter where you sit, it's the best seat in the house.

The Acoustimass-7 system features three acoustically matched Virtually Invisible cube speaker arrays. Their full uniform bandwidth reproduction delivers excellent on-screen localization and spacious ambient sound *consistently*

across all three front channels. The compact bass module adds clear, deep bass – free of audible distortion. The result is a wide stereo image with clean, low tones that heighten the drama to keep you on the edge of your seat.



And, when you add compatible Bose VS-100™ rear channel speakers, you hear Bose quality sound in a complete surround sound system.

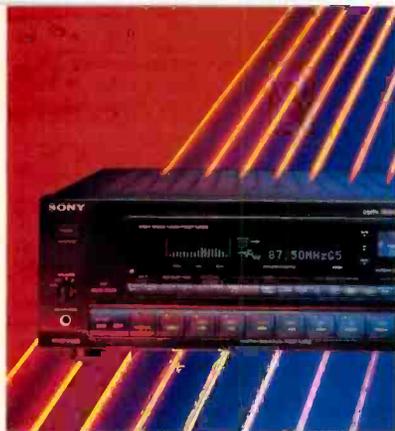
Visit your Bose dealer and compare the Acoustimass-7 system to larger, more expensive systems. For more information and the names of Bose dealers near you, call toll free:

1-800-444-BOSE Ext. 127

USA: Monday-Friday 8:30AM-9:00PM (ET)
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Cover

Like the idea of home theater? An A/V receiver such as the Sony STR-D1090ES may be the most cost-effective way of getting there. See "Shopping Surround" on page 44.

Photograph by Jook P. Leung

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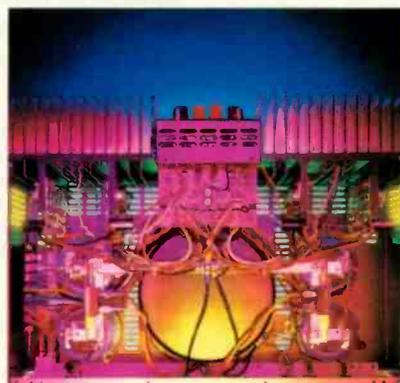
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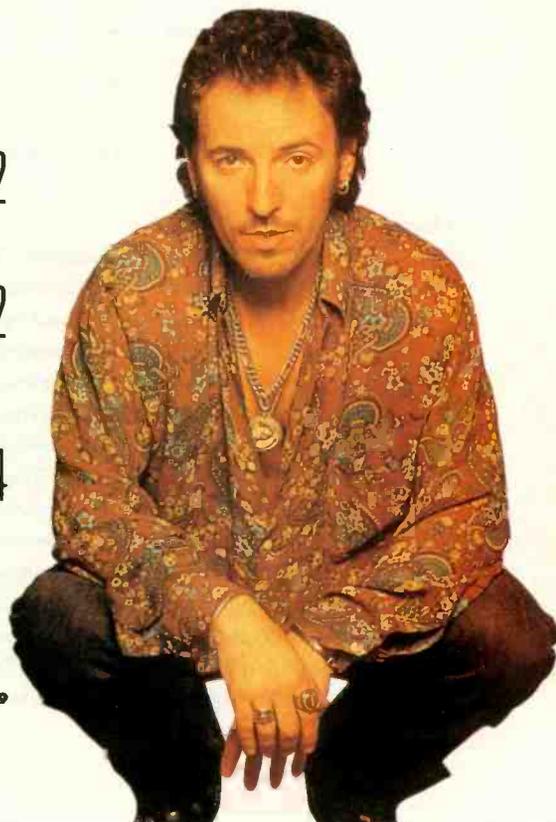
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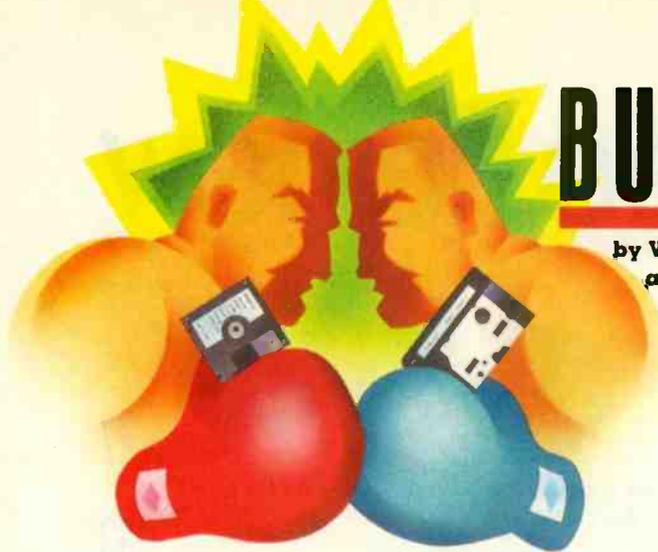
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BULLETIN

by William Livingstone
and Glenn Kenny



New Formats Duke It Out

The Summer '92 Consumer Electronics Show in Chicago was notable not just because it was the first CES that was open to the public (which resulted in such a crowded floor that industry vets felt they'd been transported back to the boom years of the mid-1980's), but also because it brought the first real rumblings of a new format war. Philips's DCC (Digital Compact Cassette), which can make digital recordings on a deck that will also play analog cassettes, went up against Sony's Mini Disc, a portable, jar-proof, recordable, digital disc format. Philips, Marantz, Tandy, and Technics have said their DCC models will be in stores by fall. Sony expects to have Mini Disc on sale "before Christmas."

Career Guidance

Just in time for graduation, the Electronic Industries

Association's Consumer Electronics Group (EIA/CEG) has published a twelve-page booklet titled *The Power Profession: Your Career as an Electronics Technician*. It contains industry statistics, information on vocational training programs, salary schedules, etc. To get a single copy, contact Product Services, EIA/CEG, 2001 Pennsylvania Ave., NW, Washington, DC 20006-1813. Phone: (202) 457-4986.

The University of Miami, which offers a highly regarded program in music-engineering technology, has created a new undergraduate option for students who wish to study audio engineering. For information on the new degree program leading to a Bachelor of Science in Electrical Engineering with an emphasis in audio engineering, contact Martina Hahn, University of Miami, College of Engineering, Coral Gables, FL 33124-0620. Phone: (305) 284-2404.

Music Notes

The first event of the Steinway Foundation's 21st Century Piano Project took place at the Kennedy Center in Washington on June 11 when the National Symphony Orchestra, conducted by Mstislav Rostropovich, played the world premieres of three piano concertos commissioned by Steinway: Lalo Schifrin's *Concerto of the Americas*, Rodion Shchedrin's Piano Concerto No. 4, and Lowell Liebermann's Piano Concerto No. 2. The soloists were Cristina Ortiz, Nikolai Petrov, and Stephen Hough, respectively.

Later in June, *Tania*, a new opera by the composer Anthony Davis, received its world premiere at the American Music Theater Festival in Philadelphia. It deals with the kidnapping of Patricia Hearst by the Symbionese Liberation Army. A recording of Davis's first opera, *X: The Life and Times of Malcolm X*, is an August release from Gramavision.

Prerecorded in Dolby S

In September, BMG Classics will begin releasing on the RCA Victor label cassettes recorded with the new Dolby process. According to Dolby Labs, the Dolby S noise-reduction system enables conventional audio cassettes to play with CD-like sound quality on machines equipped with Dolby S while still giving acceptable results on all other players. The first releases in the RCA series will include "Top Hat" by Henry Mancini and his orchestra, "James Galway at the Movies," and Jerry Hadley's "Tenor on Broadway." These and future releases in the series will also be encoded with Dolby Surround for multichannel playback on home surround-sound systems (without affecting two-channel stereo playback). Prices will be the same as for ordinary prerecorded cassettes.

Career Moves

When General Norman Schwarzkopf retired from the army after the Gulf War, he headed straight for the lecture circuit and the recording studios. BMG Classics released his narration of Copland's *Lincoln Portrait* with the St. Louis Symphony conducted by Leonard Slatkin. In England, former Prime Minister Margaret Thatcher is headed for the House of Lords now that Queen Elizabeth has granted her a peerage. Mrs. Thatcher, sixty-six, has yet to announce what title she will take, but she bopped right over to EMI's Abbey Road studios, where she, too, laid down some tracks, coincidentally Copland's *Lincoln Portrait* with the London Symphony under Wyn Morris. Rumors of the speed with which bootleg imports are being snapped up in California suggest that the Thatcher version, scheduled for August release by EMI, will be a real wax to watch.

Music on TV

The official opening of the Olympic Games in Barcelona, Spain, including, of all things, an operatic medley sung by José Carreras, Plácido Domingo, Montserrat Caballé, and other Spanish stars, will be telecast by NBC on July 25

from 8:00 p.m. till midnight. . . . This month's line-up on PBS includes Richard Strauss's *Capriccio* from the Salzburg Festival on August 7. On August 16, "Evening with Pops" conducted by John Williams will have as guests the Broadway singer Tyne Daly and the eleven-year-old Korean-born violinist Sarah Chang, the recipient of a 1992 Avery Fisher Career Grant Award. "The Chieftains in Concert" with Roger Daltrey and Nanci Griffiths will be a PBS special on August 22.

Assorted Anniversaries

The 500th anniversary of Columbus's first voyage has overshadowed most other anniversaries this year, but those worth noting include the twentieth anniversary of Polk Audio. The flutist Jean-Pierre Rampal turned seventy this year, and the pianist Rudolf Firkušný is now eighty. This year also marks the 250th anniversary of Handel's *Messiah* and the 25th of the Beatles' "Sgt. Pepper's Lonely Hearts Club Band." The Mexican-American singer Vikki Carr is celebrating the 25th anniversary of her greatest hit, *It Must Be Him*, a song about waiting for a lover to telephone. She's still singing it.

ILLUSTRATION BY BOB SCOTT

Perhaps the most Important feature of all in Compact Disc Players.

In a category where manufacturers try to convince you of their superiority with digital theory and laboratory specifications, Denon adds an all-important new criterion: *Overall Consumer Satisfaction*.

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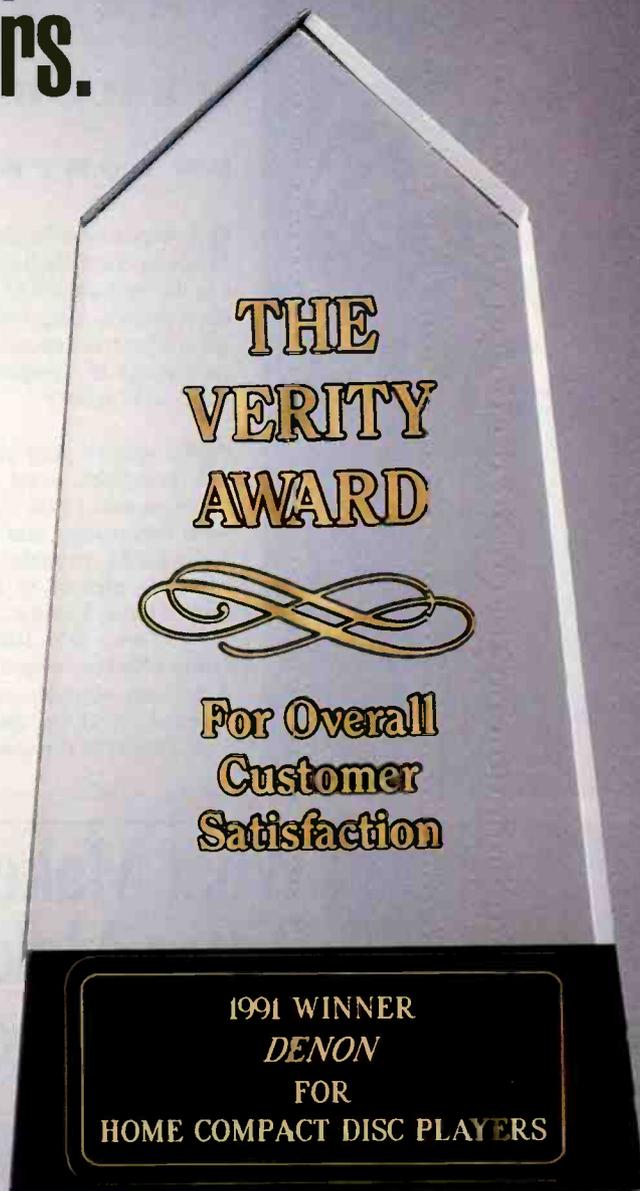
Denon is especially proud to win in this category, because CD Players, more than any other component, challenge a company's abilities in the electro-mechanical, analog *and* digital domains.

Denon is even prouder, because the ultimate judge in this unprecedented competition was not a reviewer or a magazine editor, but someone just like you.

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a critical
discography

new for

1992

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Contributors: Robert Ackart, Chris Albertson, Rebecca Day, Richard Freed, Phyl Garland, Ron Givens, David Hall, Bryan Harrell (Tokyo), Roy Hemming, Ralph Hodges, George Jellinek, Stoddard Lincoln, Ian Masters, Alanna Nash, Henry Pleasants (London), Ken Pohlmann, Parke Puterbaugh, Charles Rodrigues, Eric Salzman, Craig Stark, David Patrick Stearns

Vice President, Group Publisher
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Consumer Electronics Group Advertising

VP/Regional Advertising Director, East Coast:

Charles L. Watson, (212) 767-6038

Regional Account Manager, East Coast:

Christine B. Forhez, (212) 767-6025

VP/Regional Advertising Director, Midwest:

Scott Constantine, (212) 767-6346

VP/Regional Advertising Director, West Coast:

Robert Meth, (213) 954-4831

Regional Account Manager, West Coast:

Paula Mayerl, (213) 954-4830

Sales Assistant: **Nikki Parker**

National Record Label Sales Representatives:

The Mitchell Advertising Group (MAG Inc.)

Mitch Herskowitz, (212) 490-1715

Steve Gross, (212) 490-1895

Assistant to the Publisher: **Nadine L. Goody**

Operations Manager: **Sylvia Correa**

Advertising Coordinator: **Linda Neuweiler**

Sales Assistant: **Yvonne Telesford**

Classified Advertising: (800) 445-6066

Production Manager: **Vicki L. Feinmel**

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General Manager: **Greg Ropertl**



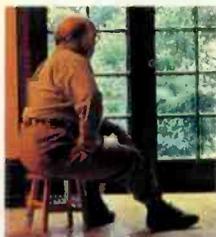
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Henry Kloss Does It Again. And Again.



"Henry Kloss has demonstrated a rare talent for spotting important new concepts and incorporating them into readily affordable consumer products. His new models have stemmed from a deeply rooted desire to move audio technology forward and provide buyers with previously unavailable benefits." Audio Magazine, February 1992

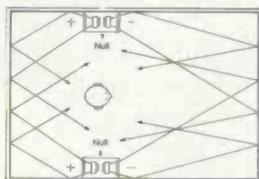
Audio Hall of Fame member Henry Kloss created the dominant speakers of the '50s (AR), '60s (KLH) and '70s (Advent). Now he's created a new *kind* of audio company with factory-direct savings... Cambridge SoundWorks.

The Surround™ II. Price Breakthrough In Dipole Radiator Surround Speaker.

The Surround II is specifically designed for use as a rear/side speaker in Dolby Surround or DSP systems. They "surround" the listener with *non-directional* ambient sounds, unlike conventional speakers that are designed to create a precise stereo "stage."

The Surround II is a dipole radiator. Mounted on the side walls of your listening room, the sound is directed towards the front and rear of the room, using

The Surround II delivers dipole radiator, surround sound performance at a fraction of the cost of competing speakers using similar technology.



phase cancellation to create a null in the direction of the listener. The sound then reaches the listener from *all* directions, the way it was meant to be heard. The acoustic performance of The Surround II is essentially identical to that of our original surround speaker, The Surround.* At \$249 pr., The Surround II is *the* value on the market.

Introducing The In-Wall Ambiance™ Speaker System.

Ambiance In-Wall provides overall performance (particularly deep bass response) unmatched by its competitors. Unlike many in-wall speakers, Ambiance In-Wall uses a true acoustic suspension enclosure. We know of no other system like it that can match its bass performance.

Henry Kloss designed Ambiance In-Wall with

Our Ambiance In-Wall speakers use a true acoustic suspension sealed cabinet for optimum bass response.

a wide dispersion tweeter delivering accurate response over a wide area. Place Ambiance In-Wall where it *looks right* in your wall (or your ceiling), and still have it *sound right* no matter where you are in the room.

Stereo Review said Ambiance "easily held its own against substantially larger, more expensive speakers." Ambiance In-Wall is also very simple to install—it's a custom installer's and do-it-yourselfer's delight.† At \$329 a pair (\$165 each), direct from the factory, it's an outstanding value.

Turn your TV into a home theater! In our catalog you'll find complete Dolby Surround Sound systems starting at under \$1,000.



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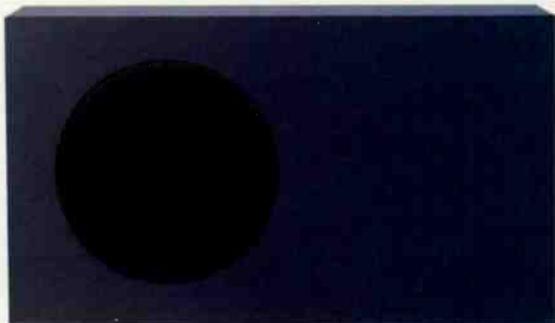
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The Critics Love Ensemble And Ensemble II. What's The Difference, Anyway?

Cambridge SoundWorks changed the audio world when we began direct-marketing Ensemble® by Henry Kloss. Ensemble is a revolutionary dual-subwoofer/satellite speaker system offering all-out performance, without cluttering up your room with huge speaker cabinets. Available *only* factory-direct from Cambridge SoundWorks, with no expensive middle-men, Ensemble is priced at hundreds less than it would have sold for in stores. *Audio* magazine says Ensemble "may be the best value in the world."

And Then There Were Two.

Now Cambridge SoundWorks has introduced Ensemble II, a more affordable version of Ensemble using only one cabinet to hold both subwoofer drivers. Ensemble II has joined Ensemble in the ranks of the country's best-selling speak-



The real difference is in the subwoofer.

ers. We believe Ensemble II is a better system than the new Bose® AM-5 Series II. And because we sell it factory-direct, it's half the price. *Stereo Review* said "Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices." We agree with the writer who said, "It's hard to imagine going wrong with Ensemble." The question is, which Ensemble system is right for *you*?

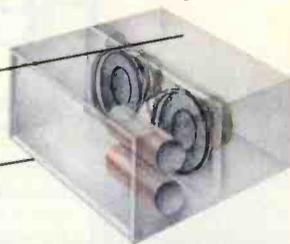
The Same Satellite Speakers.

When you listen to either Ensemble system, almost 90% of the music you hear is being reproduced by the satellite speakers. Both Ensemble and Ensemble II use satellite speakers that are virtually identical.*

Unlike many competing systems, Ensemble's satellites are true two-way speaker systems, each containing a high performance tweeter and a 4-inch woofer. *Stereo Review* said, "The Ensemble satellites delivered a smoother output than

True acoustic suspension, sealed subwoofer cavity.

Cavity acts as acoustic band-pass filter.



"Ensemble may be the best value in the world."
Audio



many larger and more expensive speakers."

Small (8 1/8" x 5 1/4" x 4") and unobtrusive, they'll fit into the decor of any room. They're available in scratch-resistant gunmetal grey Nextel, or primed so you can paint them any color you wish.



Ensemble satellite speakers are available primed for painting, so they can match your decor exactly.

The Same Overall Sound.

In many rooms, Ensemble II sounds virtually the same as Ensemble, especially when Ensemble's two subwoofers are placed right next to each other. The real difference between the two systems is that Ensemble, with its two ultra-compact subwoofers (12" x 21" x 4 1/2"), gives you *ultimate placement flexibility*.

The Same Attention To Detail.

Ensemble and Ensemble II are constructed with the very best materials and no-compromise workmanship. Their subwoofers use heavy-duty woofers in true acoustic suspension enclosures. The satellites are genuine two-way systems with very high quality speaker components. Individual crossover networks are

built into every cabinet for maximum wiring flexibility. Robust construction is used throughout, featuring solid MDF cabinets and solid metal grilles.

The Same Factory-Direct Savings.

Cambridge SoundWorks products are available *only* factory-direct. By eliminating the middle-men, we're able to sell Ensemble and Ensemble II for hundreds less than if they were sold in stores.

The Same 30-Day Total Satisfaction Guarantee.

Choosing a loudspeaker after a brief listen at a dealer's showroom is like deciding on a car after one quick trip around the block. So we make it possible to audition our speakers the *right way*—



Stereo systems featuring Ensemble and Ensemble II speakers with Pioneer or Philips electronics start at only \$799, including CD player. Dolby Surround Sound systems start at only \$999.

in your own home. You get to listen for hours without a salesman hovering nearby. If within 30 days you're not happy, return your speaker system for a full re-

fund. We even reimburse original UPS ground shipping charges in the continental United States.



The only difference in satellites is that the original Ensembles use gold-plated connectors that allow use of even the heaviest gauge wire.

The Real Difference: The Ultimate Placement Flexibility Of Dual Subwoofers.

Placement of bass and high-frequency speakers in a room—and how those speakers interact with the acoustics of the room—has more influence on the overall sound quality of a stereo system than just about anything. As an alternative to spending hundreds (or thousands) of dollars on this or that "latest" amplifier or CD player design, you should invest some of your time experimenting with various speaker positioning schemes. Ensemble's two ultra-slim (4 1/2") subwoofers give you more placement flexibility than any speaker system we know of (including Ensemble II), and is most likely to provide the performance you want *in real world...in-your room*.

How To Order.

The dual-subwoofer Ensemble system is available in two versions. With handsome black-laminate subwoofers for \$599. Or with black vinyl-clad subwoofers for \$499. Ensemble II is priced at \$399. For more information, a free 48-page catalog, or to order...

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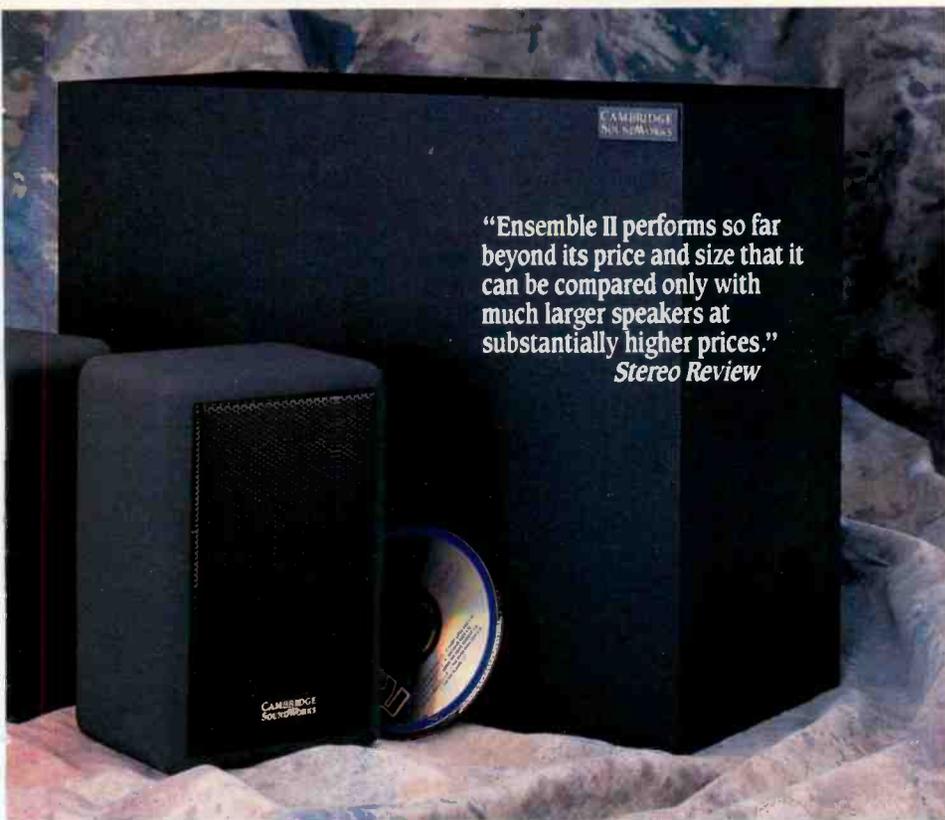
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Stereo Review



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LETTERS

Kits Live

I just noticed the mention in June "Bulletin" of the demise of Heathkits, and by implication of the kit concept. Not so! Check out Welborne Labs (electronics), Audio Express (mainly speakers), and many others. Kits (like magazines) are becoming more specialized, providing what cannot readily be bought in stores.

TIM FERN
Henderson, KY

Loud Speakers

Your May review of the Cerwin-Vega DX-7 stated that its ability to play loud was rather overwhelming in an average-size room. Does this mean it doesn't sound good loud? Also, since I own a pair of DX-7's, do you think I would benefit much by adding a subwoofer?

DAVID C. KING
Indianapolis, IN

By "overwhelming," Julian Hirsch just meant that the DX-7's are capable of playing much louder than most people would ordinarily want to listen to. We doubt that these speakers would benefit greatly from the addition of a subwoofer, although it's hard to be sure without trying it.

How could you say that "10 to 20 watts per channel should be quite adequate" with 99-dB-sensitivity Cerwin-Vega DX-7's? Cerwin-Vega speakers *must* be fed.

I recently bought a pair of ported AT-15's, rated at 102 dB sensitivity, and got voluminous oatmeal with a good 100-watt receiver, so I invested in two 425-watt mono amplifiers, a Richter Scale for bass equalization, and a good CD player. The result was extremely dynamic, tight sound, the kind the speaker designers must have had in mind.

Wouldn't a low- to mid-wattage amp be more suitable for sealed, lower-sensitivity speakers? Or is it the other way around?

PAUL A. GALIS
Fairfax, VA

A speaker's sensitivity rating indicates how much output the speaker will deliver 1 meter in front of it with a standard input of 2.83 volts (equivalent to 1 watt into 8 ohms). The higher the rating, the less amplifier power the speaker requires to generate any given sound-pressure level. A speaker with a 100-dB rating will play as loud as one having a more typical 90-dB rating with only a tenth as much amplifier power.

Regarding your specific situation, we notice that you added an equalizer and a CD player at the same time you got more powerful amplifiers. Unless your receiver was malfunctioning in some way, these other changes are almost certainly the reason for the difference in sound. With a sensitivity of 102 dB, your speakers should deliver a maximum of about 122 dB from a 100-watt input, which is beyond the threshold of pain; 425 watts, if they can take it, should drive them to an excruciating 128 dB.

Steve Forbert

Having just enjoyed again Steve Forbert's album "The American in Me," I was struck by how far off the mark Alanna Nash's May review of it was. Her criticism of his use of the "hackneyed" phrase "stop and smell the roses" misses the point. The full line is, "Stop an' smell the roses, baby I can hardly see . . . I got so much responsibility." There is an implicit question mark after the phrase, as if Forbert were saying, "What? Like I have time to smell the roses? Whatareya, nuts?"

It's a similar lapse for Ms. Nash to describe as "meaningless" the lyric, "Live long enough and you're older." The context makes it clear that Forbert is lamenting the futility of the Rat Race and satirizing the notion that if you live long enough you'll get wiser or richer, when many people just get older.

As for Forbert's voice quality, I've never found it "barely able to convey his ideas." To the contrary, his fine diction and crisp enunciation make him superior to 90 percent of pop singers, who sabotage otherwise fine lyrics with unintelligible singing.

JOHN BIRGE
Cincinnati, OH

Rot Rumors

Recently the Los Angeles *Times* ran some articles on compact discs. A physicist wrote in to say that the life expectancy of a CD is five to ten years. Oxidation of a disc's reflective aluminum layer, caused by imperfections in the coating used to seal it, will prevent the laser beam from tracking. If this is true, then the music-loving public is paying dearly indeed. Do your experts have an opinion on this matter?

EDWARD D. GRAHAM
Los Angeles, CA

You have heard one of those unsubstantiated rumors that refuse to die. It's true that if a CD is not sealed properly during manufacture, or if the seal is later punctured, the aluminum reflective layer will oxidize and the disc will become unplayable. This is quite rare, however, and all of our many ten-year-old CD's play just fine.

At this point, no one knows exactly what the normal life expectancy of a CD is because no one, despite some effort, has yet found a limit. And work is under way on manufacturing standards designed to assure a life expectancy of at least 1,000 years for CD's. That should be long enough for just about anyone.

Car Stereo Specs

The increasing use of meaningless "maximum" or "peak" power ratings in the advertising and sales of car stereo products is not in the interest of the consumer. No measurement exists to define what "maximum" power is, and often the "peak" ratings are simply picked out of thin air. This practice is not limited to the small "off the wall" brands—it is rampant.

It is easy for a dealer to determine the veracity of a manufacturer's specifications, but it is getting increasingly difficult to tell the truth when so many dealers and manufacturers are not. We are constantly having to prove that the power ratings we use, which are always smaller than those claimed, are the correct ones.

Isn't it time for the Federal Trade Commission to get into gear and put a stop to this? If the manufacturers and vendors won't voluntarily shape up, must they be forced to by law?

VERN L. MASTEL
Team Electronics
Bismarck, ND

Anthony Braxton

I am under contract to write a book on Anthony Braxton in a series on contemporary American composers. I'd appreciate input from anyone who's played with him (especially classical musicians), written about him, or listened extensively to his music. I'm especially interested in opinions and insights into the nature of his music and role in the jazz/new-music scene, pro or con, not so much in gossipy anecdotes.

MIKE HEFFLEY
3936 Hilyard
Eugene, OR 97405

Digital Recording

People who say DAT is dead (June "Letters," Ken Pohlmann's April "Signals" column) are missing the point. Its feature attraction is that it makes possible 2 hours of uninterrupted taped music with CD-quality sound. I love making anthologies of my favorite artists. I love even more having my DAT deck connected directly to my CD player by fiber-optic cable. Wow! Did I really say that?

JIM CRAWFORD
Nashville, TN

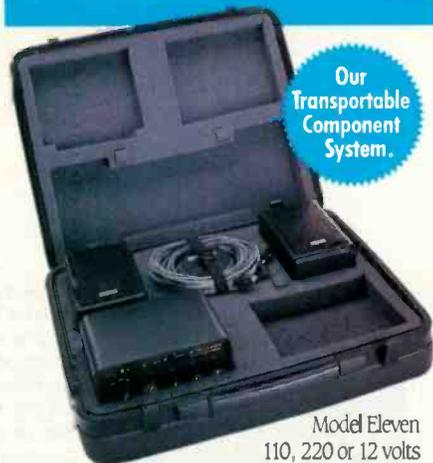
Corrections

An incorrect price was given for the Velocity Acoustics Servo F-1500 subwoofer in "All About Subwoofers" in June. The correct price is \$1,495.

We misidentified the Hsu Research subwoofer pictured on page 51 of the July issue. It is the SW10 (not the SW12), which is priced at \$500 a pair. The larger SW12 is \$950 a pair.

In a June review of a Telemann recording on Denon by the European Baroque Soloists, Eric Salzman implied that the group uses old instruments. They use modern instruments.

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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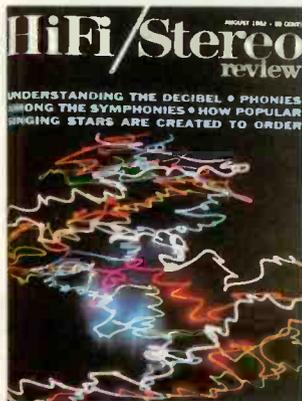
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TIME DELAY

by Steve Simels



30 years ago

Political Correctness Alert: In the August 1962 issue, an ad for the Fisher 800-B receiver proclaims it a system "even she can operate."



Components: New products this month include the Thorens BTD-12s tonearm and the Bogen TP50 stereo FM tuner. Julian Hirsch tests the new Ampex 1260 tape recorder, concluding that it "performs flawlessly," and he is similarly impressed with the Audio Dynamics ADC-85 pickup system, which he says will virtually eliminate record wear.

The Basic Repertoire: Martin Bookspan splits critical hairs between recordings of the Brahms D Minor Piano Concerto, finally coming down in favor of the version by Leon Fleisher and George Szell. There are only seven (!) competing performances available (as opposed to thirty-seven in 1992).

Best of the Month: David Hall is wild about Roger Wagner's Capitol LP of Walton's *Belshazzar's Feast*, while Joe Goldberg is knocked out by "Oh Yeah," a Charles

Mingus album featuring Roland Kirk. Elsewhere in the review section, Ralph Bates harumphs at Leonard Bernstein's Tchaikovsky Fifth, saying its "breakneck pace" cannot be justified, and Goldberg, discussing Dave Brubeck's "Countdown," concedes that the ideas the bespectacled jazzman is pursuing "may eventually be of value."

Stereo Review

SPECIAL SPEAKER ISSUE



20 years ago

Letters to the Editor: In reference to June profiles of the popular Canadian singers Anne Murray and Paul Anka, reader Roch A. Cyr, of Hull, Quebec, informs us that in his homeland there are still "a surprisingly large number of people who also like music."

P.C. Alert II: An ad for an Empire speaker designed for use in quadrasonic systems drives home the point with photos of four conspicuously naked women.

Test Reports: Julian Hirsch, reviewing the Revox A77 tape deck with Dolby B, says he "cannot imagine how the sound quality of this machine could be improved in any way." A Kenwood KA-7002 amplifier, which "consistently outperformed its



specifications," is later characterized as "all in all, an impressive instrument."

Best of the Month: Critic Bernard Jacobsen calls Charles Groves's Angel recording of the Delius *Mass of Life* "one of my most unexpectedly rewarding assignments as a record reviewer," and Joel Vance describes Rod Stewart and Elton John's production of a John Baldry album as so fab he might "have to include them in my will."

Huh? Elsewhere in the issue, Vance hails the notoriously



loose and uneven Grateful Dead as "tight" and "well-rehearsed," and Paul Kresh describes quintessential Irishman Van Morrison as "one of those hard-breathing Southern boys."

10 years ago

Hail and Farewell: William Anderson, STEREO REVIEW's editor since the mid-Sixties, interrupts a meditation on the sudden popularity of personal stereo cassette players to announce his retirement.

New Products: Noteworthy debuts this month include Sony's first Walkman Pro, the WM-D6, and the AR9LS



speakers from Acoustic Research. Equipment tested includes the Realistic STA-2290 receiver and the Quad ESL-63 speaker system, about which Julian Hirsch concludes, "Everyone may not agree that the ESL-63 is the world's finest speaker... but few would deny that it is a major contender."

Best of the Month: Noel Coppage finds himself bowled over by Dolly Parton's "Heartbreak," and George Jellinek rhapsodizes over the rediscovery of Weinberger's 1927 opera *Schwanda the Bagpiper* on CBS. Elsewhere in the review section, Joel Vance swoons over five albums from Epic's short-lived doo-wop subsidiary, Mark Peel gets a kick out of a Big Youth album, and Eric Salzman,



despite up-front reservations ("the guitar is not an instrument noted today for high standards of technical achievement"), can't rave enough about a Sheffield Lab direct-to-disc guitar recital by virtuoso Michael Newman.

Bulletin: In an alarming news item, *SR's* readers are alerted to the imminent release of the original-London-cast recording of *Cats*. □

A
(18:42)

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Stereo Review, February 1990



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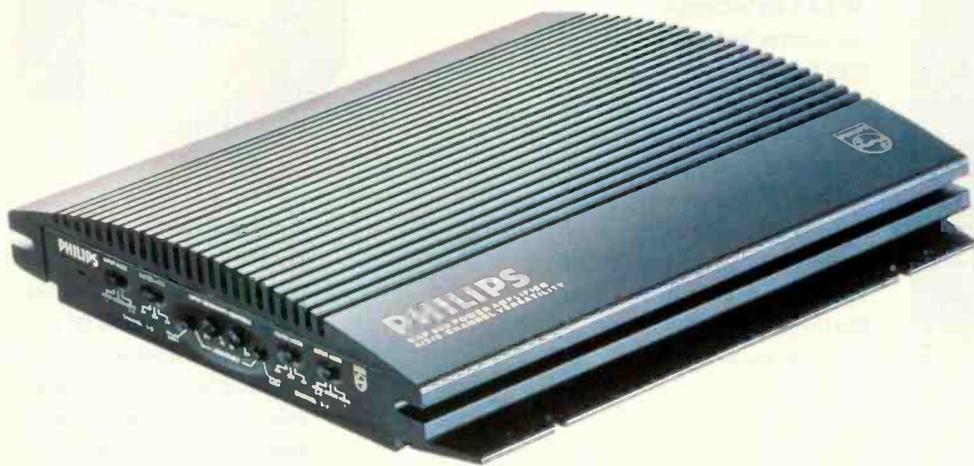
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NEW PRODUCTS



◀ PHILIPS

The DAP-600 car audio amplifier from Philips delivers 110 watts each into two channels or 55 watts each into four channels. It includes a high/low-pass active crossover. Price: \$799. Philips, Dept. SR, 9600 54th Ave. N., Minneapolis, MN 55442.

• Circle 120 on reader service card

▶ JVC

The XL-M507 from JVC is one of the company's latest "6 + 1" CD changers, all of which feature a six-disc magazine and a single-disc tray for programmed playback of up to seven discs. Its indexing function enables a user to store titles and programming for up to 120 discs. Price: \$380. JVC, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

• Circle 121 on reader service card



◀ DAHLQUIST

Dahlquist's new DQ speaker line includes (left to right) the DQ 30i, the DQ 6i, the DQ 18, and two others. All are three-way systems with each driver mounted on its own baffle for minimum diffraction. Prices range from \$600 to \$2,000 a pair. Dahlquist Inc., Dept. SR, 601 Old Willets Path, Hauppauge, NY 11788.

• Circle 122 on reader service card

▲ WHARFEDALE

The Programme 30D speaker from Wharfedale features a tuned port for extended bass response. Power handling is 70 watts. The two-way system measures 9 x 7 x 8 inches. Price: \$259 a pair. Distributed by Optim Audio, Inc., Dept. SR, 733 Canal St., Stamford, CT 06902.

• Circle 123 on reader service card

NEW PRODUCTS



◀ M&C SPEAKERWORKS

The Audition loudspeaker from M&C Speakerworks is a two-way system with woofer and tweeter housed in separate enclosures for improved imaging. Dimensions are 12 x 11 x 19 inches. Finish is oak or satin black. Price: \$650 a pair. M&C Speakerworks, Dept. SR, P.O. Box 151082, San Diego, CA 92175.

• Circle 124 on reader service card



▲ SONRISE

The SCD-100 from Sonrise is a dual-sided, rotating cabinet that holds up to one hundred CD's. The cabinet is available in solid walnut, natural cherry, and oak. Price: \$110 with medium oak finish. Sonrise, Dept. SR, 110 E. 43rd St., Boise, ID 83714.

• Circle 125 on reader service card



◀ LAZARUS

The Lazarus Mark II is a hybrid stereo power amplifier using four 6DJ8 twin triodes as Class A voltage amps together with a MOSFET high-current output stage. Rated output is 150 watts per channel into 8 ohms or 200 watts into 4 ohms. Price: \$2,790. Lazarus, Dept. SR, 8130 Coldwater Canyon, N. Hollywood, CA 91605.

• Circle 126 on reader service card



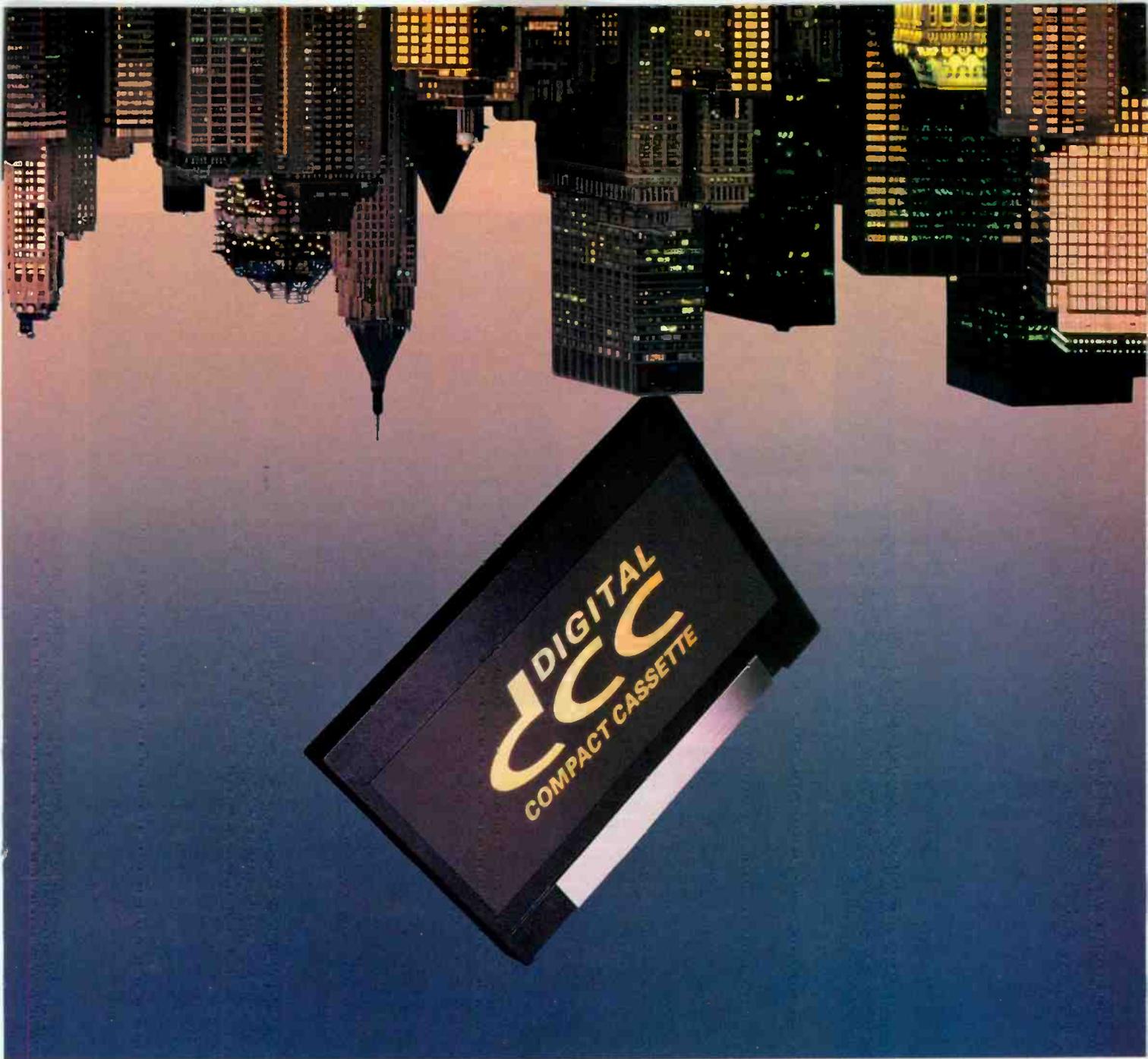
▲ THIEL

Thiel's CS 3.6 Coherent Source loudspeaker is a three-way system featuring a new aluminum-diaphragm woofer and dual-cone midrange driver. Dimensions are 12½ x 48½ x 17 inches. Standard finish is amberwood or glossy black lacquer. Price: \$3,900 a pair. Thiel, Dept. SR, 1026 Nandino Blvd., Lexington, KY 40511.

▶ ONKYO

The DX-F5, Onkyo's first portable CD player, features dual digital-to-analog converters and an 18-bit digital filter. It is powered by rechargeable batteries or an AC adaptor and comes with a wireless remote control. Weight is 11.8 ounces with batteries. Onkyo, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446.





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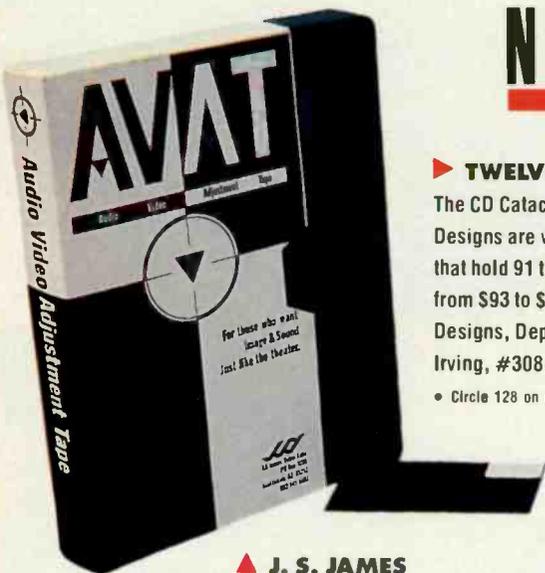
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NEW PRODUCTS



▲ J. S. JAMES

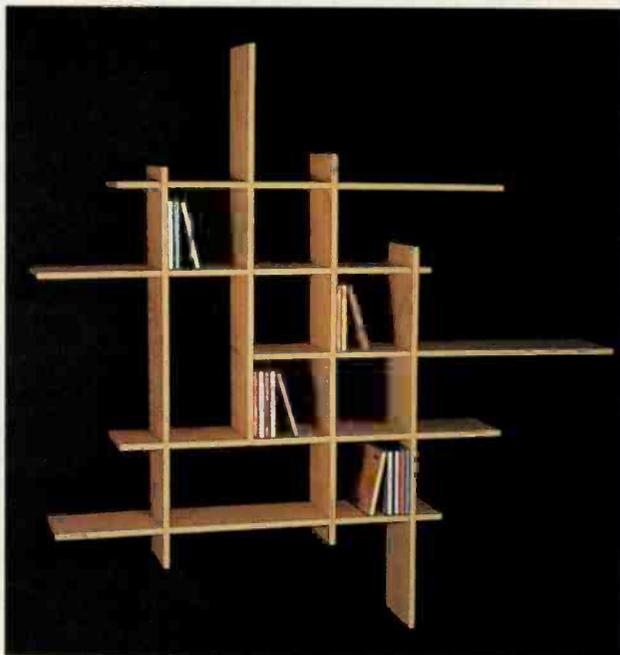
The Audio/Video Adjustment Tape, designed to help fine-tune a home theater system, includes both picture and sound tests. The VHS cassette is \$49 postpaid from J. S. James Video Labs, Dept. SR, P.O. Box 9201, Scottsdale, AZ 85252.

• Circle 127 on reader service card

▶ TWELVE DESIGNS

The CD Catacombs from Twelve Designs are wall-mounted racks that hold 91 to 286 discs. Prices: from \$93 to \$293. Twelve Designs, Dept. SR, 1314 NW Irving, #308, Portland, OR 97209.

• Circle 128 on reader service card



▲ PARADIGM

Paradigm's 3se-mini, 3se, and 5se two-way budget speakers are rated down to 48, 43, and 38 Hz, respectively. The largest, the 5se, is 10 x 20½ x 11¼ inches. Prices per pair: 3se-mini, \$259; 3se, \$309; 5se, \$379. Distributed by AudioStream, Dept. SR, MPO Box 2410, Niagara Falls, NY 14302.

• Circle 130 on reader service card



◀ SHARP

Sharp's CD-Q10 micro-component system combines a CD player and autoreverse cassette deck with a pair of bamboo-fiber-diaphragm speakers. The CD/tape module is only 5¼ inches wide. Price: \$900. Sharp Electronics Corporation, Dept. SR, Sharp Plaza, Mahwah, NJ 07430-2135.

• Circle 129 on reader service card

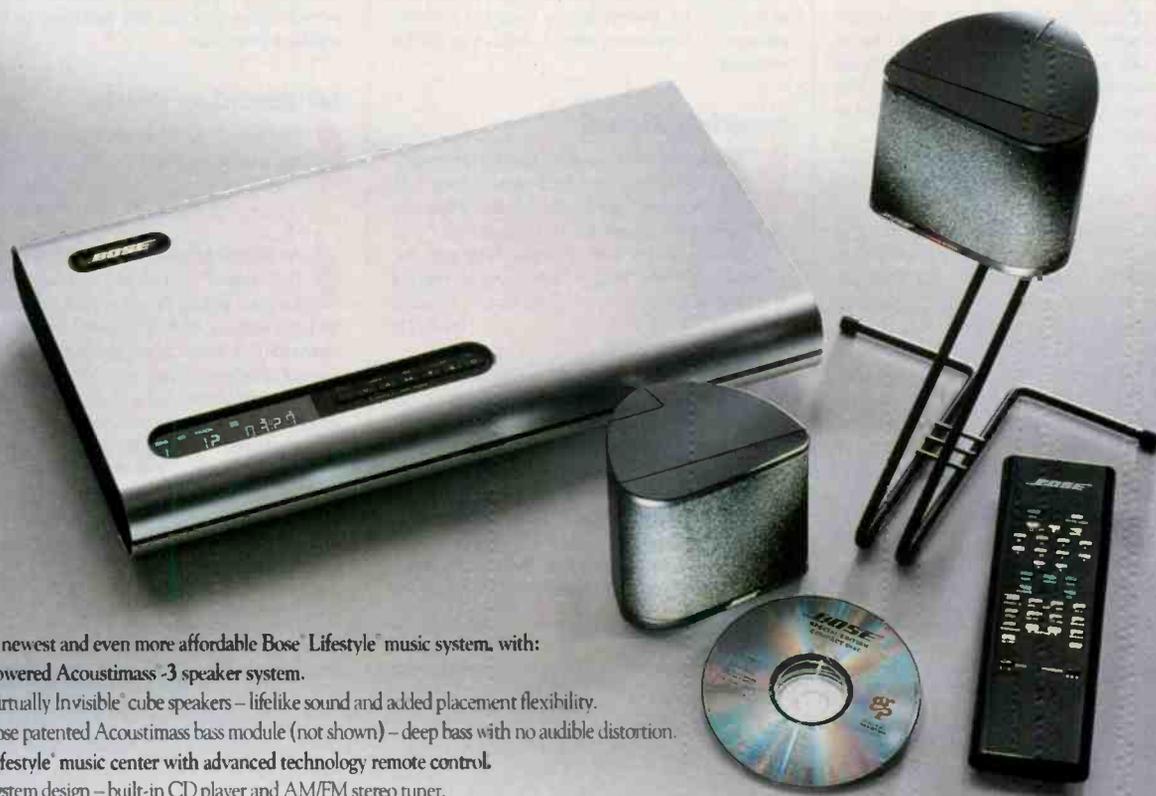
▶ ORION

Orion's Cobalt260 car stereo power amplifier is rated to deliver 60 watts per channel. It has complementary-MOSFET circuit design and terminal-strip speaker connectors. A mixed-mono mode permits three-channel operation. Orion, Dept. SR, 118 W. Julie Dr., Tempe AZ 85283.

• Circle 131 on reader service card



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Conventional stereo system technology hasn't changed much over the past decade or two. Most of today's equipment looks and sounds about the same as the equipment you already own. That's not much reason to replace what you have.

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For example, our award-winning Lifestyle music system replaces an entire rack of conventional electronics and speakers. It shows what can be accomplished as we apply breakthrough technology to the goal of providing clear benefits.



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design means it won't be the first thing your friends notice. Until you turn it on.

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AUDIO Q&A

BY IAN G. MASTERS

Boombox Hookup

Q *Most of my listening is to CD's, but to listen to cassettes occasionally I would like to feed the signal from my tape-equipped boombox to the inputs of my receiver. The boombox has speaker outputs; how do I connect these to the rest of my system?*

WILLIAM MARSHALL
Mays Landing, NJ

A It is a relatively easy matter to make the connections, but you may be disappointed with the sound quality you achieve: Some boomboxes have respectable cassette players in them, but many do not. If that's not a concern, probably the best way would be to patch from the boombox's headphone outputs, if it has them, to any high-level input on your receiver. The headphone-output level would be less likely than a speaker feed to overload the receiver's inputs, and in many cases plugging into the headphone jack automatically mutes the boombox speakers without your having to disconnect them. Adaptor cables with stereo miniplugs on one end and RCA plugs on the other are readily available.

If there is no headphone jack, you can use the speaker outputs, but they should be padded down by means of an external volume control to prevent overload distortion in the receiver.

Leaking Signal

Q *My system consists of a separate preamplifier, power amplifier, and tuner, along with several other high-level sources. When one of these other components is selected, I can hear the station the tuner is set to if I turn up the volume. Can you suggest any way to correct this problem?*

DANIEL T. CASTRO
Dyer, IN

A Probably not. This common effect is usually caused by proximity of one set of input wires or selector contacts to the others, and there is not much that can be done about that short of rebuilding your preamplifier. In some input sections, unselected sources are intentionally short-circuited to ground to prevent such leakage, but apparently not in yours. There's a chance that the tuner chassis might be radiating the signal, so you might try

moving it to see if that makes a difference. If it doesn't, you may have to turn off the tuner's power when you are not listening to FM (or taping a program).

LP Cleaning Cloths

Q *You have said that antistatic record-cleaning cloths and sprays should be avoided. Why?*

BILL MAHER
Brooklyn, NY

A Although products vary, many so-called "antistatic" cloths are impregnated with a sticky substance that picks up dirt from an LP's surface and supposedly reduces static electricity. I have never noticed much effect on static when trying out such cloths, but I have observed that they often deposit whatever substance they contain onto the vinyl surface, where it forms a very effective dust magnet. Aerosols are worse; they remove nothing, but they deposit what feels like hair spray on the LP. Carefully formulated wet cleaners, dry brushes, carbon-fiber mats, and antistatic guns can all be effective at times, gooey sprays and sticky rags never.

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They also utilize Yamaha's exclusive Multi-layer Microcell Tweeter. A new design that

YAMAHA

Loud Commercials

Q I am frequently annoyed by television commercials that are louder than the programs they interrupt. Would it be possible to use some sort of compressor to soften the ads and boost the program? Would it be worth it?

BOB MARKERT
Castro Valley, CA

A I doubt it. To minimize noise, broadcast engineers typically set audio levels for all material so that the peaks are as high as possible, but not so high that they cause over-modulation, which not only sounds terrible but is illegal. The problem is that peak level is only one aspect of an audio signal, and from the point of view of apparent loudness it's not the most important. Our perception of loudness has more to do with the average level of a signal over time, and the "peak-to-average ratio" can vary widely from one source to another. In a compressed or limited signal, the peaks are closer to the average than they would be without processing, so the practice of setting levels according to peak amplitude will cause compressed signals to sound louder than uncompressed ones. Advertisers know this, and to make their messages stand out they often use heavier compression than is normally applied to regular programming.

There's no complete solution to this problem. Further processing at the receiving end might help, but it's impossible to know how much and what kind of compression or peak

limiting has been applied in the first place, so counteracting it with any precision is very difficult and likely to produce worse effects than you started with. You'll probably have to be content with hitting the mute button and muttering imprecations like the rest of us.

Ancient Technology

Q I have a CD copy of a famous Benny Goodman concert at Carnegie Hall in 1938 in which a single microphone was used, hanging from the rafters. How was that ancient technology capable of effectively capturing the sound of all the instruments in the orchestra?

ROBERT TISHKEVICH
Columbia, MD

A It may be ancient, but it's also right up to date. Even today, many of the finest recordings are made with a single microphone array placed in front of the orchestra. It's always a stereo pair nowadays, but if a single microphone were used only the directional cues would be sacrificed, not any of the musical information itself. After all, your eardrums are single receptors, but you can still sort out all the elements in a complex signal.

As for the balance among the various parts of the orchestra (or band), this was always under the control of the composer and conductor in the days before live music was routinely fed through huge banks of amplifiers. The "mix" was built in, so a microphone carefully positioned above the conductor

would, under ideal conditions, pick up what he heard: the proper balance. In practice, getting the desired balance with a single microphone (or pair) can be difficult, making it expedient or necessary in some cases to use additional "spot" microphones. Miking individual instruments or instrument groups can be overdone, however, and it often is.

Cooling Fan

Q Occasionally I like to listen to fairly loud music, and I have noticed that my amplifier gets quite warm. I'm worried that this might damage the amplifier, or at least increase distortion. Would installing a small fan for use when the heat builds up be worthwhile?

MAURICIO MELENDEZ
Mexico City, Mexico

A All amplifiers produce some heat, and the higher the level the warmer the amplifier will get. But audio designers take this into account, providing heat-dissipating fins (heat sinks)—or in a very few instances internal fans—to keep the circuitry cool. It is far more likely that any distortion you hear at high levels will be caused by overdriving the amplifier than by overheating. Still, if there is inadequate ventilation around the amplifier, especially in a cabinet, heat buildup can occur, and a fan might be the answer as long as it's quiet. Usually, however, simply giving your equipment a little more breathing space is enough. □

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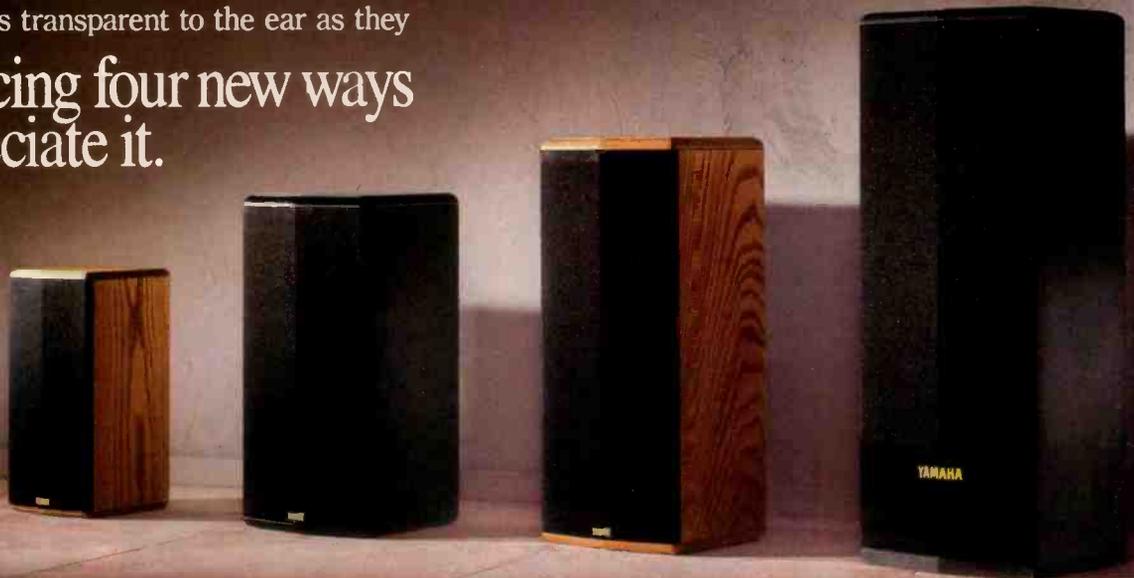
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YOU may not know her name (yet), but there's a good chance you've heard her music. **John Mellencamp's** fiddle player, **Lisa Germano**, has signed with Capitol Records. Her Capitol debut, scheduled for release early next year, will actually be her second



Germano: fiddling around

solo album. Her first, the independently recorded and self-financed "On the Way Down from the Moon Palace," was released last fall to critical acclaim. Germano not only wrote and sang all of the songs in that album, she played all the instruments as well, from violin, piano, and guitar to mandolin, accordion, and autoharp.

The thirty-three-year-old Indiana native started fiddling with Mellencamp in the mid-Eighties, contributing to two of his albums, "The Lonesome Jubilee" and "Big Daddy," and, most recently, the soundtrack of the movie *Falling from Grace*, which Mellencamp directed. She has also worked with such artists as U2, Simple Minds, Bob Seger, and Billy Joel.

THE Beastie Boys—Michael "Mike D." Diamond, Adam "MCA" Yauch, and Adam "Ad-Rock" Horovitz—are back, and they've returned to their musical roots in their latest Capitol release, "Check Your Head." The new album (their third) is the long-awaited follow-up to 1989's "Paul's Boutique" and features a combination of rap, punk, jazz, and r-&b. "We

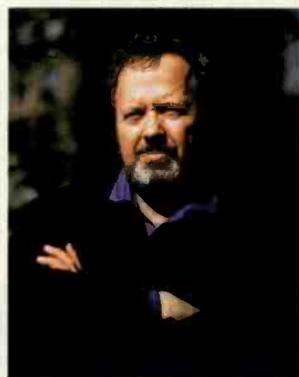
by Robert Ripps, Maryann Saltser, and Steve Simels

just put a load of tape on and jammed," recalls Mike D. "We wanted this [record] to be fat in both sound and attitude, and I think we tipped the scales." Only about a third of the material in the twenty-song set was sampled from other sources. The rest, including three diverse instrumentals, is the real McCoy—real Beastie Boys playing real guitar, bass, and drums. **Biz Markie** and **Ted Nugent** guest star on one track, *The Biz vs. the Nuge*.

THE American conductor **John Nelson** has been busy recording for several labels lately. The first half of this year brought "The Bach Album" on Deutsche Grammophon, a collection of arias with the soprano **Kathleen Battle** and the violinist **Itzhak Perlman**; "Baroque Duet" on Sony Classical, with Battle and the jazz/classical trumpeter **Wynton Marsalis**; and Berlioz's opera *Beatrice and Benedict* with the Opera de Lyon on Erato. In June London/Argo released Nelson's recording of the Polish composer **H. Gorecki's** choral masterpiece *Beatus Vir*, and in October DG will release his

recording of Handel's *Semele*, starring Battle, the mezzo-soprano **Marilyn Horne**, and the bass **Samuel Ramey**.

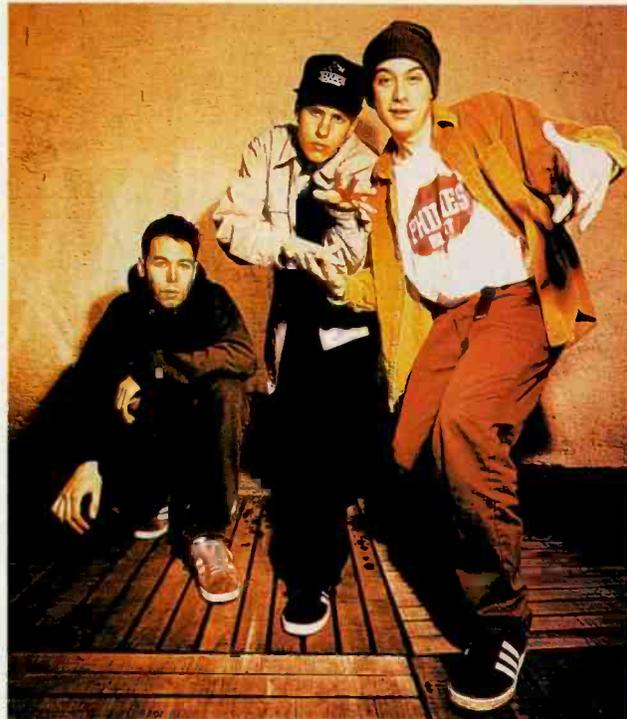
THE Vienna-based **Artis Quartet**, which has recorded Mozart's "Haydn" Quartets and the string quintets, demonstrates its wide-ranging musical interests in its two latest albums on Sony Classical. One is a disc of Beethoven's First and Fifteenth Quartets. The other combines



John Nelson

works by Webern with the German conductor **Michael Gielen's** 1949 composition, *Variations for String Quartet*.

Beastie Boys MCA, Mike D, and Ad-Rock



The Artis Quartet

The Artis Quartet is due in the U.S. in November for concerts in Chicago, St. Louis, and other cities.

PIONEERING punk rockers the **Ramones** have left their long-time label, Sire, and are planning a September release for their latest album, "Mondo Bizarro," on Radioactive/MCA. It was produced by Ed Stasium, who did their earliest records, and includes the new songs *Cabbies on Crack* (about a "cab ride from hell" experienced by lead singer **Joey Ramone**), *The Job That Ate My Brain*, and a cover of the Doors' *Take It as It Comes*. Alternate album titles considered by the band, now in its nineteenth year, included "Four Great Guys, Three Great Chords" (suggested by John Lennon's son, Sean), "The Song Ramones the Same," "Gabba Gabba Goober," and—in a not-so-subtle dig at their former label—"Sire-Nara." A fall tour is planned.

DEUTSCHE GRAMMOPHON has been releasing one disc per month derived from **Leonard Bernstein's** final recordings. The first in this series, out last April, featured Bernstein's own *Jubilee Games* and works by David del Tredici and Ned Rorem. Mozart's *Mass in C Minor* was released in May, Sibelius's *Symphony No. 1* in June, and Bruckner's *Symphony No. 9* in July. The recording of Bernstein's final public appearance, conducting Beethoven and Britten at Tanglewood, is due this month.



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CAROL WEINBERG/RCA VICTOR

Maureen McGovern

Maureen McGovern's first album for RCA Victor under an exclusive worldwide recording contract is a collection of Sixties pop classics titled "Baby I'm Yours." RCA claims that McGovern "will be the foundation of a new emphasis on vocalists . . . encompassing a repertoire of contemporary standards as well as Broadway and classic pop music." This summer McGovern is making the rounds of the music-festival circuit appearing in pops concerts. She's scheduled to hit Caramoor first, on July 4, and then Ravinia, Cincinnati's Riverbend, and Pittsburgh's South Park. She finishes the season at Tanglewood on August 29 with Mel Tormé.

DAVID CORIO/MICHAEL OCHS ARCHIVES

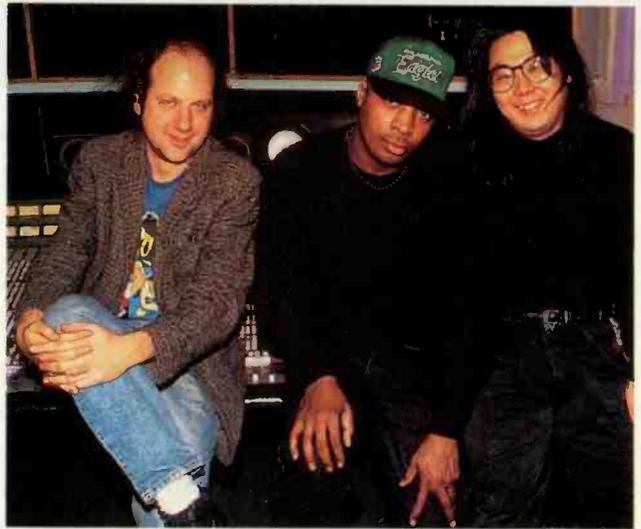
RHYTHM-AND-BLUES great **Curtis Mayfield** was left permanently paralyzed after a stage accident in 1990. Now Rhino Video has released "Curtis Mayfield—Live," his only extant concert footage. Taped in 1988 at Ronnie Scott's jazz club in London, the video includes most of Mayfield's hits, from his early Sixties work as one of the Impressions (*It's All Right*) to the urban protest songs (*Freddie's Dead*) for which he is perhaps best known. And MCA plans to release this fall a multi-CD boxed set of Mayfield's work, much of which is currently available only on vinyl.

Hal Willner—producer of recorded all-star tributes to Nino Rota, Kurt Weill, and the Disney songwriters—has now turned to the music of the great jazz bassist and composer **Charles Mingus**. "Weird Nightmare," on Columbia, features a varied group of performers doing Mingus material, including **Leonard Cohen**, **Elvis Costello**, **Living Color's Vernon Reid**, the Rolling Stones' **Keith Richards** and **Charlie Watts**, and jazzmen **Art Baron** and **Henry Threadgill**. Also featured is Public Enemy rapper **Chuck D**, who recites a text from Mingus's autobiography, *Beneath the Underdog*, over his song *Gunslinging Bird*, a tribute to **Charlie Parker**.

Esa-Pekka **Salonen**, who becomes the Los Angeles Philharmonic's tenth music director in October, will

take the orchestra to the Salzburg Festival for the entire month of August. It is the first American orchestra to be invited to take up residency at the distinguished European festival for both opera and concert performances. While

and Charles's version of a new song co-written with **Elvis Costello**. . . . The **New York Philharmonic** is leaving its home base at Lincoln Center this summer for a four-concert series of all-Tchaikovsky programs at Carnegie Hall, fea-



FRANK MICELOTTA/COLUMBIA

Mingus tribute producer Willner with Chuck D and an engineer

there, the orchestra will perform in Olivier Messiaen's opera *St. Francis of Assisi*, in a new production directed by Peter Sellars, as well as in concerts under Salonen and **Pierre Boulez**. Back in L.A., Salonen will open the season on October 8 with Mahler's Third Symphony, the work with which he gained international recognition at his London debut in 1983. Salonen and his new orchestra will record exclusively for Sony Classical.

turing the violinist **Midori**, the pianist **Shura Cherkassky**, and string quartets performed by members of the orchestra. . . .

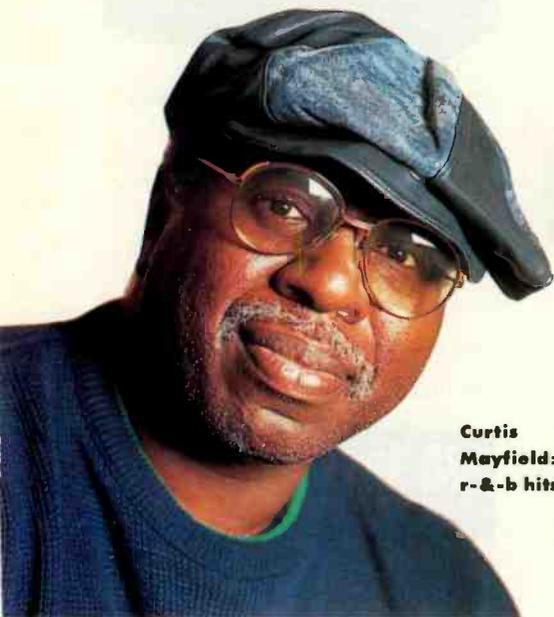


LOS ANGELES PHILHARMONIC

Salonen: L.A. to Salzburg

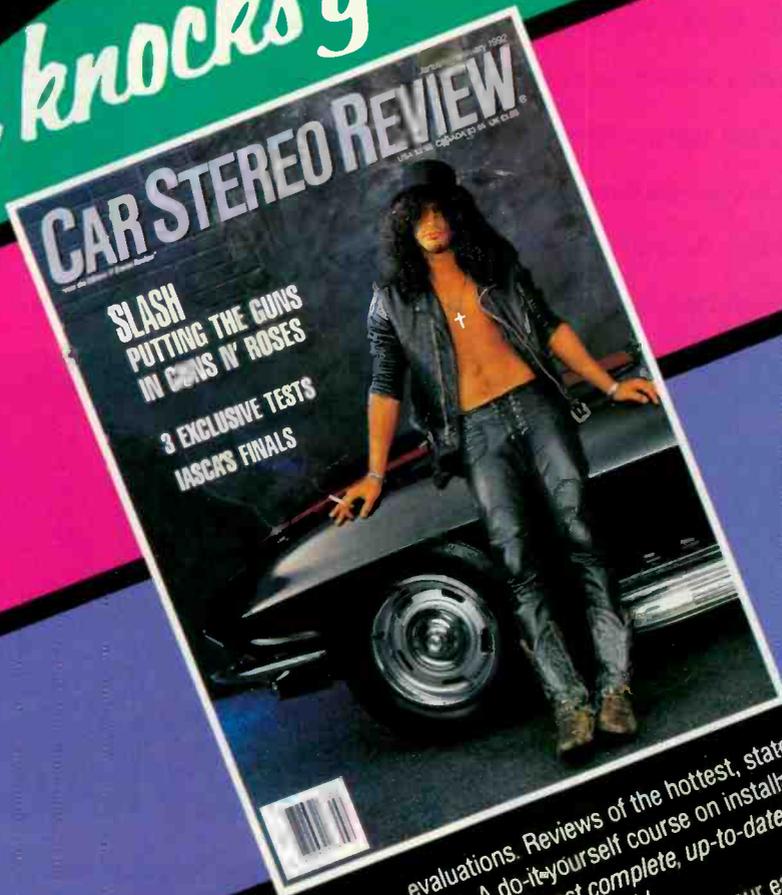
GRACENOTES. The CD re-issue label **Razor & Tie** is readying several highly regarded late-Seventies/early-Eighties rock albums for fall release, including **David Johansen's** "Here Comes the Night" and "Live It Up," the **Bongos'** "Drums Along the Hudson," and **Willie Nile's** "Willie Nile." . . . The **Detroit Symphony** and its music director, **Neeme Järvi**, have renewed their recording contract with Chandos for an additional year and four more records. . . . "Someone to Love," the r-&-b legend **Charles Brown's** new album for **Bullseye Blues**, will include **Bonnie Raitt** on two cuts

Capitol has now released "The Beatles Compact Disc EP Collection" in the United States. The fifteen CD's, each with four songs, correspond to the original British 45-rpm EP's, which came out in the Sixties and have long been familiar to collectors. □



Curtis Mayfield:
r-&-b hits

The magazine that knocks you on your ear



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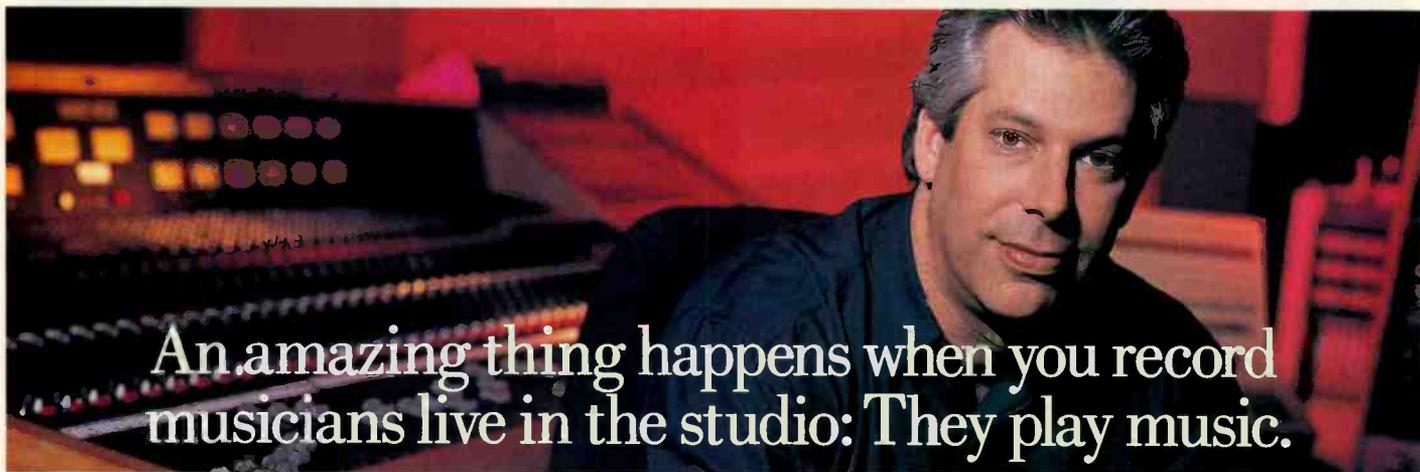
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players, but the results often border on magical. Take *Evolution*, featured on *The Usual Suspects* from Sheffield Labs.



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Due Process

Signal processors—eighth in a series on the practical business of buying audio equipment

BY IAN G. MASTERS

BY one of those sometimes irrational conventions that abound in audio, electronic accessories are often called "signal processors." In reality, virtually *everything* in an audio system processes the signal to some extent, but the term is usually restricted to add-on components that solve specific problems or provide functions that not all users may need.

Top of the list, perhaps, is the equalizer, which is often looked upon either as a cure-all for every sort of audio ailment or as some sort of magic bass-enhancement device. The image of the equalizer as offering massive sonic improvements is often bolstered by advertising pictures showing double-decibel boosts and cuts all over the spectrum, but in reality equalization (EQ) should be a subtle process designed to smooth out *small* frequency-response problems.

The most elaborate equalizers are often combined with spectrum analyzers, which give visual displays of the momentary levels in each of the bands the equalizer covers. Such displays are pretty, and they can be quite hypnotic to watch, but they're seldom useful in themselves. If you have a calibrated microphone and a source of high-quality test tones or pink noise (sometimes included with an equalizer), you can use the analyzer to help set up your system and possibly compensate for some acoustical problems. This is usually a one-time operation, however. More commonly, equalizers can serve as super tone controls to improve the tonal balance of poorly made recordings and make other such ad hoc adjustments.

Some signal processors are neces-



sary, depending on the rest of the system. If you choose speakers that must be bi- or triamplified, an electronic crossover is required, along with sufficient amplification. Often, however, the choice of whether to biamp or not is yours, and many speakers sound as good with a single amplifier and their internal crossovers as they do in the more complex configuration. Before you lay out the kind of money necessary for a multi-amplified system, listen to the speakers both ways.

As home theater becomes more and more popular, the audio industry has

responded with a wide variety of surround-sound decoders to extract the ambience information encoded in many movie soundtracks. Dolby Pro Logic decoders are often included in receivers and integrated amplifiers, and many high-end TV sets now contain surround-sound circuits as well. But the most sophisticated surround decoders are free-standing components that typically offer a number of processing options for use with various different speaker configurations, from three to five (or even six or seven if you include subwoofers).

Surround-sound units often offer

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B U Y I N G T I M E

ambience enhancement as well, for use with conventional recorded music. Many provide a small number of basic "environments"—simulated room acoustics appropriate to various types of music—with adjustable parameters, and for most of us that's adequate. The top-of-the-line units offer a staggering range of control, however. These can be fun to play with—Paula Abdul in Westminster Abbey can be amusing the first time around—but most listeners have simpler demands. The important thing is to make sure you can get results that sound pleasing and realistic as opposed to gaudy and overdramatic. Some ambience processors do provide better simulations than others.

Other devices supplement the functions already included in most systems. Outboard digital-to-analog (D/A) converters fall into this category, as do external phono preamplifiers. Both have their legitimate places in audio, but not necessarily in your system. Specialist components such as mixers for recording, image enhancers for broadening the apparent stereo sound stage, and compressors and expanders for adjusting dynamic range are also available.

WHAT MATTERS

Because signal processors come in many different forms, and perform many different functions, it's hard to generalize about what's important and what isn't. There are, however, a few guidelines.

• **REAL PROBLEMS.** When you buy a system from scratch, it only makes sense to pick components that do everything you need, the way you want, from the start. In reality, things are rarely perfect, and as you become aware of shortcomings in your system or its environment, you may want to add a new component that will enhance one or more aspects of your system's performance. Your listening room, for example, may have acoustic problems too severe for standard tone controls to handle, and an equalizer may be the answer. Or a new phono cartridge may require an outboard preamplifier either for level matching or for better performance. Such solutions can be expensive, so you should make sure you really need extra electronics to fix things. Your acoustic anomalies, for instance, may well be

curable simply by moving the speakers or your listening chair a few inches.

• **NEW CAPABILITIES.** Not all signal processors are designed to solve problems: Some add functions that didn't exist—or you didn't want—when you put your system together. The most frequent example of this nowadays is surround-sound decoding, but other aspects of system updating—new speakers that require biampification, say—require extra equipment as well. The main principle in adding such devices is to make sure they really do what you need and not too much else. There's no sense paying money for elaborate ambience enhancement in your surround decoder (or vice versa) if you use it only when watching movies.

• **FITTING IT IN.** What you can accommodate in the way of extra equipment depends to a great degree on what you have now. An array of specialist devices may end up driving you crazy if the jacks and switches of your present gear are inadequate or inappropriate to handle them. By the same token, adding an equalizer to pump up the bass (not usually a good idea anyway) will only cause problems if your amplifier doesn't have enough power or your speakers' effective response doesn't extend low enough. Usually it's better in such cases to upgrade the basic equipment in the system than to rely on add-ons.

WHAT DOESN'T

Unless you have a pressing need to add some capability your system doesn't already provide, you probably don't need extra signal processing. Electronic accessories are rarely panaceas.

• **FANTASIES.** It's tempting to think that a new box will be able to add a new dimension of some sort to the sound we listen to, but aside from surround/ambience devices, most signal processors don't do that. Yes, you can use an equalizer to enhance some part of the audio spectrum—to provide "tight" bass, say, or extra "presence"—but for the most part such effects result in poorer sound rather than better. Signal processors are usually designed to solve problems. If you don't have the problems, you don't need the solutions.

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The Lingo

Because signal processors are, by their very nature, specialized devices, it stands to reason that they should have a specialized vocabulary. A few of the words and phrases have become common, however.

EQUALIZER. Perhaps the most common sort of signal processor, an equalizer provides independent level control over different parts of the audio spectrum. The simplest equalizer consists of the bass and treble (and sometimes midrange) controls that are included in almost all receivers and integrated amplifiers. More complex equalizers divide the audio spectrum into anywhere between five and thirty bands. Models that offer ten or twelve bands are often called *octave-band* equalizers, because each band covers about one musical octave, and those that offer the most controls are termed *one-third-octave* equalizers (and are usually restricted to professional use).

Equalizers that have separate slider controls for each band, arranged in order along the spectrum, are usually referred to as *graphic* equalizers because the positions of the controls give a visual indication of the adjusted frequency response. Another type, the *parametric* equalizer, typically operates at fewer frequencies but enables you to control not only the level in each band but also its center frequency and the steepness (or "Q") of the filter slopes.

CROSSOVER. With very few exceptions, speaker systems contain two or more drivers to handle different frequencies, so

a crossover network is required to direct the appropriate signal to each driver. In most instances, a *passive* crossover is built into the speaker cabinet, but it is sometimes desirable to power the separate high- and low-frequency drivers by their own amplifiers, a process called *biamplification* or *triamplification*, depending on how many amplifiers are used. In that case an *active*, or *electronic*, crossover is inserted into the signal path *before* the amplifiers.

DIGITAL SIGNAL PROCESSING, or DSP, refers in theory to any signal manipulation that occurs in the digital domain, and the time will no doubt come when *all* audio control will be a form of DSP. For the time being, however, DSP is most commonly used for ambience enhancement, to simulate appropriate acoustic environments for various types of music: concert halls, cathedrals, stadiums, and so forth. A handful of companies have used the technique for functions like equalization and Dolby Surround decoding as well.

SURROUND. Practically all movie videos today include soundtracks encoded in *Dolby Stereo* or *Dolby Surround*—two names for the same thing. The system involves a strict method of combining four channels of sound into two, but the techniques used to extract the extra information vary considerably. A decoder for "surround sound"—unspecified—may be no more than an image-widening circuit, although it's more likely to be able to drive a stereo pair of

speakers in front and a couple of ambience speakers behind. How close it comes to Dolby standards may be hard to gauge. If it actually uses the *Dolby Surround* name and logo, it has to meet at least minimum standards for surround-channel extraction and for delay and high-frequency rolloff in the surround channel. *Dolby Pro Logic* adds center-channel extraction and separation-enhancement circuits (steering logic) and comes closer to the theatrical experience. Pro Logic decoders also allow users to select four-speaker operation (usually called *phantom*, because the center-channel material is handled by the normal stereo front speakers) and sometimes a three-channel mode that does provide a center channel but doesn't separate the surround signal from the main stereo channels. Most surround-sound decoders also provide some measure of ambience enhancement for nonencoded material.

D/A CONVERTER. Almost all CD players contain their own *digital-to-analog* (D/A) converters to turn the digital information on a disc back into a signal the rest of the system can use. There are, however, an increasing number of outboard D/A converters designed either to upgrade old disc players or to isolate the electronics from the noise-inducing player mechanism. Many now use *bitstream* or *1-bit* conversion circuitry, which offers a high degree of linearity at relatively low cost. Few external D/A converters are cheap, however, and they rarely provide any improvement in sound quality.

- **DUPLICATION OF EFFORT.** Many of the things that signal processors do your system already does. Buying an outboard D/A converter, for instance, usually means that you end up with two equally capable converters: the new one and the one included in your CD player. There may be good reasons for such duplication, of course, but you should make sure of that. Otherwise, why buy the extra component?

- **COMPLEXITY.** Most electronic accessories are single-purpose de-

vices, but it seems that some manufacturers feel they have to add features in order to justify the prices these things often command. Vast control options are unlikely to be much use, however, and they tend to confuse matters. So figure out what you need, and then look for a piece of equipment that will do just that and that alone. It may or may not save you money, but it will make your life easier.

GET WITH IT

As signal processors are basically accessories themselves, they usually

don't need further additions other than the proper cables and connectors. Depending on what sort of device you buy, however, it may be sensible to add some setup recordings. Surround decoders, for instance, can be adjusted quite accurately with the aid of a setup disc that includes pink noise for each channel at equal levels, which lets you match outputs and, to some extent, compensate for tonal differences between speakers.

NEXT: *Video equipment*

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TECHNICAL TALK

BY JULIAN HIRSCH

Summer CES, 1992

AT the 1992 Summer Consumer Electronics Show (CES) in Chicago, the major emphasis seemed to be on video and related home theater sound systems and components. I did not find any major breakthroughs in audio technology comparable to the introduction at last winter's show of two new digital recording/playback systems, the Philips Digital Compact Cassette and Sony's Mini Disc, generally referred to as DCC and MD.

Since their announcement, these two potentially competitive systems have moved closer to commercial reality, and it seems likely that both will have reached dealers' shelves by the end of the year.

At the Chicago show, Sony presented a very interesting demonstration of how effectively its MD with data compression can manipulate a 16-bit signal to make it sound almost like the original. In A/B comparisons of DAT's and CD's with the output of an MD recorder on which they had been copied, the originals and the copies sounded nearly identical. Like most of the audience, I thought I heard a very slight "hardness" in the MD playback compared to the original, but it was not particularly obvious, and I doubt that I would have detected it without a direct comparison. I am confident that the average listener would not find an MD's sound any different from that of a CD, especially in portable or car use—which was the aim of the new system's designers.

The DCC machines shown by several manufacturers were full-size home components, the size of a cassette deck or CD player. I did not listen to any, but I would expect them to sound much like the MD players in view of the similar psychoacoustic principles behind their data-compression systems. DCC is expected to reach consumers this fall.

One of the most intriguing developments I heard demonstrated was Snell Acoustics' digital signal processing (DSP) system for greatly reducing a speaker's inherent response irregular-

ities as well as most of the room effects that normally color the sound of even the finest music system. In principle, the Snell system resembles the Adaptive Digital Signal Processor developed more than a decade ago by Robert Berkovitz at Acoustic Research. Unfortunately, the state of digital technology at that time limited the response correction to the low frequencies, and the overall improvement in sound, though audible, was not exactly overwhelming. In addition, it was extremely expensive.

Today, DSP is commonplace in home audio systems. Numerous receivers with DSP are available, some at quite moderate prices, and the systems are able to perform the functions of tone controls and filters as well as to simulate the acoustic characteristics of various environments, sometimes with impressively realistic results.

Compared with analog signal processing, DSP offers a number of unique advantages. As the CD has demonstrated so effectively, noise and distortion are usually inaudible (and even difficult to measure) in digital systems. More important, DSP can do things that are impossible in the analog domain, such as creating filters with extremely steep cutoff slopes and narrow bandwidths but without the severe phase shifts that would be inevitable with analog filters.

Although you would never know it from the specifications published by many speaker manufacturers, a speaker's "frequency response" is horrendously irregular compared with that of any other component. Under the most favorable conditions, there are innumerable peaks and dips over the audible band, with amplitudes ranging from a couple of decibels to 20 dB or more. While the best speakers are usually smoother than cheaper ones, none can match the response smoothness of the most mediocre amplifier.

Kevin Voecks, Snell's chief engineer, demonstrated the feasibility of flattening out the response irregularities of a speaker, including the effects of room resonances, by placing a large number of DSP-derived filters in the signal path. The demonstration involved a pair of medium-price Snell speakers and some general-purpose

digital instrumentation to create the necessary filters.

Initially, the response of the speakers was measured in the room and stored in a computer memory. The computer-controlled DSP system adjusted its parameters for maximum flatness and stored the resulting correction algorithm. The uncorrected response was typical of a room without acoustic treatment, with the usual upper-frequency irregularities and a huge peak and hole (at least 20 dB, as I recall) in the 100-Hz region caused by the standing waves in the room.

When music was played through the uncorrected speakers, the characteristic bass heaviness and muddiness were very much in evidence. At the press of a button, the correction was added, and the sound instantly took on the smooth, wide-range character that one sometimes achieves after many hours of experimenting with speaker placement and acoustic treatment.

The computer display of the corrected response was close to that of an ideal speaker, with very flat middles and highs and only a few decibels of irregularity in the region around 100 Hz. Although the highs were also markedly improved by the digital processing, the benefits were most audible in the bass.

This was really only a feasibility demonstration, but it made its point unmistakably. DSP techniques can greatly improve speaker sound, quite apart from their more conventional applications. The dedicated DSP response corrector under development by Snell in cooperation with Audio Alchemy will correct the acoustic output for a full second, with filter bandwidths as narrow as 1 Hz, as compared to the 50-millisecond and 10-Hz limits of the demonstration model.

Initially, Snell plans to make the DSP corrector only for its own speakers, using plug-in cards to match the characteristics of the particular models, but the company hopes eventually to have a general-purpose system that can be adjusted on site by a dealer to bring this capability to a larger number of serious audiophiles. If this effort is as successful as now seems possible, it could be one of the most important developments in home audio. □

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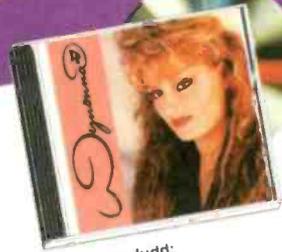
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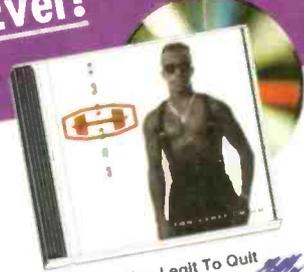
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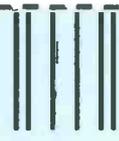
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TEST REPORTS



Marantz Music Link Series

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

THE Marantz Music Link Series audio components were designed to provide superior sonic performance together with unique styling and construction features. The series consists of the SC-22 control preamplifier, the PH-22 phono preamplifier, the MA-22 mono power amplifier, and the MA-24 Class A power amplifier (which we did not test). The components are identical in size, styling, and finish, and they can be stacked in any combination to suit space or decorating requirements.

Each unit measures 9 $\frac{1}{2}$ inches wide, 7 $\frac{1}{4}$ inches deep, and 3 $\frac{1}{4}$ inches high. The cabinet sides and the $\frac{1}{4}$ -inch-thick front panels are rounded, and each unit is supported on four large, round feet. The cabinet exteriors are finished in brushed gold except for the sides, which have a gold wrinkle finish. The control and phono preamplifiers weigh 9.2 and 9.5 pounds, respectively, and each power amplifier (a pair is needed for stereo) weighs 13.2 pounds.

The SC-22 stereo control amplifier

accepts four line-level inputs and has a tape-monitor loop. Its output stage is transformer-coupled, with balanced outputs isolated from ground. Two pairs of output jacks provide both normal and phase-inverted outputs, simplifying use with bridged mono or stereo power amplifiers. The transformer coupling also limits the bandwidth (rated response is down 3 dB at 60,000 Hz) to attenuate noise from digital switching circuits.

The SC-22 has a potted toroidal power transformer mounted on tuned resonance dampers that prevent microphonically induced hum from affecting the signal circuits. Its chassis, like those of the other components in the Music Link Series, is constructed of a heavy, die-cast, nonmagnetic alloy that's copper-plated throughout. All internal connections use oxygen-free-copper wire, shielded as necessary for interference rejection. The volume-control potentiometer is carefully selected for accurate left/right tracking throughout its range.

The preamplifier's front panel has small round pushbuttons for power and input switching, labeled LINE 1 through LINE 4, and the tape-monitor function. A small blue pilot light glows when the unit is powered. The large volume knob, like the pushbuttons, operates with a light, precise feel. It is calibrated over a 75-dB range.

The rear of the SC-22 has four pairs of input jacks, two pairs of tape input/output jacks, and the two pairs of output jacks. All are gold-plated phono-type connectors. There are also input and output ground terminals (gold-plated binding posts). It is necessary to run a direct connection from the output ground terminal to the chassis of the power amplifier, since the preamplifier outputs are floating.

The PH-22 phono preamplifier, required only if the system includes a turntable, has inputs for moving-coil (MC) and moving-magnet (MM) cartridges and a pair of line-level outputs that connect to one of the inputs of the SC-22. Its rear panel has a screwdriver-adjusted gain control to match its output level to that of the high-level sources of the system.

A small FUNCTION knob on the PH-22's front panel selects the appropriate gain and input impedance for several

TEST REPORTS

types of cartridges. The MM(H) setting is used for most moving-magnet cartridges, those requiring a termination of 47,000 ohms, and MM(L) is for low-impedance moving-magnet cartridges, with a load of 1,000 ohms. Similarly, the moving-coil settings are identified as MC(H) for outputs of 300 microvolts

or more and MC(L) for outputs of 100 microvolts (into respective input loads of 100 and 3 ohms).

A small EQUALIZER knob provides a choice of four playback-equalization responses. The first is the standard RIAA characteristic, with a 500-Hz bass-turnover frequency and a 2,200-

Hz treble rolloff. The next, EUROPE SP1, has a bass turnover of 250 Hz and flat high-frequency response. The third, EUROPE SP2, has a 250-Hz turnover and a 5,800-Hz treble rolloff. Finally, there is an OLD SP setting with flat response through the audio range.

The PH-22's signal-circuit switching is done by relays controlled by the front-panel switches. The MM input is actively amplified, and the additional gain for an MC cartridge is provided by permalloy-core transformers. The power button and pilot light are the same as on the SC-22 preamplifier.

The MA-22 power amplifier is rated at 50 watts into 8 ohms or 75 watts into 4 ohms, from 20 to 20,000 Hz, with no more than 0.01 percent total harmonic distortion (THD). Its power supply uses a heavy toroidal transformer, and the output stage has two pairs of 120-watt bipolar transistors operating in Class AB. The transistor heat sinks are physically connected to the chassis so that the entire cabinet surface dissipates heat without local hot spots.

The front panel contains only a power button and a pilot light identical to those of the other Music Link components. On the rear panel are a gold-plated input jack and two heavy-duty binding-post output connectors, as well as a ground binding post (which must be connected to the ground of the SC-22 preamplifier). The speaker binding posts accept stripped wires or single banana plugs. Their spacing of 1½ inches was deliberately selected to prevent the insertion of European AC power plugs, which have a ¾-inch spacing like the dual banana-plug connectors widely used in the U.S.

Suggested retail prices: SC-22 preamplifier, \$999; PH-22 phono preamplifier, \$1,099; MA-22 power amplifier, \$999 each. Marantz USA, Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.

Lab Tests

We first tested the components of the Marantz Music Link Series individually and later connected them as a system for listening tests.

The SC-22 control preamplifier's input overload level exceeded 6 volts. Frequency response was perfectly flat from 20 to 3,000 Hz and down 0.2 dB at 10,000 Hz and 0.7 dB at 20,000 Hz. Interchannel crosstalk was -85 dB at 1,000 Hz and -77 dB at 10,000 Hz. Total harmonic distortion (excluding

FEATURES

SC-22 CONTROL PREAMPLIFIER

- All discrete circuits
- Low-pass input filter
- Four line-level inputs, tape-monitor loop
- Output transformers isolate audio output from power supply and line noise
- Normal and inverted-phase outputs for convenient bridging of power amplifiers
- Vibration-isolated toroidal power transformer
- Heavy die-cast, copper-plated nonmagnetic chassis

PH-22 PHONO PREAMPLIFIER

- Separate inputs for moving-magnet (MM) and moving-coil (MC) cartridges, with front-panel selection

- Front-panel switch to select 47,000- or 1,000-ohm load for MM cartridge, 100 or 3 ohms for MC cartridge; switchable gain for low- or high-output MC cartridge
- Permalloy transformers provide added gain for moving coil cartridges

MA-22 POWER AMPLIFIER

- High-current toroidal power transformer, floating mount for vibration isolation
- Massive, copper-plated nonmagnetic chassis, using sides of cabinet as heat sinks
- Over-current detector to shut down amplifier temporarily under severe overload
- Can drive low-impedance loads safely

LABORATORY MEASUREMENTS

SC-22 CONTROL PREAMPLIFIER

Output level at clipping: 7.5 volts

Sensitivity (for a 0.5-volt output): 97 mV

A-weighted noise (referred to a 0.5-volt level): -96 dB

Distortion (THD at 1,000 Hz): 0.0038% at 0.5 volt, 0.0061% at 1.5 volts, 0.002% at 5 volts

Frequency response: 20 to 20,000 Hz +0, -0.7 dB

PH-22 PHONO PREAMPLIFIER

Output level at clipping: 10 volts

Sensitivity (for a 0.5-volt output): MM, 5.1 mV; MC(H), 0.56 mV; MC(L), 0.19 mV

A-weighted noise (referred to a 0.5-volt output): MM(H), -85 dB; MC(L), -79 dB

Distortion (THD at 1,000 Hz): 0.0027% at 280 mV, 0.0039% at 1 volt, 0.0024% at 5 volts

Frequency response (RIAA equalization error): 20 to 20,000 Hz ±0.2 dB

Phono-input overload (MM, 1000-Hz equivalent levels): 152 mV at 20 Hz, 160 mV at 1,000 Hz, 105 mV at 20,000 Hz

Phono-input impedance (MM, high setting): 47,000 ohms in parallel with 180 pF

MA-22 POWER AMPLIFIER

1,000-Hz output at clipping: 58 watts into 8 ohms, 95 watts into 4 ohms, 125 watts into 2 ohms

Clipping headroom (relative to rated output): 8 ohms, 0.7 dB; 4 ohms, 1 dB

Dynamic power output: 8 ohms, 62 watts; 4 ohms, 108 watts; 2 ohms, 150 watts

Dynamic headroom (relative to rated output): 8 ohms, 0.9 dB; 4 ohms, 1.6 dB

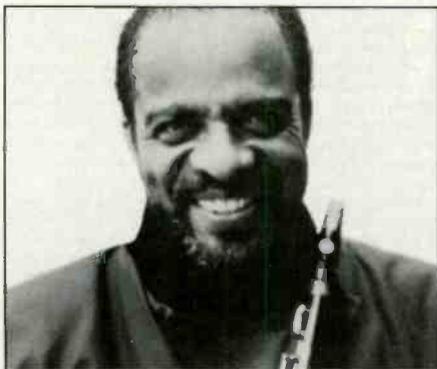
Sensitivity (for a 1-watt output into 8 ohms): 145 mV

A-weighted noise (referred to a 1-watt output): -102 dB

Distortion (THD at 1,000 Hz): 50 watts into 8 ohms, 0.012%; 75 watts into 4 ohms, 0.029%; 100 watts into 2 ohms, 0.064%

Frequency response: 20 to 20,000 Hz, +0, -0.2 dB

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noise) varied from 0.0033 percent at 0.5 volt output to a maximum of 0.006 percent at 1.5 volts, falling to only 0.002 percent at 5 volts.

The PH-22 phono preamplifier's maximum input sensitivity through the MM input, for a 0.5-volt reference output, was 5.1 millivolts (mV). The maximum MC sensitivity was 0.56 mV (0.19 mV with the low setting). These sensitivities could be reduced about ninefold with the rear adjustment.

We preconditioned the MA-22 power amplifier at one-third rated power into 8 ohms for an hour before making any measurements. The exterior of the case became uniformly warm but not uncomfortable to touch. In normal operation it ran only mildly warm.

The amplifier's low-level frequency response was flat from 20 to 8,000 Hz, falling to -0.05 dB at 20,000 Hz. The power output into 8 ohms, at a distortion level of 0.1 percent, was 56 watts. At 0.5 percent distortion, the output was 58 watts over most of the audio range. Power output into 4 ohms at 0.1 percent distortion was 89.5 watts over most of the range. At 0.5 percent distortion, the output was about 95 watts. Into 2 ohms, the MA-22 delivered about 125 watts over most of the range.

Comments

The Music Link Series is a striking departure from Marantz audio components of recent years. The prices definitely put these components in the high-end category, although their specifications are not significantly dif-

ferent from those of many more conventional products. Nevertheless, the unique styling and construction of the Music Link components are consistent with high-end status. Their elegance and simplicity contrast sharply with the styling of most current hi-fi products, and the light, positive feel of their controls is quite unlike that of most other audio components.

We would hardly expect electronic components in this price range, and with the sophisticated design of the Music Link Series, to sound dramatically different from other good components. We were impressed, however, by the current-delivering ability of the MA-22 amplifier, which can drive low-impedance speaker loads with ease and still run relatively cool.

The construction of the Music Link Series shows no sign of skimping. It would be unthinkable to hide these beautiful components in a cabinet, and their modular design invites flexibility in placement. We even found that a pair of the power amplifiers could be stacked with negligible temperature increase. In most cases all the Music Link components could be powered from a single switched outlet, to avoid having to operate three or four switches to turn the system on or off.

In sum, the Marantz Music Link Series components are handsome, compact, high-quality products. Though expensive, they are probably worth their cost for those who seek an alternative to mass-market components without going all the way to full-size high-end components at sky-high prices. □



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Westlake Audio BBSM-4 Reference Monitor Loudspeaker

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

The California company Westlake Audio is well known as a manufacturer of professional monitor speakers for recording and broadcast applications. Monitor speakers vary widely in size, but, as the Westlake Audio BBSM-4 demonstrates, they need not be behemoths that would dominate an ordinary-size room. The compact BBSM-4 is designed primarily for use in small control rooms, mobile recording applications, offices, and so forth, but the manufacturer also suggests it as a home reference speaker for users requiring high accuracy.

The Westlake Audio BBSM-4 is a two-way system with two 4-inch woofers in a ported enclosure, crossing over at 1,500 Hz to a ¾-inch soft-dome tweeter. The crossover network is compensated to maintain nearly flat phase response through the system, including both the network and the drivers. The speaker configuration is symmetrical with respect to the axis of the tweeter and the front-located port, which are both on a vertical line midway between the bass drivers. The inputs to the high- and low-frequency drivers are brought out to separate terminals, simplifying biwiring to the

amplifier using separate cables for the high- and low-frequency drivers. Jumpers are provided to connect the two sets of terminals in parallel for conventional installations. The speaker terminals are heavy barrier strips designed to accept spade lugs.

Westlake Audio stresses the desirability, for precise imaging, of placing the speakers so as to form an equilateral or isosceles triangle with the listener. In any event, they should be equidistant from the listener's ears. The manufacturer claims that when reproducing phase-coherent stereo material in a well-damped listening environment, a path-length error of even half an inch will cause an audible image shift and a power imbalance.

The BBSM-4 measures 15 inches wide, 10 inches deep, and 8 inches high. The wood cabinet is available with an oiled-walnut finish and a brown grille or in a black utility finish without a grille. Despite its small size, each speaker weighs a surprising 25 pounds. The system has a nominal impedance of 4 ohms, with a minimum of 2 ohms possible at some frequencies. The frequency response on-axis is rated as ± 3 dB from 65 to 20,000 Hz. Although Westlake Audio uses a

nonstandard system for measuring speaker sensitivity, the rating is equivalent to an industry-standard rating of 89 dB sound-pressure level (SPL) at 1 meter. The nominal power-handling capability is 50 watts below 1,500 Hz and 25 watts in the tweeter range. Westlake Audio recommends using amplifiers rated to deliver at least 100 watts per channel into 2 ohms. Price: \$1,800 for a matched pair. Westlake Audio, Inc., Dept. SR, 2696 Lavery Ct., #18, Newbury Park, CA 91320.

Lab Tests

The room response of the Westlake Audio BBSM-4 speakers, with a sweeping sine-wave signal, was within ± 6 dB from 100 to 20,000 Hz and remained useful (at about 5 dB lower than the average midrange level) from 100 to 60 Hz, dropping off rapidly below that frequency. A measurement at 50 centimeters (0.5 meter), with a swept random-noise signal, produced a slightly smoother but generally similar response, ± 3 dB from 60 to 20,000 Hz. At 45 degrees off the system's axis, the output dropped by as much as 7 dB at 2,000 Hz, but it returned almost to the on-axis level between 4,000 and 10,000 Hz before falling off to -9 dB at 20,000 Hz.

Quasi-anechoic response measurements at 1 and 2 meters, made with the MLS program of the Audio Precision System One, showed an overall response variation from 300 to 20,000 Hz of only ± 3 dB. The system's phase response was highly linear, with a group-delay variation of only ± 0.1 millisecond from 2,000 to 20,000 Hz and a 0.4-millisecond shift in the woofer range, from 2,000 to 300 Hz. The absence of system resonances in the audio range, evidenced by the constant group delay, was notable.

Impedance reached its low of 2.4 ohms at 1,350 Hz and remained below 4 ohms from 150 to 2,700 Hz. Impedance at the bass resonances of 40 and 86 Hz was 16 and 11.5 ohms, respectively. Sensitivity was 92 dB, somewhat higher than the nominal rating of 89 dB. With a 2.25-volt pink-noise signal (corresponding to our reference of 90 dB SPL), woofer distortion was between 0.45 and 0.9 percent from 1,100 to 80 Hz, rising to 3.5 percent at 60 Hz and 10 percent at 40 Hz.

Considering the size of its drivers, the BBSM-4 could handle an impressive amount of short-term power with-

TEST REPORTS

out significant distortion. In fact, our amplifier's limits were reached before the acoustic output became seriously distorted—even at 100 Hz, near the bottom of the woofer range, where the speaker absorbed 250 watts into its 8.5-ohm impedance.

Comments

There is a widely held view among hi-fi enthusiasts that studio monitor speakers are good principally for playing at ear-splitting levels and that they are usually inappropriate for audiophile listening. Many of the full-size speakers sold with "Monitor" in their names have tended to reinforce that impression.

The Westlake Audio BBSM-4 is a welcome exception. There is no doubt that it is a true high-fidelity speaker, within its limitations of frequency response and dynamic range. Without knowing its origins, few would suspect it was intended for professional use.

Westlake Audio stresses the impor-

tance of critical placement relative to the listener and of using very low-impedance cables. The cables supplied with the speakers were about a half inch in diameter, and the 10-foot cable for each channel weighed 8½ pounds. In a temporary lab setup or a home installation, such cables are totally impractical, as are the placement recommendations.

I am in no position to judge the BBSM-4 as a professional monitor speaker. For me (and, I suspect, most people), listening to music is not inherently a solitary pastime to be experienced by one person locked into a fixed position in the room, although those conditions probably do apply, to some degree, to professional users.

I can say, however, that the Westlake Audio BBSM-4 is a very fine speaker just to listen to and enjoy. Its imaging was excellent by home audio standards and did not require anchoring one's head in a vise for its appreciation. The well-balanced sound gave

no hint of the size of the speaker or of its drivers. It was notably free of coloration, such as emphasized midrange, highs, or bass, and the speaker could play without strain at levels that make conversation difficult.

The low bass was largely absent, but that can be said of most small and moderate-size speakers. Fortunately, much music does not require significant output in the bottom two octaves. When we teamed up the BBSM-4 with good subwoofers, the results were all one could wish for. The cabinet is about as close to a concrete block, in its inertness, as one can get. Rapping it with the knuckles gave no hint that it was anything but solid.

To sum up, the price of the BBSM-4 will probably rule it out for most audiophiles, since much of its special quality is aimed directly at the professional user. On the other hand, if your space is limited and your budget is not, you would not go wrong with this powerful midget. □

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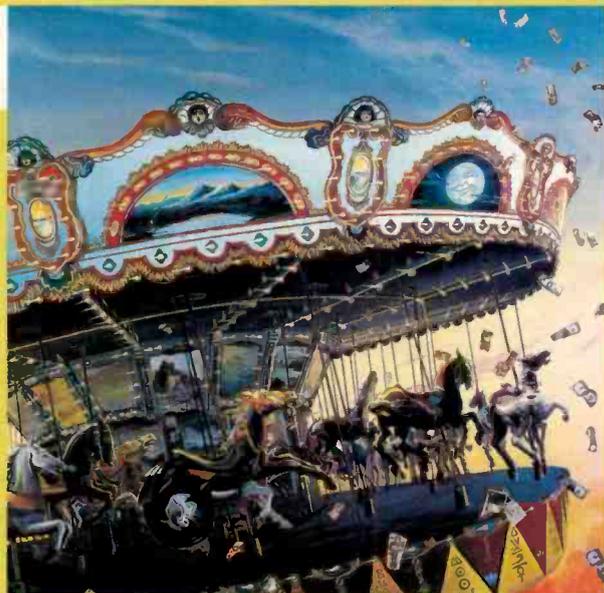
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ON TOUR THIS SUMMER

TEST REPORTS



Rotel RCD-965BX Compact Disc Player

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

ROTEL audio components have enjoyed a reputation for quality at very moderate prices, and the RCD-965BX CD player is a good example of the company's approach to product design. A conventionally styled player, its front-panel markings announce that it features dual Bitstream digital-to-analog (D/A) converters (Bitstream is the Philips version of the 1-bit conversion that has been featured in so many recent CD players). The display window shows the current track number and its remaining time, the player's operating and programming status, and the disc size (5- or 3-inch). Its blue-white characters are exceptionally legible.

Rectangular buttons below the window open and close the disc drawer and control the standard transport functions: play, stop, pause, and track skipping. Smaller buttons to the right of the display control high-speed search in either direction, random-play and repeat functions, programming of up to twenty selections for playback, and access to indexed portions of discs that have that feature. The rear apron of the player contains both analog and digital outputs.

The RCD-965BX comes with a wire-

less remote control whose numbered keys provide direct access to any track. Other keys duplicate the front-panel programming, random-play, and repeat functions and all transport and search controls except index search.

The Rotel RCD-965BX's performance specifications are typical of today's top CD players, including ± 0.05 -dB frequency response from 20 to 20,000 Hz, ± 0.5 -dB channel unbalance, ± 0.5 -degree phase linearity, 100-dB signal-to-noise ratio (S/N), 96-dB dynamic range, and 0.0025 percent

total harmonic or intermodulation distortion. The Rotel RCD-965BX is black and measures 17 $\frac{3}{8}$ inches wide, 12 $\frac{1}{2}$ inches deep, and 3 $\frac{3}{8}$ inches high. It weighs 12 $\frac{3}{4}$ pounds. Price: \$550. Rotel of America, Dept. SR, P.O. Box 653, Buffalo, NY 14240.

Lab Tests

The Rotel RCD-965BX's frequency response measured ± 0.06 dB from 20 to 20,000 Hz, with the channel levels matched within less than 0.01 dB. De-emphasis error was less than 0.06 dB from 1,000 to 16,000 Hz. The channel separation was unusual in being quite different for the two channels, although both were very good. From left to right, separation increased smoothly from 94.3 dB at 100 Hz to 96.7 dB at 20,000 Hz. From right to left, separation was considerably greater, increasing from 102.6 dB at 100 Hz to

MEASUREMENTS

Maximum output level: 2.02 volts

Frequency response: ± 0.06 dB from 20 to 20,000 Hz

De-emphasis error: -0.06 dB at 1,000 Hz

Channel separation (left to right):
94.3 dB at 100 Hz, 95.1 dB at 1,000 Hz,
96.8 at 20,000 Hz (see text)

Dynamic range (A-weighted): 92 dB

Signal-to-noise ratio (A-weighted): 93.2 dB

Maximum interchannel phase shift: 0.2 degree at 20,000 Hz

Distortion (THD + noise): at 0 dB, 0.0043% from 20 to 2,000 Hz, 0.011% at 10,000 Hz, 0.035% at 20,000 Hz; at 1,000 Hz, 0.0032% from -80 to -10 dB, 0.0042% at 0 dB

Linearity error: -0.45 dB at -60 dB,
 -0.67 dB at -70 dB, -1.37 dB at
 -80 dB, -2.72 dB at -90 dB

Defect tracking: tracked 4,000-micrometer errors on Pierre Verany #2 test disc

Slowing time: 1.8 seconds

Cueing accuracy: A

Impact resistance: top, A; sides, A

TEST REPORTS

105.1 dB at 10,000 Hz and then decreasing to 100 dB at 20,000 Hz.

The D/A converter linearity at low levels was satisfactory, though not quite as good as we have measured from some other 1-bit converters. The error was less than -0.5 dB at a -60 -dB level, increasing to -1.3 dB at -80 dB and -2.7 dB at -90 dB. We also repeated these measurements using dithered test signals, with slightly but not significantly different results.

The player's output voltage from a 0-dB test track was 2.02 volts. Its laser pickup slewed from Track 1 to Track 15 of the Philips TS4 test disc in about 1.8 seconds. The player was highly impervious to external shock, withstanding fairly hard hand slaps on its top or side without mistracking.

We tested the RCD-965BX's defect-tracking ability with the calibrated defects of the Pierre Verany #2 test disc. There was a single momentary "tick" at the transition from the 2,000-micrometer level to the 2,400-micrometer level, but the player appeared to track at that level and higher up to the disc's maximum of 4,000 micrometers. Tracking of other test defects, such as two successive dropouts of 2,400 micrometers, was also good, although there were several ticks at the transition to 3,000 micrometers.

Comments

The RCD-965BX is one of the simplest CD players we have seen in some time, yet it is as full-featured as most of us could wish for. It is also more solidly built than many players in its price range.

This player's ability to cope with information-layer damage on a disc was truly exceptional, well beyond the achievement of any other we have tested. Although it was not 100 percent perfect when encountering an error larger than 2,000 micrometers, it settled down after one or two slight ticks and continued tracking at levels that would cause complete mistracking and shut-down by most players in tests with the same calibrated disc.

The RCD-965BX's price, near the upper end of the range for popular, mass-market CD players, is well below typical audio high-end prices. It is a solid value, considering both construction quality and performance. If the RCD-965BX is typical of the new Rotel line, we look forward to seeing other components. □



Signet SL250B/U Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

THE SL250B/U, the smallest and least expensive model in a new line of speakers from Signet, is a compact two-way system whose construction is comparable to that of many considerably larger and more expensive speakers. It has a $5\frac{1}{4}$ -inch long-throw woofer with a treated-paper cone and rolled-rubber surround. The crossover, at 3,300 Hz, is to a $\frac{3}{4}$ -inch ferrofluid-cooled tweeter with a metalized polycarbonate dome. According to Signet, the internal wiring is 16-gauge oxygen-free copper, and the crossover uses high-quality film capacitors.

The cabinet, finished in black wood-grain vinyl, measures $12\frac{1}{2}$ inches high, 7 inches wide, and 10 inches deep, and each speaker unit weighs 12 pounds. The port of the vented enclosure is at the bottom of the rear panel. The input terminals, multiway binding posts whose $\frac{3}{4}$ -inch spacing makes them compatible with single or dual banana plugs as well as wire ends or lugs, are recessed into the upper part of the rear panel. Most of the front panel is covered by a removable black cloth grille held in place with plastic pegs.

The Signet SL250B/U's specifications include a frequency response of 50 to 22,000 Hz (no tolerance stated) and a sensitivity of 86 dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts of random noise. The nominal impedance is 6 ohms, and the recommended amplifier power is between 15 and 100 watts. Price: \$300 a pair. Signet, Dept. SR, 4701 Hudson Dr., Stow, OH 44224.

Lab Tests

For optimum bass response, Signet suggests that the SL250B/U speakers be placed a foot or so away from the wall behind them. Although we adhered to that location for most of our listening tests, we measured the speakers on stands several feet from a wall. As with other stand-mounted speakers, this placement created a floor reflection, which appeared as a peak and dip in the range of 200 to 600 Hz. The room-response curve, averaged for left and right speakers, also had a peak at 1,000 Hz, with the output falling off smoothly to a broad, level plateau within ± 2.5 dB from 1,500 to 20,000 Hz.

TEST REPORTS

We normally use a close-miked measurement of the woofer response to obtain the equivalent of an anechoic response at frequencies below a few hundred hertz. With a ported enclosure, the output from the port is measured separately and combined with the woofer-cone output (after correction for the relative sizes of the sources) to form a bass-response curve. Our aim is to splice this curve to the room response to obtain a composite response curve that shows not only what the speaker does in our test room but what the bass section can do independent of its surroundings. This unorthodox technique is useful for comparing the frequency responses of different speaker systems. It is sometimes difficult to find the most suitable splicing frequency, however, and sometimes it cannot be done at all.

In this case, the port output was much larger than the cone output below their crossover point of 170 Hz, so that the spliced curves gave a misleading impression of the speaker's true bass response. Subjectively, the bass seemed to match the response of the woofer cone alone.

A response measurement 1 meter from the woofer and on its axis (along which the speaker is designed to sound best according to the manufacturer), using stepped one-third-octave bands of random noise, gave the best correlation with what we heard from the speaker. The overall response was very uniform, remaining within 5 dB overall from 60 to 20,000 Hz. The portion from 200 to 2,000 Hz, though reasonably flat, was elevated about 2 to 3 dB compared to the flat portion from 2,000 to 10,000 Hz. The lower frequencies, from 60 to 200 Hz, were about 5 dB below the midrange plateau. The output fell rapidly at still lower frequencies, to -20 dB at 50 Hz (relative to the level of the middle frequencies).

The dispersion of the high frequencies was typical of most ¾-inch-dome tweeters. At 45 degrees off the speaker's axis, the response began to diverge from the axial response above 1,000 Hz, but the two curves had separated by only 3 dB at 8,000 Hz. The off-axis response fell to -8 dB from 12,000 to 15,000 Hz and to -10 dB at 20,000 Hz relative to the axial response.

Minimum system impedance was 4.6 ohms at 320 Hz and 5 ohms from

7,000 to 10,000 Hz. The maximum was 11 ohms at 3,500 Hz (approximately the crossover frequency). Over the audio range, impedance averaged about 6 ohms.

The sensitivity of the Signet SL250B/U was 86.5 dB, almost exactly as rated. Driven with 4.23 volts (corresponding to our reference 90-dB SPL), the woofer produced distortion between 0.6 and 1.2 percent from 2,000 Hz down to 90 Hz. Distortion reached 4.4 percent at the rated 50 Hz minimum frequency.

We also measured the speaker's anechoic response using the digital signal processing features of our Audio Precision System One. Although valid only above 300 Hz or so, the results confirmed some of the features we had observed in other measurements, including the room response. In particular, a portion of the frequency range, from 500 to 2,000 Hz, was 3 to 4 dB above the portions on either side of it. This characteristic agreed with the swept-noise response measurements as well as the swept-sine-wave (room-response) measurements.

Finally, pulse power measurements showed that the SL250B/U could handle peaks of over 900 watts in the midrange, although the woofer cone reached its limits at 100 Hz with about 240 watts input.

Comments

The Signet SL250B/U delivered well-balanced sound that was free of shrillness, boominess, and significant lower-midrange coloration (unlike many speakers that attempt to deliver an illusion of bass by emphasizing the output just above the real bass region). When we placed the speakers on stands well away from the walls, we found no audible loss of bass. The effective contribution of the port to the low-frequency output is apparently much less than our close-miked measurements would suggest.

Although its small drivers will not generate a realistic "live" sound level in your room, the SL250B/U can play surprisingly loud without sounding distressed. And even though its sensitivity is relatively low, it does not require—indeed, *it cannot use*—unduly large amounts of amplifier power.

Despite its price (among the lowest of any speaker with pretensions to good sound quality), the Signet SL250B/U showed no evidence of skimpiness in its construction. Rapping its ¾-inch-thick cabinet walls with your knuckles suggests a close kinship with a concrete block. It should serve well as a primary speaker for a small room, or for a larger one if you are realistic in your volume expectations, or as a surround speaker. □



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**Stereo Review, 12/89.*

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SHOPPING SURROUND

How to Buy an Audio/ Video Receiver

ANYONE who has been out shopping for a receiver lately will have noticed that above the lowest-price, lowest-power rungs on the component ladder, most receivers are now multichannel audio/video surround-sound models. These A/V receivers are designed to facilitate creation of home theater systems capable of reproducing the four-channel Dolby Surround (also known as Dolby Stereo) soundtracks included in most laserdisc and videocassette releases of modern movies and music videos. There are even some CD's and television programs mastered in Dolby Surround.

If you don't care about surround sound or integrating your audio and video systems, then you're probably better off buying separate components (power amplifier, preamplifier, and tuner) or seeking out a conventional two-channel receiver of good pedigree. Although the latter may seem a dying breed, many companies still make excellent ones, and a few, such as Denon, Carver, Harman Kardon, and NAD, make rather a point of it.

If, on the other hand, you're among the growing number of people who think home theater is a swell idea, an A/V receiver is the most straightforward and cost-effective way of getting there. Besides all the usual receiver features, you'll get a built-in surround-sound processor, switching for video as well as audio sources, and two or three extra channels of amplification (for a total of four or five). The downside to these elaborate components is just that—they are often very complicated, which tends to make them not only harder to install and use but also harder to evaluate.

The best way to start is to remember that at the heart of every A/V receiver is an ordinary stereo

receiver and proceed accordingly, so make sure that whatever you buy will perform adequately in that role. It needs to have enough power capacity in the left and right front channels to deliver sufficient volume in your listening room with your loudspeakers (see Julian Hirsch's "Power: How Much Is Enough?" on page 57 of this issue).

In figuring out how much power you need, you should take into account not only the sensitivity of your speakers (the higher their sensitivity, the less power you will need to drive them), but also their impedance. Speakers with unusually low or "reactive" impedances can demand substantially more current from an amplifier than will speakers with a relatively high impedance (8 ohms or greater over most of the frequency range) that is well behaved. Because A/V receivers cram so much stuff into one box, manufacturers are tempted to wimp out on power capacity into difficult speaker loads in order to reduce costs and keep the price down.

Look for a 4-ohm power rating that's at least equal to the 8-ohm rating and preferably greater by 50 percent or more. A 2-ohm power rating of any kind is encouraging these days, but again the ideal is at least as much power as into 4 ohms and preferably more. Unfortunately, many manufacturers don't publish low-impedance power ratings for receivers, and even receivers that specifically admonish the user not to connect speakers with rated impedances of less than 8 ohms will often work well into at least some such loads. In some cases, STEREO REVIEW's test reports can help you figure out what will work well with what, as can a good dealer. Informed advice in this area is, in fact, one reason for working with a qualified dealer.

by Michael Riggs

Sony's STR-D1090ES (\$600) is a Dolby Pro Logic receiver that also provides ambience enhancement via digital signal processing (DSP).

Yamaha's RX-V660 (\$699) features Pro Logic and has three video inputs, four non-Dolby surround modes, and a subwoofer output.





The Optimus STAV-3250 (\$450) is a 100-watt-per-channel stereo receiver that features Dolby Surround circuitry and front-panel video jacks for easy connection of a camcorder.



The Technics SA-GX730 (\$650) features Dolby Pro Logic, three-channel Dolby Stereo Logic, a fifteen-band parametric equalizer, and adjustable digital delay.



In its surround mode, JVC's RX-8077N (\$640) delivers a maximum of 120 watts to the left and right front speakers, 65 watts to the center, and 20 watts to the rear speakers.

Although power is very important when it comes to choosing an amplifier or receiver, it's not everything. You want that power to be clean, which means that distortion should be low—less than 0.1 percent at any power level below maximum, or “clipping”—and that signal-to-noise ratio (S/N) should be high—75 dB or better through phono inputs and 80 dB or better for high-level inputs (such as CD or tape) by the current EIA (Electronic Industries Association) measurement standard, which uses a 1-watt output into 8 ohms as its reference level. So read the fine print in the specifications, and don't hesitate to ask questions. All that said, however, it is rare for a modern receiver from a reputable manufacturer to have excessive noise or distortion.

Another thing to look for is flat frequency response, varying only a tiny fraction of a decibel from 20 to 20,000 Hz through the high-level inputs and no more than ± 0.5 dB through the phono inputs. (Response errors at the frequency extremes—below 100 Hz and above 10,000 Hz—are less important than anomalies in the middle of the audible band, so a response graph is more useful than just a numerical tolerance.) Modern receivers are seldom deficient in this regard, at least when all filters and tone controls are bypassed. On the other hand, some do exhibit small but noticeable response errors when their tone controls are engaged and centered. If you can hear a change in tonal balance when you push the tone-control bypass or “source direct” switch (assuming there is one), it is probably caused by a slight tone-control misalignment. This is not likely to be a big deal, especially if you can bypass the tone controls, but it may suggest a little sloppiness in the receiver's design or assembly.

The Tuner Section

Although even cheap receivers have tuner sections that would have seemed technological marvels twenty years ago, it is still possible to distinguish between good and better, especially in matters pertaining to interference rejection. The most basic FM tuner specifications are sensitivity, selectivity, frequency response, channel separation, distortion, and noise.

Sensitivity is the radio-frequency (RF) signal strength required at the antenna input to obtain a listenably quiet audio output. For most people, the most important sensitivity spec is the one for 50-dB quieting in stereo:

the signal strength necessary to obtain a 50-dB S/N in stereo reception. Figures of 36 to 40 dBf are both good and typical; lower than 36 dBf is extraordinary performance. In mono, you should expect ratings of around 13 to 17 dBf. Some manufacturers give an older, less stringent specification known as "usable sensitivity," which might more appropriately be called "unusable sensitivity." This rating should not be confused with a specification based on 50-dB quieting.

Selectivity is a tuner's ability to reject signals on nearby channels. In the United States, FM channels are 200 kHz (0.2 MHz) wide, and to minimize interference the FCC arranges channel allocations so that local stations in any given area are separated by at least one empty channel. Consequently, the specification that is usually quoted is for alternate-channel selectivity. In most cases, a rating of 40 to 50 dB is quite adequate.

ADJACENT-CHANNEL selectivity—the ability to discriminate against signals only one channel away from the tuned frequency—is normally much poorer (typically less than 10 dB), which is one reason manufacturers seldom quote it. But adjacent-channel selectivity is seldom important unless you are using a high-gain antenna to try to pick up a distant station in the same direction as a closer one only one FM channel away. In that case, an IF-bandwidth switch may be useful. When set to its "narrow" position, such a switch engages sharper intermediate-frequency (IF) filters that increase selectivity at the expense of greater distortion and poorer channel separation in the audio output.

Audio (as opposed to RF) channel separation is the amount by which a signal that is supposed to appear in one channel is attenuated in the other. Separation of 20 to 30 dB through the middle of the audio band is completely adequate for good stereo effect, and the tuner sections of modern receivers routinely exceed that. FM stations are not permitted to broadcast audio frequencies above 15,000 Hz, and FM tuners normally roll off their response sharply above that frequency to remove the 19,000-Hz stereo pilot tone from the output. (The pilot tone should be attenuated at least 40 or 50 dB.) The response should be reasonably flat from 30 to 15,000 Hz, however—within ± 0.5 or less over most of that range and rolled off by no more

MAKING THE

S

CONNECTION

The introduction of Super VHS brought with it a new type of multipin video connector, called S-video or Y/C. Although the connector itself was a good idea that has since spread to Hi8 decks and camcorders, its debut in tandem with S-VHS may not have been, since it has led to some great misconceptions. Most important among these is the completely erroneous notion that VCR's equipped with S connectors cannot be used except with similarly equipped monitors. In fact, all VCR's with S connectors also have the usual complement of composite-video and RF inputs and outputs and will perform very nearly as well with those as they will with the S-video inputs and outputs.

The other important misunderstanding is in the idea that the performance improvements associated with S-VHS are somehow tied to the S-video connectors. In truth, S-VHS's single benefit—higher resolution—has to do only with the bandwidth of the signal recorded on the tape, which the S connector doesn't affect at all. The single benefit of the S connector, on the other hand, is equally applicable to all consumer VCR formats, "super" or otherwise.

To understand what this is all about, we have to know a little about how a VCR works. When color was added to television, it was done by putting the necessary information on a subcarrier plopped into the high-frequency end of the luminance (black-and-white) signal. Black-and-white receivers ignore this color (C) subchannel, but color sets extract the information it carries and use it together with the luminance (Y) information in the baseband signal to control the intensities of the beams from the three electron guns (for the red, green, and blue primary colors) in the picture tube. Performing this separation is not easy, however, and it almost inevitably results in either a loss of resolution or the creation of small, distracting artifacts, such as the "hanging dots" that you may notice

from time to time crawling along sharp horizontal transitions between areas of color.

Professional videotape recorders and laserdiscs record the composite video signal (Y + C, or luminance plus color) directly, but when home VCR's were developed, bandwidth and other limitations forced a different approach, known as "color-under" recording. The color information is separated from the luminance signal and transposed down to a range of frequencies below those used for recording the luminance. This degrades the resolution somewhat, but it's better than going without color.

When a videocassette is played back, the VCR normally recombines the color and luminance information into a composite-video signal that then goes to the monitor via a direct-video connection or gets modulated onto an RF carrier with the audio and sent to the monitor via its antenna terminals. Either way, the monitor has to recombine the color and luminance portions of the video signal. All an S-video connector does is to short-circuit this process, keeping the luminance and color portions of the signal separate so that they don't have to be combined and pulled apart again. In most cases, this will yield a slightly cleaner picture, but the benefit is likely to be marginal, at best, unless the recorded color and luminance signals have always been separate, never tangled together in a composite-video signal. Camcorder recordings fall into this category, but that's about all.

So why do some laserdisc players, which start with a composite-video signal, have S-video outputs? To prevent consumers from thinking that they lack a performance feature available on S-VHS and Hi8 VCR's. The only way a Y/C output can do any good on a laserdisc player is if its color-separation circuitry happens to be better than that in your monitor, which is possible but not likely.



In addition to Dolby Pro Logic, the Pioneer VSX-D901S (\$1,140) has a digital signal processing circuit that can recreate the ambience of five different listening environments.



Carver's HR-895 (\$1,200), its first A/V receiver, features four surround modes, including Pro Logic, and the company's ACCD circuitry for improved FM reception.



Onkyo's seven-channel TX-SV909PRO (\$1,800) features fully digital Dolby Pro Logic circuitry as well as DSP ambience enhancement and decoding for Ambisonic music recordings.

than a decibel or two at 15,000 Hz.

The amount of distortion produced by an FM tuner is influenced by many factors, but under good reception conditions it can be quite low. Look for figures of 0.5 percent or less at 1,000 Hz in the wide IF mode. Noise can also be very low with adequate signal strength. You should expect S/N's of at least 65 dB in stereo and 70 dB or better in mono.

Perhaps the most common form of interference in FM reception is caused by multipath, when the tuned signal and reflections of it (off buildings, hills, and so forth) arrive at the antenna at slightly different times. In bad cases, multipath can cause severe distortion. Assessing a tuner's resistance to multipath can be tricky, but there are two specifications that bear on it: capture ratio and AM suppression.

Capture ratio expresses the smallest difference in signal strength that will enable a tuner to ignore the weaker of two signals at the same broadcast frequency. At worst, it should be about 2 dB, and 1 dB is excellent. The AM-suppression specification indicates an FM tuner's ability to reject amplitude-modulated interference, such as from car ignitions, fluorescent lights, and so forth, which can also be generated by multipath. A rating of 40 dB is about the minimum for good performance, and 60 dB is excellent.

Many receivers include switchable or automatic high-blend circuits that reduce stereo separation at high frequencies to reduce noise on weak stereo signals without taking the sound all the way to mono. Some even select appropriate IF bandwidth and other reception characteristics automatically according to signal conditions or the programming of the memory preset for a given station. Such features can be quite useful if you live in a difficult reception area.

Although most receivers include an AM tuner, it is almost always of relatively low quality, with severely limited response and mediocre sensitivity. The National Association of Broadcasters (NAB) has been vigorously promoting improved AM performance with its AMAX program, but until tuner and receiver buyers start demanding better AM sound, manufacturers are not likely to respond.

The Surround Processor

The most prominent feature of an A/V receiver is its built-in surround-sound processor. This can be either a basic Dolby Surround decoder or a more advanced Dolby Pro Logic cir-

cuit, both of which are designed to extract the additional directional information embedded in a Dolby Surround soundtrack. Through a process known as matrix encoding, Dolby Surround packs four channels of information—front left, right, and center and rear surround—into a standard two-channel stereo soundtrack. Although such a soundtrack can be played back as ordinary stereo, it blooms to its full glory only when properly dematrixed into four channels.

Basic Dolby Surround processors extract the surround channel with a simple passive circuit, send it through a Dolby B noise-reduction chip, and delay it by up to 30 milliseconds before sending it out to amplifiers feeding one or more (usually two) speakers at the sides or back of the room. The center-channel information is not extracted and is reproduced equally by the left and right front speakers. Dolby Surround decoding greatly improves the sense of space in the reproduction of Dolby Surround soundtracks, but separation between the front and rear channels is low, and you get no dedicated center channel to help anchor action and dialogue to the screen.

DOLBY Pro Logic improves on Dolby Surround decoding by extracting the center channel to feed a dedicated speaker and by using what is known as steering logic to enhance the apparent separation between front and back and between the center, left, and right in front. The result is significantly more vivid and accurate reproduction. Pro Logic used to be confined to high-end A/V receivers, but it has now worked its way down to moderate-price models, with basic Dolby Surround decoding restricted mainly to budget units. The benefits of Pro Logic are great enough, and the prices low enough, that you should consider a receiver with just basic Dolby Surround decoding only if you are on a tight budget.

Although Pro Logic receivers provide a center-channel output, which you should use if you can, they can also be set to a phantom center-channel mode for installations in which a center speaker is impractical. This mode leaves the center-channel information split between the left and right front channels. Pro Logic also gives you two options for when you do use a center channel: wide and normal. Wide mode sends a full-range signal to the center speaker, whereas normal splits the bass below about 100 Hz

between the left and right front speakers to enable the use of a small center speaker without running into power-handling or bass-response limitations.

Almost all surround-sound receivers provide some sort of processing designed to enhance music reproduction. It can range from simple passive ambience extraction or delay to full-blown ambience synthesis by means of digital signal processing (DSP) to mimic the acoustics of various types of performance spaces. The quality of these systems varies considerably, even among the high-end DSP-based ones. The best can make music sound fuller and more realistic, but quite a few really aren't very effective. Unfortunately, there is no good way to judge them except by listening, which is often difficult in stores, so read reviews carefully and consult with anyone you know who has had extensive experience with any of the receivers you are considering.

Lately there has been a trend toward using DSP circuits to "enhance" the output from a Dolby Pro Logic decoder. Manufacturers tend to give these modes names including words like "theater" or "cinema" to suggest that they give a more realistic impression of being at the movies. Usually they try to create a dramatic effect by simulating the acoustics of a large movie theater, often submerging the effects film-sound engineers carefully build into their Dolby Surround mixes. The point of Dolby Surround is to make you feel as though you are in the space in which the action is taking place on the screen. If a character is talking outdoors in a field, it's silly to make him sound as though he were speaking in a large reverberant room. The only post-processing system for Dolby Pro Logic we've encountered that makes much sense is Home THX. Fortunately, Dolby insists that all these systems be defeatable.

More Speakers, More Amps

Because Dolby Surround requires the use of at least three and usually four or five loudspeakers, A/V surround receivers normally provide four or five channels of amplification. If you are going with basic Dolby Surround decoding or are planning to use Pro Logic in phantom mode, a four-channel receiver will do fine. And the four-channel Pro Logic receivers on the market have center-channel line outputs so that you can add a separate center amplifier later. In most cases, however, you will probably be better off going for a five-channel receiver.

SHOULD YOU BUY SEPARATES INSTEAD?

The receiver's biggest advantage has always been its biggest drawback as well: A lot of stuff is packed into one box. Although cost-effective, the all-in-one approach limits flexibility and makes upgrading harder. And sometimes there are performance considerations. The very best surround processors are still high-end outboard units, for example, and you can get more power with separate amplifiers.

The key to an audio/video system built around separate components is an A/V preamplifier. Although the selection is limited, it is growing. A/V preamplifiers divide into two groups: those with built-in surround processors and those without. In the former category are products such as the Sony TA-E2000ESD (\$1,200), the Denon AVP-5000 (\$2,500), and the Marantz AV-500 (\$899); in the latter are all four of Yamaha's preamps, ranging from the CX-630 (\$449) to the CX-2000 (\$1,499), the Pioneer C-72 (\$850) and C-91 (\$1,300), the Museatech Melior A/V preamplifier (\$2,200), the Soundstream C-1 Mk. II (\$1,495), and others. And a number of companies, including Forté, Adcom, B&K Components, SSI, a/d/s/, Marantz, and Yamaha, have introduced multichannel power amplifiers for surround applications.

So the situation with audio/video systems is essentially the same as the one that has prevailed for years in straight audio systems. If you are willing to pay somewhat more for the ultimate in performance and flexibility, go with separates. If you're more concerned with convenience and economy, go with a receiver. And don't feel bad about it—you're not giving up a lot.



The Philips FR 940 (\$480) is a Dolby Pro Logic receiver with discrete-transistor amplifiers and digital CD and tape connections.



Kenwood's KR-V8540 (\$699) Dolby Pro Logic receiver can deliver up to 75 watts to the left, center, and right front channels and 15 watts to the rear.

If you do opt for a five-channel model, keep in mind the most-ignored rule of surround sound: Assuming equal sensitivities for the three front speakers, the center speaker should get at least as much power as the left and right speakers. That's because the center channel is usually the *main* channel in a Dolby Surround mix. Often called the dialogue channel, because it carries nearly all the dialogue in most movies, the center channel also delivers music and effects. Don't skimp on it unless you have to.

The problem is that many surround receivers do skimp on power for the center speaker, especially low-price Pro Logic models. It's not the end of the world if you're on a budget that forces you into a receiver with a lower-powered center channel—it's just not ideal. And using normal mode instead of wide will reduce the center-channel burden somewhat. Fortunately, you don't need as much power for the surround speakers. A quarter to a third of the power devoted to the front speakers will usually do fine.

In addition to their speaker outputs,

many A/V receivers have line-level outputs for feeding a powered subwoofer, and some have preamp-out and main-amp-in jacks for some or all of the amplifier channels, which can provide a better way of hooking in a powered subwoofer or an easy way to upgrade to higher-power amplifiers later on. And, like any other receiver, an A/V model will have inputs for all the source components you would normally expect to use. The difference, however, is that an A/V receiver will also have video inputs for videodisc players and VCR's and video outputs for a monitor and VCR's. That facilitates copying video sources to videocassette and simplifies normal operation, since when you select VCR 1 as your source, for example, the receiver will send the attached VCR's audio output to the speakers and its video output to your monitor. Many A/V receivers have an extra set of audio and video inputs on the front panel to make temporary hookups easy.

Standard video connections carry composite-video signals via RCA-type phono jacks. Some receivers also pro-

vide S-video jacks for those who have equipment that can take advantage of them. There's no reason to be very concerned about the absence of S-video jacks, however, since the advantage of S-video connections is usually very small, when it exists at all (see "Making the S Connection," page 47). The main thing is to make sure the receiver has inputs and outputs available for all the gear you plan to attach to it.

Ease of Use

Before you buy any A/V receiver, make sure that it's not going to drive you crazy. Even relatively basic models are more complicated than most ordinary receivers, and high-end units tend to be exceedingly complex. This complexity puts a premium on human engineering, or ergonomics, as it is called. Badly thought-out switching or a clumsy remote with zillions of identical buttons can make trying to run one of these big receivers a nightmare. Good design, on the other hand, can make learning to use the receiver fairly easy and operating it almost second nature after a while.

Begin by checking the front panel. Controls should be grouped logically and be clearly labeled, and the display should be large, easy to read, and as uncluttered as possible while still providing the information you need. (Many A/V receivers can now display operational menus and other information on the video monitor connected to the system, which can be a big help if carried off well.) Some receivers place secondary controls behind a door to make the primary controls easier to find. Check all the controls for a smooth, positive feel to their action.

Next, look at the remote control. A good remote will group buttons according to function and differentiate them by size, shape, and position, as well as color, so that you can find the important ones by feel. Some remotes also hide seldom-used controls under a flap or door to make using the main ones easier. And try operating the receiver from various angles off to the side to make sure you won't have to plant yourself right in front of it to get the remote to work.

Finally, check the manual. Clear, comprehensive instructions can be a lifesaver with a component as complicated as a high-end A/V receiver.

Finding the right A/V receiver is more work than shopping for almost any other kind of audio or video component. Fortunately, the end result is well worth the effort. □

POWER

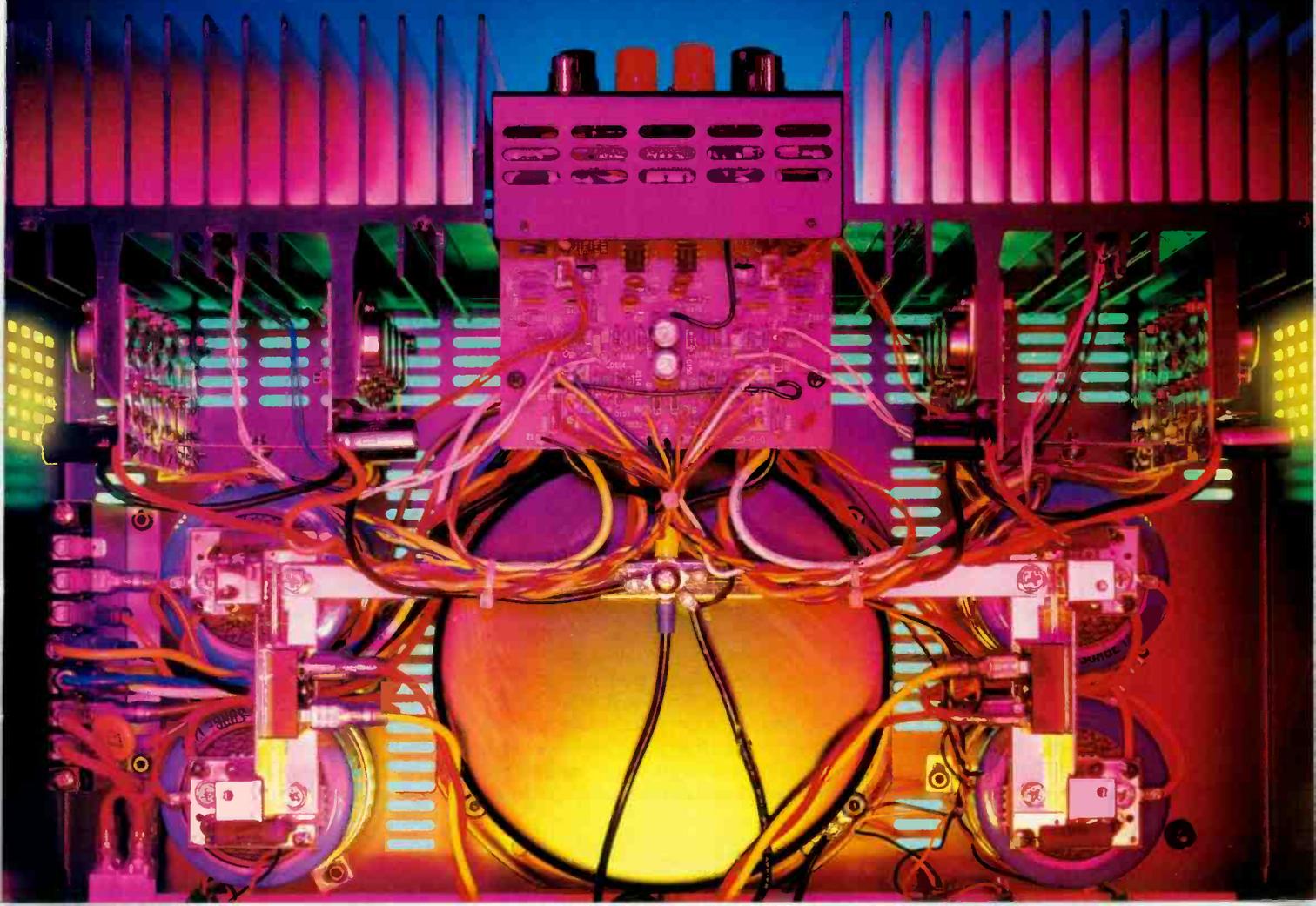
HOW MUCH IS ENOUGH?

ASKING "How much amplifier power do I need?" is like asking "How much money is enough?" Without information about your particular desires, tastes, and circumstances, the only honest answer is, "It depends." Given such information, however, it is possible to establish, within broad limits, how much amplifier power capacity is suitable for a given home audio installation.

PHOTO BY DAN WAGNER

Notice that I say "suitable" rather than "necessary." A number of factors influence the power requirements of a music system, including the listening room's size, shape, and acoustic treatment; the placement and acoustic properties (upholstered or hard-surfaced)

B Y J U L I A N H I R S C H



Adcom's GFA-565 mono power amplifier (\$850) is designed to put out up to 300 watts into 8 ohms, 450 watts into 4 ohms, and 850 watts into 2 ohms.



Carver's TFM-45 (\$950), featuring the company's Magnetic Field design, delivers 1,000 watts in its mono mode. In stereo, it can deliver 375 watts per channel into 8 ohms, yet it weighs only 20 pounds.

The Hafler Model 9270 stereo power amplifier (\$750) can provide 135 watts per channel into 8 ohms or 200 watts into 4 ohms through its MOSFET output stages. In mono mode it's rated at 400 watts into 8 ohms.



of the room's furnishings; the sensitivity and directional characteristics of the loudspeakers; listening tastes (chamber music and hard rock, to take extreme examples, require very different playback systems for the most effective results); and last, but not least, the preferred listening level. The more exactly these variables are known, the more accurately one can estimate the power needed.

Regardless of the dictates of other criteria, the nature of human hearing, which registers increasing loudness on a logarithmic scale, makes how powerful an amplifier you choose less critical than you might think. For a barely noticeable increase in volume level, amplifier power must be *doubled*, and to double the apparent loudness, the power must be increased *tenfold*.

Small power differences between amplifiers are audibly insignificant. Even the difference between 50- and 100-watt amplifiers, all else being equal, would not be detectable by a listener until the lower-powered unit reached its limits, which would result in audible distortion (and might damage the speakers).

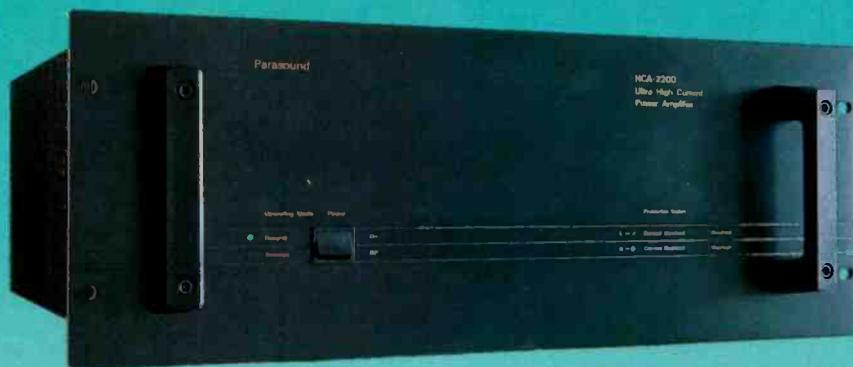
What's Your Room Like?

Let's look first at the relationship between room size and power requirements. In most rooms, sound reaches the listener's ears by a number of paths, some directly from the speakers to the listener, but most after reflection from one or more room boundaries (walls, floors, or ceiling). The direct (first-arrival) sound establishes the spatial and directional qualities of

a stereo program, while the reverberant (reflected) sound fills in its body and is responsible for much of the apparent total volume.

In a bare-floor, sparsely furnished room with few upholstered surfaces, there is less absorption of the reverberant sound energy, resulting in a louder sound at the listener's ears, for the same amount of amplifier power, than there would be in a carpeted and well-upholstered room. The sound quality itself would also be very different, one extreme being a bright, hard, and unpleasant sound, the other dull and lifeless. Generating sounds of identical loudness in listening rooms whose acoustic properties vary so widely can require considerably different amounts of electrical power from an amplifier.

NAD's 2400THX (\$599) is a rack-mountable, bridgable 100-watt-per-channel stereo power amplifier certified for a Home THX surround-sound system.



Parasound's high-current HCA-2200 (\$1,475) has a 1,000-volt transformer. It can deliver 200 watts per channel in stereo or 500 watts in bridged mono.

Yamaha's DSP-A700 (\$1,099) is a seven-channel integrated amplifier with Dolby Pro Logic. It delivers up to 60 watts to each of the three front channels.



How Sensitive Are Your Speakers?

Another major variable is the sensitivity of the speakers, a measure of how efficiently they use amplifier power. A speaker's sensitivity is defined as the sound-pressure level (SPL) it can generate at a distance of 1 meter with an input of 2.83 volts (equivalent to 1 watt into 8 ohms). Sensitivity has no bearing on a speaker's sound quality, but it does give a reasonable indication of the relative amount of power it will require to deliver a given listening level.

Most home hi-fi speakers have sensitivity ratings between 87 and 90 dB. A speaker whose sensitivity is rated at 87 dB requires twice as much power, for a given listening level, as one rated at 90 dB. Since doubling (or halving)

the power makes only a slight change in the perceived loudness of the program, a small adjustment of the volume control will usually compensate for this difference. Of course, sooner or later any amplifier can run out of power. With hi-fi speaker sensitivities ranging between 80 and 100 dB (corresponding to a hundredfold power ratio), sensitivity is clearly one of the key factors determining your amplifier power needs. But it is still not practical to predict, solely on the basis of speaker sensitivity and the acoustic environment, how many watts you should have on tap.

Can You Have Too Much Power?

Power (expressed in watts) is defined as the *rate of doing work*. In the

case of an audio amplifier driving a loudspeaker, the power causes a speaker diaphragm to move in and out, creating an air-pressure wave analogous to the original acoustic wave that was captured in the recording process. The efficiency of any speaker in converting electrical energy to acoustic energy is quite low, usually in the range of 1 to 3 percent. Almost all of the electrical power from the amplifier is converted to heat in the resistance of the speaker's voice coils and the associated wiring.

If an amplifier delivers more than a few watts to a speaker for a significant length of time, the driver voice coils can become quite hot. Tweeter voice coils are particularly susceptible to burnout because of their fine wire, low mass, and narrow range of movement.

which limits their ability to transfer the heat to the air or other heat sinks such as the speaker's frame or magnet structure. Almost any tweeter can be burned out in a second or so if it is driven with more than a few watts of continuous or average power. Even with materials such as ferrofluid in the gap between voice coil and magnet to improve heat transfer, a tweeter is still a vulnerable component.

Woofers are at risk in a different respect. Their cones and voice coils move over relatively large distances at low audio frequencies, and they are much more massive than those of a tweeter. These characteristics help limit the voice-coil temperature rise, and burnout of woofer voice coils in a home system is rare. Grossly excessive low-frequency drive can damage woofer cones or suspensions, however, or char the insulation of the voice-coil winding.

What does all this have to do with amplifier power ratings? You have probably noticed that amplifiers are usually rated in terms of both *continuous* and *dynamic* power output. Continuous power is the average of the program power over a period of several minutes or longer. Continuous power is what can overheat a speaker (or amplifier, for that matter), if it is carried to excess. Dynamic, or peak-level, power is far less hazardous. The waveform of most musical sounds is highly irregular. While an audio signal may contain many peaks that far exceed the average level, these peaks usually last for such short times (milliseconds or less) that they pose no threat to a delicate speaker voice coil, even if the momentary power level needed to reproduce them reaches tens or hundreds of watts.

The phenomenon known as clipping—referring to the truncated shape of the signal waveform that results from it—occurs when signal peaks exceed an amplifier's power capability. The audible effect is a harsh sound that is extremely bothersome to some listeners yet, depending on its severity, often goes undetected by others.

But apart from its audibility, clipping distortion can have a more serious effect. As the waveform becomes truncated by heavy clipping, its *average* power level increases greatly, which increases voice-coil temperature. Most speaker manufacturers warn against attempting to drive their speakers to very high levels using very *low*-power amplifiers, which could be heavily clipped, because the tweeter voice coils could burn out.

POWERING UP FOR SURROUND SOUND

ALTHOUGH there are many attractions to setting up a home theater system, simplicity is not one of them. Almost everything is at least a little more complicated than in an ordinary stereo system, including the question of how much power you need. One reasonable and fairly straightforward approach is to base your calculation on how much you estimate you will need for two-channel stereo.

If you have a basic Dolby Surround decoder or will be running a Dolby Pro Logic decoder in phantom-center mode (no center speaker), figure that you'll need the same amount of power as for two-channel stereo in the front and about a quarter to a third as much for the surround-speaker outputs. If you will be using a Pro Logic decoder with a center speaker, a good assumption is that you'll need the same total amount of power across the three front speakers as you would need driving the left and right front speakers in plain stereo, preferably divided equally among them. In other words, if you think you need at least 60 watts each into two speakers, figure on at least 40 watts each into three. (Some audio/video amplifiers and receivers do split up the power allocation to the front channels differently depending on which mode they are set to.) Power to the back should total about a quarter to a third of the total to the front, which in this example would amount to between 15 and 20 watts to each of the surround speakers. —Michael Riggs

It may seem paradoxical that *too little* amplifier power can be dangerous to speakers. Nevertheless, it is true, and that is one argument for having a considerable reserve of *undistorted* amplifier power.

What Do You Listen To?

We're now a lot closer to being able to answer the question of how much amplifier power you should have. Your own listening habits probably have more to do with the answer than the characteristics of your equipment. If you usually listen to light orchestral music or chamber music, at a moderate level, in a normally furnished, medium-size room, and your speakers have an average sensitivity rating (such as 89 dB), you might be able to enjoy your system with an amplifier rated at only 20 watts per channel. If you use a 100-watt amplifier instead, under the same listening conditions, it will probably sound much like that 20-

watt amplifier most of the time, as both will tend to operate at an average output of a watt or two. The difference is that the larger amp will also be able to cope with peaks approaching 20 dB above that average level without clipping or distorting audibly.

If you occasionally listen to large-scale orchestral music at a moderately high level, you'll *need* the power reserves of that 100-watt amplifier. The average power might rise to 5 watts or more, with peaks regularly reaching well *over* 100 watts. If that sounds unlikely, let me assure you that I have often listened to CD's of orchestral music whose average level did not exceed 5 watts but whose peaks approached 500 watts. And this was at volume levels that did not preclude conversation in the room.

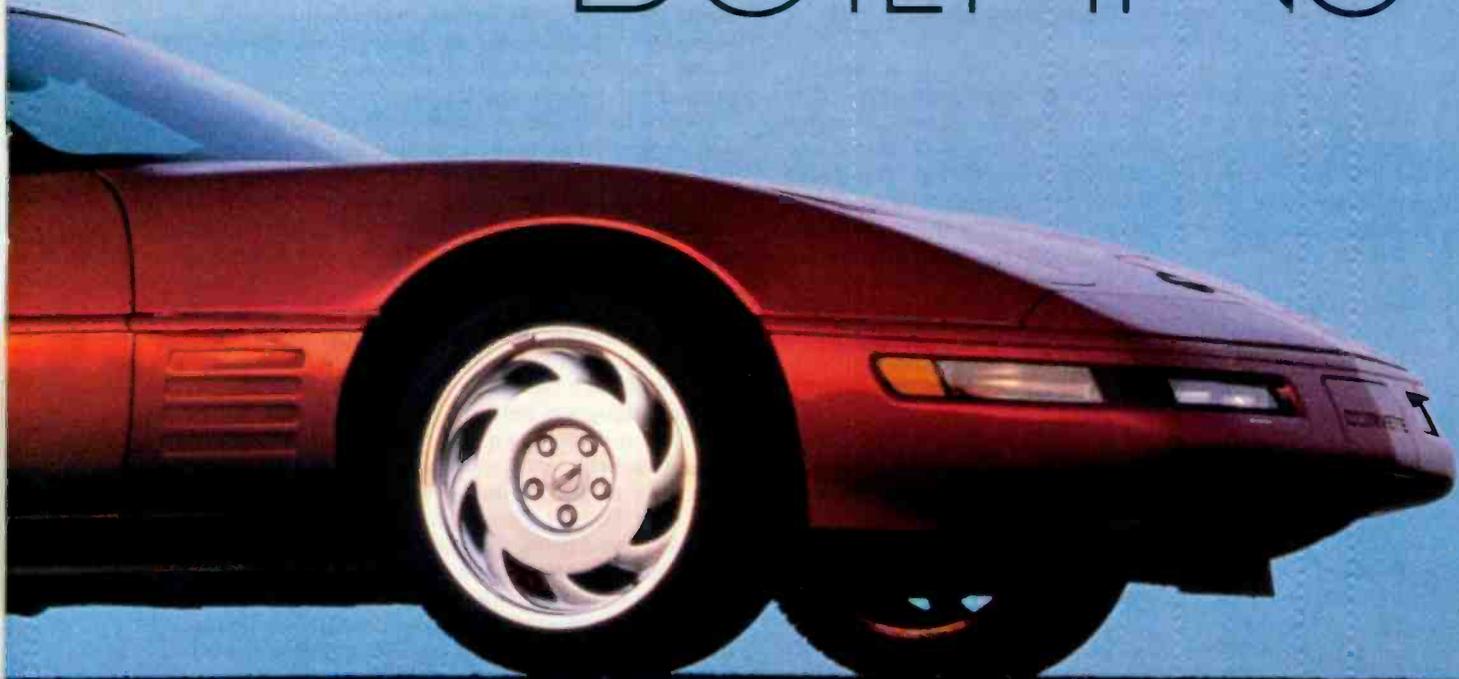
Does this mean that you should buy all the power you can afford? It can't hurt, but it's not really essential. For one thing, it is the *average* power that determines the apparent volume of a program, and that rarely has to exceed a few watts in a normal home environment. The ability of most amplifiers to deliver peak power levels considerably higher than their long-term average output for short periods makes it possible to achieve satisfying listening results from a home system without a very expensive amplifier.

Power Isn't Everything

There is more to an amplifier than sheer power, and it is usually true that higher-price amplifiers bring the buyer more than mere wattage. Better power bandwidth and stability, reliability, control features, and styling are factors that, combined with higher power ratings, can make it advisable to buy an amplifier that is as good as you can fit into your budget. While you might not *need* more than 20 or 30 watts, it may well be that a 50-, 80-, or 100-watt amplifier will still fit your budget.

Of course, if your amplifier doesn't have enough power to achieve lifelike sound levels in your listening room, you can always turn down the volume a bit to fit the music's dynamics into the range it *can* comfortably supply. But remember that you can have more power in reserve without *having* to use it. It is analogous to a car's horsepower: Your car might be rated for 300 horsepower and a top speed of 150 mph, but it needs only 20 or 30 horsepower to get you where you want to go at safe and legal speeds. You may never use the full power of your car or your amplifier, but you *could* if you wanted or needed to. □

THE BEST OF THE BUILT-INS



**Auto makers are joining forces with
audio manufacturers to build hot
sound systems into their hottest cars.**

BY KEN C. POHLMANN

It is night, very late—well past midnight. You are somewhere in Colorado, or possibly Wyoming. The V-8, thirty-two-valve, 4.0-liter aluminum engine in your Lexus SC400 sports coupe is pumping out a very substantial portion of its 250-horsepower capacity. The double-wishbone suspension and the antilock, four-wheel, ventilated-disc brakes handle every challenge the road

throws at you while the 225/55R 16 V-rated tires hug both the ten-spoke alloy wheels and the winding pavement. Buying the car this afternoon was the best money you ever spent. Best of all was your decision to spend a little more for the premium Nakamichi sound system. The flamethrower headlights illuminate the mountains rising ahead to meet you as the music soars still higher.

There is something about cars. And there's something about listening to music. When you put a fine car and fine music together just right, you can attain something approaching the Western equivalent of nirvana. To achieve this, today's super cars combine the most advanced theory and technology from fields as diverse as aerodynamics, digital signal processing, computer monitoring and control, engine building, body design, robotic manufacturing, and, of course, audio engineering.

Many factory-installed car sound systems are as carefully conceived and engineered as the cars themselves. The process of designing a sound system for a new car begins with market research, analysis of competitors' sound systems, and discussions with owners of existing cars. Audio planners must be long-horizon thinkers, because many design choices must be made years before the car is introduced, and once manufactured the car must perform for years to come. Because both auto and audio technologies are fast-moving, this planning is ticklishly difficult, especially when "aftermarket" (add-on) manufacturers can bring new technology to consumers in a fraction of the time.

BUT a car maker's audio planner has one important advantage over his aftermarket competition. He can specifically tailor the sound system for both the car and the listening tastes of the likely buyer. For example, the interiors of a Suzuki Samurai and a Lincoln Town Car demand very different sound systems. The audio planner can optimize the sound system's equalization and speaker placement according to the passenger compartment's size, shape, and furnishings. In addition, electrical interference, antenna placement, ambient noise, and other concerns can all be specifically addressed. In some cases, the car design itself is altered to accommodate the sound system. For example, while the 1992 Toyota Celica was still in prototype form, its rear suspension was modified to permit optimal placement of back speakers. This kind of no-compromise approach to factory audio has gained it unprecedented respect from car buyers.

Of course, cooperation between audio engineers and the other design teams is crucial for a car's overall success. Virtually every aspect of a car's interior design will affect sound quality. A door panel's design may dictate the type of loudspeaker enclosure, for instance. The Celica engineers

**Cooperation between
design teams is
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added airtight seals to the windows in the 1992 model's front door panels so that the enclosed volume itself could act as a 35-liter loudspeaker enclosure—a perfect match for the door-mounted 8-inch woofers in the premium System 10.

The audio designer must be firmly in the car's design loop to achieve such accommodations, for the process is far from linear. Changes made by other design teams continually affect the audio design. For example, a change in upholstery may require retuning the system's high-frequency equalization. More substantial changes can spell trouble. A proposal to relocate a window motor or a wiring harness, say, could generate much debate about whether to alter a loudspeaker's behind-panel depth.

The competition for dashboard space is particularly keen. Nobody wants the radio at the bottom of the dash, but then no one wants the climate controls there either. Integrating the sound-system controls into limited dash space is a particular forte of car makers, and the human engineering (ergonomics) of factory systems, particularly in terms of safe operation while driving, tends to be distinctly better than that of most aftermarket systems. The controls of factory-installed systems are usually large and easy to read, and the head units are styled to match the interiors. Even trunk-mounted components such as subwoofers and CD changers are placed as unobtrusively as possible. Hard-core audiophiles may go to extremes, like replacing the spare tire with amplifiers and filling the trunk with so much other equipment that it can barely hold a loaf of bread, but car makers must avoid such sacrifices.

Audio designers perform extensive testing on prototype cars, measuring audio quality and performing critical listening tests with experts as well as panels of ordinary people. A battery of analytical tests—TEF (time-energy-frequency), FFT (fast Fourier transform), MLSSA (maximum-length-sequence system analysis), and others—are used to create a data base. Time becomes a major factor: Prototype cars are shuttled around the world in carefully guarded shipments in order to test everything from air conditioners (in Australia) to heaters (in Alaska). The audio designer may have only a few precious days in between to make critical evaluations.

As the prototype cycle nears completion, a multitude of final decisions must be made about the design of electronic components, the magnet weight, cone material, angling, crossover frequencies, wiring harnesses, and grilles for the speakers, and even the kind of type used for labeling the front-panel controls. In the end, the final specifications are determined and the car goes into production.

Even after a car is in production, however, the audio design process continues. Cars are taken off the production line and tested and auditioned. Running changes can be made to fix mistakes or to improve system performance. In addition, the audio planner begins collecting responses from car owners regarding what they like and dislike about the sound system. The customer's satisfaction with his car's sound system is very important to auto manufacturers. For example, the J. D. Powers customer survey, a benchmark used to evaluate the quality of new cars, has only one

Ford/JBL System in the Mercury Sable



THE aerodynamic styling of the Ford Taurus and Mercury Sable revolutionized mid-size cars when they were introduced in 1985. Since then, these sister cars have undergone only gradual evolution, with the 1992 models showing the greatest change. Among the most prominent improvements are new, expanded offerings of audio systems, including a new digital ambience processor. To evaluate the performance of Ford's top-drawer audio systems, I spent two weeks behind the wheel of a spanking new, steel-gray Sable equipped with Ford's High-Level Audio System, including a cassette tuner with the CD-player option, the Ford/JBL amplifier/speaker system, and the ambience-processor option.

The cassette tuner and CD player, located in the center of the dashboard, are separate but matching head units. An **AUDIO** button lets you sequence through volume, bass, treble, left/right balance, and front/back fade controls, all of which are adjusted with the same rocker switch. Volume is automatically reset to a lower level after the ignition is turned off, an ear-saver if you have kids in the family or use valet parking.

In addition to standard features, the tuner offers automatic memory store so you can program the eighteen presets (twelve FM and six AM) with the strongest local stations. Other conveniences include a DNR (Dynamic Noise Reduction) circuit, which automatically monitors the tuner's signal content and varies the audio bandwidth for optimal reproduction with minimal noise or interference. To reduce nighttime "skip" interference in the AM band, the tuner automatically switches from distant to local sensitivity at night. How does the tuner know it's nighttime? Easy. It's connected to the car's headlight switch.

The autoreverse cassette player includes Dolby B, automatic equalization switching for normal or high-bias tape, and power loading and eject. Automatic music search lets you locate the next selection on a cassette, in either direction, and automatic scan lets you sample all tape selections in sequence (in tuner mode the same function lets you sample preset stations). The transport momentarily goes into fast-wind mode before playing a cassette to tighten the tape wrap for better playback.

The CD player preempts the cassette player and tuner when a disc is inserted. In addition to standard transport controls, it has a scan function to audition each track, random-order track playback, and a switchable compression circuit to reduce the music's dynamic range. It can also control a trunk-mounted ten-disc CD changer, installed as a dealer option.

The digital ambience processor is also a dealer-installed option. The circuitry is hidden away in a remote chassis, and a wired keypad attaches to the dash with Velcro. It provides six ambience modes: Concert Hall, Orchestra Hall, Opera House, Church, Night Club, and Stadium. A seating-location rocker switch lets you increase or decrease the processing, effectively moving your aural perspective between the front and

rear seats in the simulated location. In addition, there is a **TALK** setting that disables the ambience effect and attenuates the high and low frequencies to increase the intelligibility of radio talk programs or spoken-word tapes.

The optional Ford/JBL Audio System, available only in cars with the High-Level Audio System head units, includes seven loudspeakers placed in five locations: 5¼-inch coaxial speakers mounted in the front doors and 5½ x 7½-inch speakers and a 7-inch woofer in the rear package tray. The woofer is mounted in a 10-liter enclosure. The six other speakers are powered by a 60-watt, four-channel amplifier, the woofer by an 85-watt mono amp.

The ergonomic design of the head units is very good. The buttons are larger than they were in previous models, and there are fewer of them, but they provide a greater number of functions. In addition, all the buttons are back-lit for good visibility at night. Operation is further expedited by duplicate controls for volume, auto-seek tuning, and tuner-preset selection placed high on the dashboard, beside the car's instrument cluster. Being able to control these functions without taking your eyes off the road is a great feature.

Radio reception was quite good. The tuner reliably pulled in distant stations and minimized multipath distortion even amidst downtown skyscrapers. The DNR circuit was especially adept at suppressing noise. The cassette player was among the best car decks, factory-installed or aftermarket, I have ever tested. Its transport was smooth, its features worked flawlessly, and its sound quality was outstanding. The same can be said for the CD player. It was a champion both in terms of sound

quality and tracking ability, shrugging off the effects of the roughest roads. The CD compression circuit was also excellent—it was especially handy when the sunroof was open and ambient noise levels increased.

The ambience processor was the most impressive part of the system. I have heard many such processors, with effects ranging from the handsome to the downright ugly, and this one was a beauty. Each ambience mode was strikingly distinctive, and the seating-position control lets you tailor each simulated listening space to fit your taste. Most important, the processed sound itself was very good, without any audible degradation of the original music signal from the CD. My only peeve was a 1-second mute while it was switching between ambience modes. Quibbles aside, any music lover should audition this excellent digital ambience system, and any opera lover who listens to Saturday broadcasts from the Metropolitan Opera *must*—no excuses—*must* have this processor.

Finally, the system's overall sound quality was excellent. High and middle frequencies, in particular, were reproduced smoothly, with good imaging. The low bass was nicely balanced for classical music, but it didn't have enough punch for hard rock and rap. (Given the demographics of the Sable buyers, I suspect the Ford engineers intentionally tuned it that way.) But don't think this system can't crank it out—the sound held together remarkably well even at very high volumes.

Ford advertisements ask, "Have you driven a Ford lately?" After thoroughly enjoying the Ford audio system in the 1992 Sable, I strongly urge audiophiles to ask themselves, "Have you listened to a Ford lately?" —Ken C. Pohlmann



The complexity of
the process has
prompted alliances
between auto and
audio makers.

question apiece for many nonaudio features but no fewer than four separate questions about sound-system quality. Customer-satisfaction data are also important in planning improvements for sound systems in future cars.

The complexity of the design process, combined with the growing sophistication of car sound systems themselves, has prompted most car manufacturers to form partnerships with major audio companies. By tapping into their expertise, and their state-of-the-art audio components, car makers can offer the very best to their customers.

This idea originated with Bose, which formed the first such team with General Motors in the early Eighties. Since then, Alpine, Blaupunkt, Eclipse, Fujitsu Ten, Infinity, JBL, Jensen, Nakamichi, Panasonic, Pioneer, and Sony have joined forces with various car makers. Examples of excellence in factory-installed premium sound systems are as near as your nearest car showroom. The scope of this article doesn't permit us to describe all the premium car systems that are available, but a quick look at some of the hottest cars, and the hottest sound systems, will demonstrate the possibilities.

Anyone fortunate enough to buy a Mercedes-Benz S-Class sedan (300SE, 300SD, 400SE, 500SEL, or 600SEL) can look forward to a Bose Beta sound system as standard equipment. The system includes eleven speakers: two 4½-inch full-range drivers and two 3-inch mid/high-frequency drivers in 3-liter ported enclosures in the front doors, two 3½-inch midrange speakers in 2-liter ported enclosures in the back doors, four 6½-inch woofers in the rear package shelf, and a 2-inch "Twiddler" (a hybrid tweeter and midrange speaker) on the rear-view mirror. Seven amplifier channels provide 310 watts of maximum power. A Becker cassette tuner rounds out the system, but a ten-disc trunk-mounted CD changer is available as an option for most models (it's standard in the 600SEL).

Corvette owners can choose a Delco/Bose Gold Series sound system as a \$905 option. It has six powered loudspeakers: two tweeters in front, two 4½-inch full-range drivers in ported bass-reflex enclosures in the doors, and two 6½-inch full-range drivers in the rear body cavity, which creates two 600-cubic-inch enclosures. A Delco cassette receiver is the head unit. Maximum power available is 200 watts. The system comes with or without an integrated compact disc player, and it has an automatic compression circuit that helps reduce dynamic range when engine or wind noise conspire to mask full-range reproduction.

The Acura NSX sports coupe contains yet another type of

TEST DRIVE

Mercedes/Bose Beta System in the 300SE



Bose began the whole trend toward high-quality original-equipment automotive audio with its first partnership, the Delco-GM/Bose systems for the Cadillac Seville and Eldorado, Olds Toronado, Buick Riviera, and Chevrolet Corvette back in 1983. Today the Massachusetts firm supplies hi-fi hardware and design for no fewer than twenty-three factory systems in cars from GM, Acura, Audi, Nissan, Infiniti, and Mazda.

Mercedes-Benz is among Bose's newest partners, and perhaps its most demanding one. The Bose Beta system developed for the company's new S-Class luxury sedans—essentially identical for the models 300, 400, 500, and 600—is technically sophisticated and powerful on the inside, yet remarkably simple and nearly invisible outside.

Mercedes-Benz was kind enough to lend me a 300SE, the six-cylinder "entry-level" model (about \$75,000 as delivered), for a hi-fi evaluation. Its Bose equipment includes seven channels of amplification, with equalization custom-tuned specifically for the S-Class interior, and an eleven-driver speaker array. There's a substantial package-shelf low-frequency engine—four 6½-inch drivers. Each rear door includes a 2-liter tuned-port enclosure with a 3½-inch midrange/treble driver. The front doors have similar 3-liter enclosures, each with one 4½-inch and one 3-inch driver. The eleventh loudspeaker, a 2-inch midrange/treble driver built into the rear-view mirror, is intended to add just enough mono center-fill to anchor the stereo image and reduce the "hole-in-the-middle" effect.

Bose says that one of the biggest

challenges in developing the S-Class system was passenger-seat sound. Whereas most car systems are unabashedly optimized for the driver and front passenger, Mercedes-Benz required sound at least as good in the rear seats, because a small but significant percentage of S-Class customers are—ahem!—chauffeur-driven. So every design element, from speaker location to equalization, was reconsidered in an effort to fine-tune the sound at all seating positions. The result is a system Bose calls Phase-Magnitude Equalization, which is said to yield nearly identical response for all passengers. Bose says the back seat is now actually the prime listening location.

Bose provides only the amplifiers, equalizers, and speakers for its built-in car systems. The source components, though designed in consultation with Bose, come from various car audio makers. In the Mercedes systems the front end is a full-featured cassette tuner from Becker of Germany. This in-dash head unit includes Dolby B and C, autoreverse, the usual tuner and tape search facilities, and full control for an optional (\$1,200) CD changer. (It's hard to imagine a customer who would buy this car and *not* elect the CD option, but I suppose it's possible.) Our 300SE included the changer, a Becker-labeled ten-disc model (pretty clearly made by Sony) installed upright in the trunk's left corner for easy loading.

The head unit's very attractive layout has ten numbered keys in a row on top, a wide liquid-crystal display (LCD), and a sideways tape slot on the bottom edge. Several other controls are distributed to the sides, the largest a

rocker switch for volume. Most of the controls have two or three functions depending on mode, so the button count remains reasonably low even with lots of features. The tuner has six FM and four AM presets and manual, direct (numeric), seek, and scan tuning. The cassette player has forward and reverse music scan, and the CD changer has disc and track skip, music scan, shuffle play, and more.

My first impression of the 300SE system was of quiet excellence. The sound was not at all overwhelming—by no means always the case in car stereo—yet the system seemed to handle everything very well. It played loud enough to be satisfying with all kinds of music, including respectably excessive levels for rock, without strain. The amplifiers deliver about 25 watts each to three channels and about 50 watts to each pair of subwoofers and to the two sets of front-door speakers.

Radio performance was very good overall. FM sound quality was notably excellent, with well above average reception, though it was still subject to the effects of multipath (fuzzing) and AM interference (clicking and buzzing) that plague even the best mobile receivers. AM performance was rather better than average, something of a hallmark of the top European designs. The tape player's mechanical performance was also top shelf, with smooth loading and unloading and fast winding.

Sonic definition and clarity were superb with CD's, and the tape deck also sounded fine. Strings, vocals, and massed choral sounds were all smooth and natural, yet sharply etched. Front-seat imaging was solid and well forward, but despite the center-fill speaker there was a mild deficiency in the center image. Balancing the system one click to the right audibly improved this at the driver's seat.

The Bose Beta design incorporates dynamic loudness compensation, which automatically adjusts low-frequency content with volume, and the tonal balance was rich and rather full at almost any level. Indeed, at moderate volumes the bass could be slightly heavy, but at quieter settings the low-

end balance was just about right. The head unit's tone-control scheme can provide useful adjustments if you have the patience for it. A bass setting two clicks above minimum improved things at my favored listening levels for orchestral music, and the Bose Beta system responded: Material below 40 Hz sounded unattenuated and suitably visceral, without inducing much muddiness at higher frequencies. The set of four subwoofers seemed very effective.

Midrange sound was accurate and detailed. I could not find a vocal or instrumental selection that sounded less than natural, open, and unforced—high praise for any car stereo system. The treble was also extended and open, though very slightly attenuated at the default setting; boosting it by a single click improved things to my ear. The Becker head unit includes a speed-dependent gain control: As the car goes faster, volume rises to compensate for increased road noise. The implementation of this scheme in the 300SE was the best I've heard. I could barely detect its working, the changes were so modest and gradual.

The sound was remarkably consistent in both balance and imaging in the various seats. Tonal balance in the rear was virtually identical to that in front, and imaging was in some respects better—slightly more spacious, higher, and better centered, probably because I

was sitting somewhat closer to the axis of the center-fill driver on the rear-view mirror. The subwoofer output did tend to be localized a bit in the back seat—you feel it thumping away just behind your neck—but that's an unavoidable liability of package-shelf bass.

Ergonomically, the 300SE system scores pretty high. Although the head unit's Teutono-glyphic control-panel labels seemed cryptic at first, once I cracked the code it was easy to use for the most part. The nighttime illumination was terrific and quite pretty. The tone controls are decidedly odd, however: To attenuate bass or treble you must first boost it all the way past maximum. And to get a CD running-time display requires two keystrokes in sequence. Otherwise the controls worked well and are thoughtfully laid out. I detest electronic volume controls, strongly preferring good old knobs for this function, but the Becker unit's protruding rocker control is a remarkably good one. It's easy to operate even with gloved fingers, and it uses intelligent, natural-feeling time constants (how fast it gets loud or soft when you press it). The front-rear fader control is a regular knob and falls beautifully to hand.

The ten-disc CD changer worked well, sounded terrific, and proved entirely immune to skipping induced by all but the most alarming potholes. My

only complaint is about the painfully slow disc-changing time (17 seconds), and the sole feature I missed was digital compression to limit the dynamic range of very quiet music. The car itself is so astonishingly quiet, however—even at beyond-legal cruising speeds—that this common omission recedes to a mere quibble in this case.

The Mercedes-Benz/Bose collaboration is beyond argument one of the most successful efforts to date in factory-installed automotive hi-fi. The system is beautifully understated visually, and



sonically it's among the top two or three such systems available today. It is very well attuned to the tastes of its typical owner, yet its musical capabilities more than cover the bases for anyone of any age who might drive or be driven in the car. One should expect as much from the Mercedes-Benz S-Class, and Bose (and Becker) give us nothing less.

—Daniel Kumin



Toyota/Fujitsu Ten System in the Celica All-Trac



SYSTEM 10 is Toyota's top hi-fi option for its sporty Celica GT, GT-S, and All-Trac Turbo models. I evaluated it in a stunning jet-black All-Trac Turbo, a four-wheel-drive sports coupe with plenty of entertainment value in its own right.

The thoughtfully designed double-height head unit combines an electronically tuned AM/FM radio, a CD player, and an autoreverse cassette player. All three are well endowed with features, including Dolby B and C, eighteen tuner presets, search, skip, and scan functions for both CD and tape, and CD random play. There's also a three-band equalizer (bass, midrange, and treble) with six preset memory curves; any or all of the factory-set curves can be customized and stored by the user, much like a radio preset.

The "10" in System 10 refers to the speaker count. Up front are 8-inch woofers low in each door, 5-inch mid-range speakers at the left and right of the dashboard, and 1-inch "button" tweeters cleverly flush-mounted in the interior panels of the dual side mirrors. In the back are two 6½-inch full-range drivers tucked into the quarter panels and another pair of tweeters firing forward from just above the seat back. The six-channel amplifier delivers 50 watts to each woofer in front and 25 watts maximum (11 watts continuous at 0.1 percent distortion) to each of the other sets of drivers at left and right in front and rear. All three pairs of channels are individually equalized.

System 10, designed in collaboration with Fujitsu Ten, is also manufactured by that company, which makes the well-regarded Eclipse line of aftermarket car stereo gear. So I was not surprised to find its audio performance well above average. The Celica All-Trac is well above average, too, and I'm

compelled to report some difficulty in tearing my attention away from the low-slung, 200-horsepower car and diverting it to the stereo system. After the first day or two, however, good sound became a complement to serious driving rather than a distraction from it.

My first impressions were of ergonomic excellence. The Toyota/Fujitsu design is simple, elegant, and largely self-explanatory in use. The head unit is logically laid out, and most of the major functions—volume, EQ, balance, and fader—are controlled by rotary knobs. Knobs are old-fashioned, perhaps, but they're still my choice as the easiest, most intuitive way to make sound-system adjustments.

Thoughtful niceties abound. Nothing interferes with the CD slot, so discs can be loaded and unloaded without bumping into the gearshift lever (in any gear) or obscuring the display. Most of the buttons have triple functions, doing something different in CD, tape, and radio modes to reduce control clutter. Consistent color schemes differentiate CD, radio, and cassette controls, and only those relevant to the active mode light up at night.

My only complaints about System 10's ergonomics are that its display is too small to read quickly while in motion and that drivers who are near 6 feet tall will have to stretch to reach the stereo controls when their seat is pulled well back for serious driving.

Audio performance was largely excellent. Radio reception was very good, maintaining adequate stereo separation and relatively clear sound even with quite marginal signals. Noise rejection was very good, though driving through heavily industrial areas and near high-tension power lines introduced occasional crackling (AM-rejection trouble). Extreme multipath situa-

tions, such as trying to tune in a distant classical station while driving among downtown high-rises, induced the expected "picket-fence" signal dropouts. Nevertheless, FM performance was significantly better than average. AM reception and sound were about on a par with typical stock systems.

CD tracking was also good. On normal—that is, paved—roads in my rural neighborhood, the player hiccupped on only two occasions. On some rougher roads the servo was occasionally stumped while playing tracks toward the outside of a CD. The player would mute, pause, try again, and eventually give up, automatically switching back to the head unit's previous mode, radio or tape—a sensible response. But this happened only while I was pounding down frozen dirt roads at 30 mph or better, demonstrating that automotive CD tracking has come a long way.

Tape performance was excellent, with low noise, clean, extended treble, and fine Dolby tracking in both directions. In fact, tape performance was good enough to supply an acceptable alternative to CD's, though there was slight audible flutter over rough roads with revealing music, such as solo piano (a weakness endemic to mobile cassette playback).

Unabashedly targeted by Toyota to the young, pop/rock generation, the Celica's System 10 is capable of impressive, realistic volume with all kinds of music, though it's a bit shy of the 120+ dB "crank-'em-up" levels—probably a good thing. Bass extension was quite evident, with solid output down to about 40 Hz, but there wasn't the kind of bone-rattling bottom-octave response some serious car stereo aficionados might desire.

Overall balance was musical and accurate. Except for a small emphasis in the mid-bass (around 180 Hz) and a slightly "cupped" quality in the vocal region, the System 10 produced detailed, solid, and eminently well-balanced sound. Transients were crisp and clean, the bass defined, solid, and ample. The System 10's effortless, unrestricted dynamic ability on well-recorded percussive sounds was indeed dramatic.

Imaging was good—especially with rock music—and very stable, but there was a slightly vague center with acoustic-instrument classical and jazz recordings. The back-seat full-range/tweeter sets provided useful rear-fill, but they can be faded entirely off (or raised in volume). The rear-seat sound was inferior overall to that up front, but it's unlikely that a mature listener would even fit back there, let alone contemplate extended listening. During some long highway trips, the sound was easy on the ears, producing no listening fatigue even after several hours of relatively high-volume playback. That's a good indication of low overall distortion, a primary goal of the Toyota/Fujitsu engineers.

The Celica System 10 is not inexpensive. An All-Trac or GTS equipped with it will cost an extra \$1,195, \$1,375 for a GT. For that kind of money you just might configure an aftermarket system that would out-perform the System 10 in a few respects, but it's highly unlikely that you could match it in every respect—especially in simplicity, elegance, and orderliness of installation. The System 10 is thus a near-paragon of factory-built virtues, with solid sound quality, thoughtful design, and first-class integration. —Daniel Kumin



Bose sound system as standard equipment. Tight interior quarters limited the designers to only four loudspeakers: ported bass-reflex enclosures in the front doors with 4½-inch full-range drivers, a rear-mounted 2½-inch Twiddler for the center channel (or cellular phone), and a ported-enclosure 4½-inch full-range driver in the firewall. The head unit is an Alpine cassette tuner. Maximum power is 165 watts, and a trunk-mounted six-disc CD changer can be added as an option.

The truly radical 1993 Mazda RX-7 can be bought equipped with a truly radical sound system from Bose. It has a 2½-inch center-channel Twiddler and 4½-inch full-range speakers in ported enclosures in the front doors. The most eye-popping feature, however, is a biamplified Acoustic Waveguide. Two 6½-inch round speakers are placed face to face, but wired out of phase, in a 10-foot-long tuned tube folded around the rear cargo area. This arrangement is a highly efficient way of generating powerful bass response. The system's maximum power is 215 watts.

Lotus enthusiasts can now enjoy both motoring and music with the Eclipse sound system in the Esprit. The system consists of stock aftermarket Eclipse components, including an EQZ-303 cassette tuner, an A1000 four-channel power amplifier with 25 watts maximum per channel, two 4-inch ESG 4000 coaxial speakers in the dashboard, and two 6½-inch ESG 6000 woofers in the rear firewall. An optional ESD-430 twelve-disc CD changer can be fitted into the map pocket between the driver and passenger seats.

THE Lincoln Town Car can be equipped with a variety of high-end audio systems, with the Ford/JBL system as the premium option. With that you get nine speakers placed in five strategic locations: 1-inch tweeters and 4-inch midrange speakers in the front doors, the same in the back doors, and a 7-inch subwoofer with a 10-liter enclosure in the rear package shelf. Total system amplification is 145 watts maximum, with fully 85 watts devoted to the subwoofer. The cassette tuner contains a DNR (Dynamic Noise Reduction) circuit to optimize the tuner's output bandwidth according to signal conditions. The system also includes a ten-disc CD changer in the trunk.

The flagship BMW sedan, the 750iL, features a high-end, factory-installed Infinity system as standard equipment. It employs no fewer than eleven speakers: two planar EMIT tweeters in the door pillars, three 2½-inch midrange speakers in the instrument panel (including one center-channel speaker mounted at midpoint in the dashboard), two 5¼-inch woofers in the kick panels (with telephone inputs), and two 2½-inch tweeters and two 6½-inch woofers in the rear package shelf. The rear woofers are electronically controlled by a circuit that monitors cone motion in relation to the input signal for more precise reproduction. Signals to the

**Without question,
the best of today's
premium car sound
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found anywhere.**

rear tweeters are delayed by 15 milliseconds to obtain more precise frontal imaging. The system has eight amplifier channels totaling 240 watts. All of the speakers are monitored by a multiband dynamic compression circuit. If the output in any band approaches overload, input level in that band is reduced. This provides high sound-pressure levels with low distortion.

High-end Toyota Celica models (GT, GT-S, and All-Trac) can be outfitted with Fujitsu Ten's System 10, which includes ten individually placed speakers: two 5-inch mid-range speakers in the instrument panel, two 8-inch woofers in the front doors (using the door cavities as 35-liter enclosures), two 6½-inch full-range speakers in 8-liter enclosures in the rear, and four 1-inch dome tweeters in the four corners of the car's interior. A six-channel

power amplifier delivers a total of 220 watts maximum. The head unit contains an AM/FM tuner, a cassette player, and a CD player.

The Lexus SC400 can be outfitted with any of three sound systems made by Pioneer or Nakamichi. The standard equipment is a Pioneer double-DIN-size head unit with an AM/FM tuner, a cassette player with both Dolby B and Dolby C, active crossovers and equalizers, and five amplifier channels. The amps drive seven individually placed speakers with 170 watts of maximum power: two 1-inch tweeters in the door pillars, two 4½-inch full-range speakers in bass-reflex enclosures in the front doors, and two 4½-inch full-range speakers with infinite baffles and an 8-inch subwoofer in the rear package shelf. A \$900 upgrade increases the maximum power to 210 watts, adds a twelve-disc Pioneer CD changer with a switchable dynamic-range compression circuit, and replaces the 8-inch subwoofer with a 10-inch model powered by a dedicated pulse-width-modulation amplifier.

The SC400's premium Nakamichi sound system option requires an outlay of \$1,900 beyond the base price. The Nakamichi electronics and loudspeakers boast a number of impressive technical refinements, such as graphite-reinforced speaker cones and larger than usual magnets, level control performed by an array of discrete, high-precision metal-film resistors, a signal-inversion system for increased channel separation, and a preamplifier with bipolar power supply and balanced input for improved signal-to-noise ratio. In addition, maximum output power is increased to a whopping 280 watts, and the system includes a twelve-disc CD changer.

Without question, the best of today's premium car sound systems, such as the Nakamichi system in the Lexus SC400, are among the best music reproducers to be found anywhere—in an automobile or at home. Auditioning one of these sound systems on a dealer's showroom floor, any discriminating music lover would have to agree that words such as "warm," "rich," "clean," "open," "transparent," "subtle," "refined," "smooth," "accurate," "loud," and "dynamic" can only approximate the quality of the sound. And when you're speeding through the night on mountain roads, words simply fail to describe the symbiosis of machine and music. □



THE official survey isn't in yet, but it's a safe bet that as a toddler Kathy Mattea was the only baby in Cross Lanes, West Virginia, who suffered from ennui. Innately curious and inquisitive, Mattea was frustrated because her brothers, nine and fourteen years older than she, had homework to do—essays to write and math problems to solve—and once she learned to talk, baby Kathy had nothing to do but point to the letters of the alphabet and implore, over and over, "What's that?"

FINALLY, in self-defense, her mother and brothers began to assign Kathy homework of her own, checking it the way a teacher would. At the age of six, when she was enrolled in elementary school, Mattea, who perused the newspaper from front page to back as part of her everyday routine, knew enough about the fundamentals of reading and writing that the school wanted to start her in the third grade. Her mother said that was too drastic—second grade was fine—but Mrs. Mattea needed more advice: "What do I do for her?" The answer was to the point: "Just keep her busy so she doesn't get bored."

Today, that long-ago advice to a concerned mother has benefited not only one West Virginia family but everyone who appreciates literate and lyrical country music. As a one-time purveyor of formula Nashville country-pop, Mattea has, through her own refusal to settle for less, matured into one of country's most adventurous and risk-taking performers. For her efforts, she has been rewarded with a Grammy and two Female Vocalist of the Year trophies from the Country Music Association.

More than that, Mattea has earned a reputation among her peers as someone who has subtly and gently revolutionized country music by infusing her songs—even the sentimental *Where've You Been*, the story of an elderly couple whose love prevails through catastrophic illness—with grace and intelligence. Even though both of her grandfathers were bona fide coal miners, she avoids, as *Billboard's* Edward Morris put it, "playing to stereotype and mythologizing herself and her background," relying on art rather than image and artificiality to forge her fame.

While such story-song hits as *Love at the Five and Dime* and *Eighteen Wheels and a Dozen Roses* (the CMA's Single of the Year in 1988) had integri-

K A T H Y

M A T T E A

'Why choose to do less than the most interesting thing I can do?'

BY ALANNA NASH

ty as well as commercial appeal, two years ago Mattea decided she wanted to take her music beyond the traditional country format, but without alienating her audience. She took her biggest commercial gamble last year with the release of "Time Passes By," an album of what she calls "life songs" that eschew the usual country themes of drinking, cheating, and workingmen's woes for the more introspective material of mature love, personal growth, universal harmony, and the importance of living life to the fullest.

Working from an acoustic base, with songs she'd held onto for as long as ten years, Mattea insisted that the instrumental treatment merge her old love of folk music with her new appreciation of Celtic music, a result of her friendship with the Scottish musician Dougie MacLean. The album, with several songs that could serve as hymns for coping with the anxiety of everyday existence, was widely praised, and Mattea, with her dusky mezzo-soprano, was saluted as one of the best interpretative singers working in any form of popular music today.

"It was a really emotional, searching labor of love for me," said Mattea, thirty-three, relaxing in her living room in Nashville in a long floral-print dress, salmon-colored granny shoes, and a necklace and earrings of glass grapes framing a face that seems right out of a Raphael painting.

"And it was real risky for me, also, because I knew I wasn't trying to make a record for radio. But I'd been influenced by this Celtic music that moved me in such a deep way. And I'd won the Female Vocalist of the Year award twice, and I thought, 'Well, what do you do now? Do you keep making the same kind of records to keep winning awards, or do you try to see what other potential is there?'"

THE quest to discover her potential was what, in 1978, made Mattea drop out of West Virginia University, where she had been studying engineering on scholarship, and move to Nashville with her mattress strapped to the top of the car. A friend with whom she'd played "newgrass" in a West Virginia band called Pennsboro had decided to try his luck as a Music City songwriter and invited along Mattea, who also thought of herself as more of a songwriter than a singer.

Although her parents—a first-generation Italian-American chemical-plant worker and a housewife who read a stack of books a week—

couldn't imagine that Mattea would want to leave the Charleston suburb where all of her relatives still lived within ten miles of each other, Mattea had little hesitation.

"It was so clear to me," she explained in a voice that's warm and intimate enough to stop a riot. "I was sitting there at age nineteen with a blank canvas. Why would I choose to do anything less than the most interesting and fulfilling thing I could do?"

Still, before Mattea realized her real forte wasn't songwriting but singing and landed a PolyGram recording contract in 1983, there were a lot of low points, such as the time she damaged her voice from overuse while working as a tour guide at the Country Music Hall of Fame. The worst, she said, her eyes filling up, was just feeling so alone. "I would pick up the phone and call my parents, and I remember saying, 'Mom?' And she'd hear me crying and hang up on me."

While it took Mattea longer to become comfortable with her records than it took the public ("Walk the Way the Wind Blows" [1986] was the first album of mine I would go out and buy," she said), it's taken her even longer to deal with success and her ensuing fame. As someone who views the voice as an instrument (she's taken private voice lessons for the past thirteen years, hardly the standard hillbilly way) instead of a vehicle for riches and renown, and music as a connection to the world and a path to spirituality, Mattea tends to squirm under the public microscope.

"I've cried a lot at the height of my success," she admitted, stroking a cat named Gloria, one of two felines and a dog named Bob that share the premises. "A lot of it has to do with the way I was brought up. My mother drilled it into me that I shouldn't forget where I came from. She said, 'Don't let fame go to your head—you have to be the same person.' So in some ways it made me afraid. I handle failure much better than I do success. Feeling like I deserve it has been really hard for me."

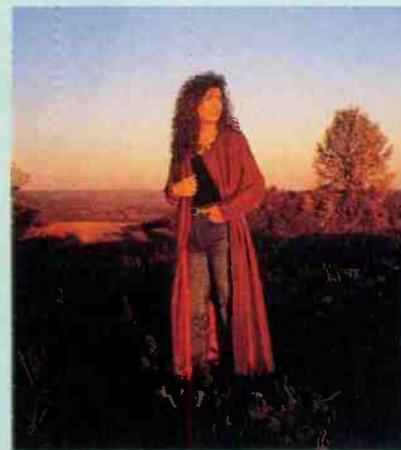
But she's working at it, mainly through group therapy, something she turned to four years ago when she found it difficult to fire a member of her band. She still has occasional slip-ups, which she regards as opportunities for learning. Unless she's firm about her boundaries—insisting on enough daily time for herself and enough quality time off the road with her husband, songwriter Jon Vezner, whose grandparents provided the

true-life inspiration for *Where've You Been*—she begins to "feel like a battery that's gone dead, even though people still want more from you."

Last year, largely as a result of overwork promoting "Time Passes By," she ruptured a blood vessel on her vocal cord. "What a gift that was!" she said, her voice rising. "I was about to give away to everyone else my whole ability to be a singer. That's so sick. I'll never do that again."

AND there are other ways Mattea plans to look after herself. In an emotional move, she's changed producers, from Allen Reynolds, whom she regarded as her "guru, musically and just in living life," to Brent Maher, the architect of the Juds' sound, because "after that last record, I just thought there was nowhere Allen could take me artistically, and he agreed." Her first collaboration with Maher, which they began working on this spring, should move the country-folk-Celtic sound of "Time Passes By" back toward commercial center.

But as an artist who insists on quality (she turned down a recent opportu-



nity to host a national television series because her idea of how TV should present country music differed from the producers'), Mattea has no intention of compromising her standards for radio airplay, or much else, either.

"If I can have brought some class to this genre, some lasting songs, not been afraid to take a risk, and not lost my own self-respect or dignity along the way, that'll be a lot to look back on when I get to be an old lady," she said, laughing.

That's not only a magnificent way to conduct a career but a terrific way to keep boredom at bay. Mattea's mother would doubtless be proud. □



Lindsey Buckingham: Life After Fleetwood Mac

OUT of the Cradle" is the best Fleetwood Mac album in years. Sure, it's attributed to Lindsey Buckingham, but listening to it on a really good sound system not only approaches a religious experience but reveals a larger musical truth: Lindsey Buckingham was the pure-pop genius behind the most successful incarnation of Fleetwood Mac, from the "Fleetwood Mac" album to "Tango in the Night."

Of course, Fleetwood Mac wasn't a one-man band. Stevie Nicks, Christine

Mac. Just as Keith Richards's first solo album, "Talk Is Cheap," proved that his scruffy guitar was the heart of the Rolling Stones, "Out of the Cradle" shows how essential Lindsey Buckingham's glossy-but-edgy arrangements were to the Big Mac attack.

Don't Look Down begins this audio showcase with a crisp, pseudo-classical, acoustic-guitar intro that collapses into a tumble of notes before the actual song kicks in with a well-oiled, bossa-flavored beat. Buckingham croons along breezily

robotic basso in *This Is the Time*. That wizardry is tame, however, compared to what he does with string instruments: Acoustic guitars become metallic, electric guitars go molten, and he plucks *something* to get the sound of harpsichords, balalaikas, bouzoukis, and music boxes.

All of this imagination is harnessed to richly melodic pop tunes that effortlessly unspool with soaring clarity and vivid atmosphere. *Street of Dreams* and *Surrender the Rain*, consecutive songs in the middle of the album, are so vividly evocative that they almost become cinematic; no videos needed here, you can make them up in your mind. Buckingham's musical talents are so strong and varied that you almost don't notice that occasionally his lyrics are somewhat lacking—a little platitudinous here, a little new-agey there. But on the subject of basic human feeling—love, heartbreak, loneliness, contentment—his thoughts and sounds merge masterfully. The album's title refers to the Walt Whitman poem "Out of the Cradle Endlessly Rocking." If we're very lucky, Lindsey Buckingham, now out of the Fleetwood Mac cradle, will rock endlessly—and just this well.

Ron Givens

Songs so cinematic you can make up the videos in your mind



McVie, Mick Fleetwood, and John McVie all made important contributions to the group's sophisticated musical mix. But Buckingham gave it its gorgeous, ersatz-symphonic sound, particularly as his magical touch became more dominant in the studio. You can hear the ear-popping similarities between the Mac and his solo sound more clearly than ever in this album, Buckingham's third on his own and his first since leaving Fleetwood

on the verses and is joined on the choruses by a lush, one-man choir (himself, overdubbed). The effect as the voices break the word "down" into a series of punchy, angelic syllables—"dow-ow-own"—would do Brian Wilson proud. These vocal gymnastics are a production theme, as Buckingham isn't afraid to process his voice for dramatic effect, squeezing it into a neurotic falsetto in *Wrong* and deepening it into a

LINDSEY BUCKINGHAM: Out of the Cradle

Don't Look Down; Wrong; Countdown; All My Sorrows; Soul Drifter; This Is the Time; You Do or You Don't; Street of Dreams; Surrender the Rain; Doing What I Can; Turn It On; This Nearly Was Mine; Say We'll Meet Again (REPRISE)

Two Sides of Stravinsky

STRAVINSKY'S *Le Sacre du Printemps* (*The Rite of Spring*) and *Perséphone*, written only ten years apart, have the same subject—fertility sacrifice—but treat it in entirely different ways. One is violent, hard-driving, brutal, sensationalistic, the other well behaved, neo-Greek, arty. Both are offered on a new Virgin CD.

Everyone knows *Sacre*, but *Perséphone* is almost forgotten. It was commissioned by a dancer who was no longer able to bounce about the stage and took to mimetic/dramatic stage readings instead. Stravinsky's collaborator was none other than the renowned André Gide, who was perhaps not as good at this sort of thing as he was at writing novels. He and Stravinsky had an awful

PHOTO: GUZMAN/REPRISE

row, the piece didn't work on stage, and it never took off.

The original story, about Pluto kidnapping Persephone and carting her off to Hades, had some oomph ("Spirit of Spring Kidnapped by Underworld Figure; Kept in Dark; Escapes from Captor"). But the Stravinsky-Gide treatment is calm, detached, actionless. The speaking/dancing role of Persephone, played in the recording by Anne Fournet, daughter of the conductor Jean Fournet, is the only character. The tenor, sung by the excellent Anthony Rolfe-Johnson, and the nymphs and spirits of the chorus are genteel participants in a genial pastoral charade. The brutal fertility sacrifice of *Sacre* has become a charity wine tasting.

In spite of all that, there *is* something moving about *Perséphone*. It is a work of great artistry that is beautifully realized here. Kent Nagano, an Asian-American conductor from the San Francisco Bay area, is a big talent. He has been having a lot of success in Europe, and this recording is a strong confirmation of his ability. His *Sacre* has an almost Neoclassical clarity without losing any of its primeval power, and *Perséphone* has a quiet intensity that is quite exquisite.

Eric Salzman

STRAVINSKY:

Le Sacre du Printemps; Perséphone

London Philharmonic Chorus and Orchestra. Kent Nagano
(VIRGIN 915 11-2 two discs)



Midnight Oil Burns

MIDNIGHT OIL'S "Scream in Blue" is a scorcher of a live album. It was assembled from tapes spanning 1982 to 1990, a period when the Australian group really came into its own as a band of political rockers second only to the Clash. Not surprisingly, most of the material derives from the band's two strongest albums, "Diesels and Dust" and "10, 9, 8, 7, 6, 5, 4, 3, 2, 1." And despite all the buzz about how "Scream in Blue" was culled from different concerts and time frames, eight of the twelve cuts hail either from a 1982 concert in Sydney or a 1990 concert in Brisbane.

Nevertheless, this is potent stuff; if it were packaged in a bottle, "Scream in Blue" would have a skull and crossbones on it. The performances are re-

lentless, the tempos rarely flagging below warp speed, guitars and drums locking into a furious din comparable to the MC5's proto-metallic racket in "Kick Out the Jams." Amid all this sound and fury, the group's signature song, *Beds Are Burning*, is approached somewhat more deliberately. But the album's real payoff is its total sense of abandon, especially in the sternum-rattling trio of tunes that opens the set: *Scream in Blue* (a corrosive instrumental), *Read About It*, and *Dreamworld*. Don't miss this one. *Parke Puterbaugh*

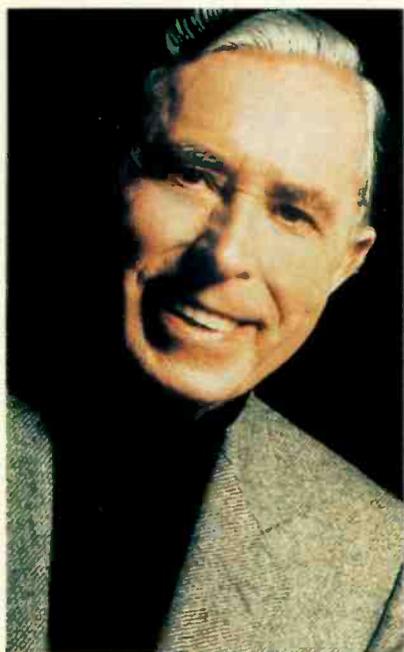
MIDNIGHT OIL: *Scream in Blue*

Scream in Blue; Read About It; Dream World; Brave Faces; Only the Strong; Stars of Warburton; Progress; Beds Are Burning; and four others (COLUMBIA)

Firkušný's Czech Celebration

LAST February Rudolf Firkušný turned eighty. Everything about him seems to disprove that statistic except his long record of accomplishment, in which his identification with the Dvořák Piano Concerto is especially prominent. For at least a half-century Firkušný championed that work virtually alone, stubbornly asserting its

place in the repertory when few other pianists—and none of his stature—deigned to play it. He recorded it with George Szell in Cleveland for Columbia, with László Somogyi in Vienna for Westminster, and with Walter Susskind in Saint Louis for Vox. Other pianists have taken up the concerto now, but Firkušný's proprietary commitment is



The pianist Rudolf Firkušný

undimmed. His fourth recording of it, just issued by RCA Victor, is the most radiantly appealing presentation of the work yet committed to disc.

The recording locale may well account for some of the magical enlivenment of this performance. It was taped in Prague, with the Czech Philharmonic under Václav Neumann, in December 1990, seven months after Firkušný's first performance there in more than four decades. You can hear and feel the joy of that occasion in this performance, in which the solo and orchestral elements mesh and build upon each other as the partners might in an exceptional evening of chamber music. In his first two recordings of the concerto Firkušný used the revised edition prepared by his own teacher, Vilém Kurz, as amended by himself, but by the time he did it with Susskind he had come to favor the composer's original version, and here again he shows how well it can work. The pacing is ever so slightly brisker than in the Saint Louis recording, just enough to be truly electrifying without the loss of any of the pianist's customary elegance

or fastidiousness. The Dvořák concerto has frequently commanded our admiration, but never, perhaps, so much outright affection as it does here. Not even in Firkušný's own earlier recordings has the work exhibited such irresistible vitality and sparkle—or such uncontrived warmth of heart.

The splendidly recorded disc is filled out with two very substantial works on which Firkušný's proprietary claim is perhaps even stronger, the Concertino and the Capriccio by his boyhood mentor, Leoš Janáček. In these "chamber concertos," too, the pianist surpasses his own earlier recordings (with Rafael Kubelík on Deutsche Grammophon). He brings these remarkable pieces to life, as he does the Dvořák, not as a mere advocate but as a true celebrant. Absolutely not to be missed.

Richard Freed

DVOŘÁK: Piano Concerto
JANÁČEK: Concertino and Capriccio for Piano and Chamber Orchestra
Rudolf Firkušný; Czech Philharmonic, Václav Neumann
(RCA VICTOR 60781-2)

PHOTO: BMG

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That's the Way It Is (MOBILE FIDELITY). First appearance of the soundtrack to the documentary film of the same name.

• **THE RESIDENTS**

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• **BARTÓK: The Miraculous Mandarin; Four Orchestral Pieces; Three Village Scenes.** Boulez (SONY SMK 45837). ". . . the rhythmic energy and impetus are tremendous" (January 1973).

• **BRITTEN: Peter Grimes.** Vickers; C. Davis (PHILIPS 432 578-2 two discs). "The clarity, power, and excitement of this performance are marvelous" (August 1979).

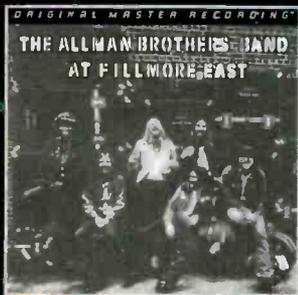
• **CHAUSSON: Symphony; Poème. SAINT-SAËNS: Introduction and Rondo Capriccioso.** D. Oistrakh, Munch (RCA VICTOR 60683-2). This historic meeting of the violinist and the Boston Symphony's great French conductor resulted in classic performances.

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• **TCHAIKOVSKY: Symphony No. 6 ("Pathétique"); Romeo and Juliet.** Koussevitzky (RCA VICTOR 60920-2). Classic 1930's performances with the Boston Symphony, originally on 78's, digitally remastered on a midprice CD.

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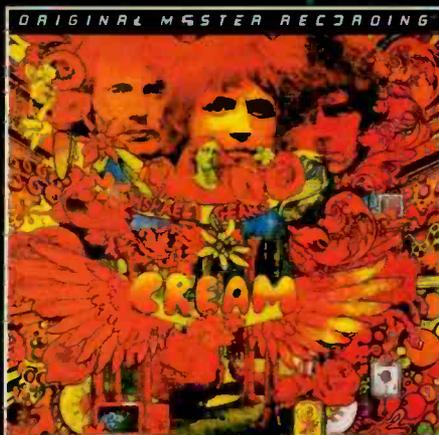


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T-BONE BURNETT
The Criminal Under My Own Hat

COLUMBIA

Performance: Refreshing
Recording: Good

T-Bone Burnett's last album, "The Talking Animals," was fairly insufferable, so steeped in misanthropy and spleen that even his melodic gift seemed to disappear under their weight. He's still a hard-bitten moralist in "The Criminal Under My Own Hat," but his distemper is moderated by compassion and the realization that no one is above judgment. Just as refreshing is his return to a largely acoustic format, strumming a guitar with folkish verve in the company of such esteemed Nashville players as Jerry Douglas, Mark O'Connor, and Edgar Meyer.

Bob Dylan seems to be a major point of reference in spots. His influence is unstated but evident in the simplicity of presentation of the opening track, *Over You*, a guitar-vocal number recalling *Don't Think Twice, It's Alright* both in its rapid strumming and its succinct but trenchant analysis of a relationship that's ended. Similarly, the lyric construction and courtly melody of *Any Time at All* recall Dylan's *All I Really Want to Do*. Then there's the passing reference to having "brought it all back home" in *Kill Switch*, the album closer. Burnett's return to folk roots is further underscored by his appropriation of the protest classic *If I Had My Way* (made popular by Peter, Paul & Mary) in his own *Tear This Building Down*.

MERCURY/POLYGRAM



Kiss: life imitates art?

Such allusions suggest that Burnett wants to recover the humanity in his music without letting go of the protest elements. So while he doesn't exactly come across as a Norman Vincent Peale optimist, his pessimism is reasoned, not reflexive. Contempt does get the better of him in *I Can Explain Everything* (he opines that the guillotine would be a fitting fate for dissembling preachers and politicians), but it's amusing nonetheless. More typical is *It's Not Too Late*, where despite the minor-keyed mood of decay and destruction Burnett urges that all is not yet lost: "The ocean rolls like thunder / The tempest pulls us under / The dogs are howling / But it's not too late." *P.P.*

RODNEY CROWELL
Life Is Messy

COLUMBIA

Performance: Dispirited
Recording: Okay

Here's a downbeat album from a singer/songwriter who used to be a typically upbeat guy. You don't have to be a seer to divine that Rodney



**POPULAR
MUSIC**

**Discs and tapes
reviewed by Chris Albertson,
Phyl Garland, Ron Givens,
Roy Hemming, Alanna Nash,
Parke Puterbaugh, and
Steve Simels**

Crowell's separation from his wife, Rosanne Cash, inspired "Life Is Messy." Cheatin' and hurtin' albums are standard fare for country and its crossover genres, but Crowell fails to communicate the deep expressive hurt, the audible tear in the voice, of old-timers like George Jones or Hank Williams. The result is a surprisingly flat album from the I've-suffered-for-my-art-and-now-it's-your-turn school.

Part of the problem is slickened quasi-pop production, which sands the rough edges off Crowell's pain and passion. Thus, the sad songs don't elicit sadness, and the rowdy, back-in-the-saddle songs are unconvincing. Crowell even loses his surehanded grip as a songwriter, throwing a pity party in the title track: "Life is messy / I feel like Elvis Presley / At a very early age / They put you in a cage and push you out on stage." The surest sign of this album's shortcomings is the closing song, *Maybe Next Time*. On the printed page the lyrics can bring a tear to the eye, but on record the emotion is strangely absent. Somewhere along the way "Life Is Messy" was simply done up too tidy for its own good. *P.P.*

DILLON FENCE
Rosemary

MAMMOTH

Performance: Pure pop
Recording: Very good

Now here's a pleasant surprise: a shot of winsome, fresh-faced pop by a North Carolina foursome making their full-length-album debut. As far as regional scenes go, North Carolina has always been a fertile breeding ground for melodic pop bands, but Dillon Fence goes straight to the head of the class with "Rosemary," assuming its rightful place in a pantheon that includes the dB's, Let's Active, and the Spongetones.

The presentation is so ingenious that you can't help but be charmed. With little more than guitars, drums, and vocals, cut on the fly with a one-take immediacy by producer Ron St. Germain, Dillon Fence sprints through a program of power pop that is sweetly melancholic on the surface yet supported by a solid rhythm section and aggressive, Kinks-like guitars. There's an abundance of riches: *Daylight*, with its cascading rush of guitars and bright rainbow of harmonics tagging Greg

Humphreys's mannerly vocal; *Hey Mockingbird*, an irresistibly pretty song that commences in a spray of twelve-string notes; and *Summer*, which manages to evoke both the heat of the season and a lover's betrayal. In short, a gem. *P.P.*



MICHAEL FEINSTEIN

Pure Imagination

ELEKTRA

Performance: Neat
Recording: Very good

The songs in Michael Feinstein's newest album may be kid stuff, but he presents them without coyness or condescension. He's in equally good form quietly crooning *When You Wish Upon a Star* (from Disney's *Pinocchio*) and merrily recalling Harold Arlen and Yip Harburg's tales of *The Jitterbug* and *Lydia the Tattooed Lady* (from *The Wizard of Oz* and the Marx Brothers' *At the Circus*, respectively). The neatly varied arrangements range from a trio backing to full orchestra to just a solo piano. Rosemary Clooney joins Feinstein for a sunny duet in the Sherman Brothers' *Ten Feet off the Ground*. And with vocal help from the songwriters Ray Evans and Jay Livingston themselves, Feinstein even makes a playful case for the theme from that scuzzpit of a Fifties movie, *The Mole People*. *R.H.*

SOPHIE B. HAWKINS
Tongues and Tails

COLUMBIA

Performance: Familiar
Recording: Okay

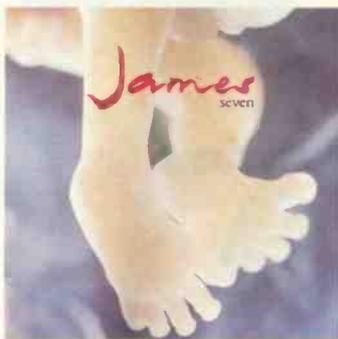
Sophie B. Hawkins hasn't quite discovered her own "voice" as a performer, meaning that she has yet to find a way to communicate her true self to us. Her album "Tongues and Tails" has moments of deep feeling and blunt sensuality, even a



Rodney Crowell: separation blues

COLUMBIA RECORDS

few transcendent tunes that are quite different from most of the music being made today. The arrangements are dense, almost murky, but they match beautifully the oblique mystery of Hawkins's material. Unfortunately, in many of the songs she sounds very much like other pop divas, most notably Madonna and Rickie Lee Jones. In *Damn I Wish I Was Your Lover* and *Saviour Child* she has the squeakiness of Madonna's early performances, and in *Carry Me* she uses Jones's offbeat phrasing. But when she sounds unlike anyone else and just like herself, as in *We Are One Body*, Sophie B. Hawkins seems like a voice to keep listening for. R.G.



**JAMES
Seven**

FONTANA

Performance: Pretentious
Recording: Overdone

More is not always better. With the Scottish band James's expansion from four to seven musicians, the level of bombast in their music has increased exponentially. It's hard to decide what is most irritating: the omnipresent trumpet whose fanfares impart a portentous grandiosity to the proceedings; singer Tim Booth's overwrought vocal mannerisms, ranging from a clenched whisper to screeching melismata; the top-heavy arrangements, with so many layers of instruments that they threaten to topple over at any moment; or the indecipherable, self-important songs. Striving for the weight of bands like U2 and Simple Minds, James instead becomes mired in pretension. Low point: the close-to-the-Edge guitar and sodden, Lizard King vocal affectations of *Live a Love a Life*. "Seven" represents a vile downturn for what was at one time a promising band. P.P.

**KISS
Revenge**

MERCURY

Performance: Kissish
Recording: Good

This is *not* Spinal Tap—or is it? The fine line gets pretty smudged up in *Spit* ("It don't mean spit to me") when Kiss drops the following ripe couplet: "The bigger the cushion / the better the pushin'." Rock scholars will recognize that as a tidbit from the Tap classic *Big Bottom*, and the duplication provokes a question: Is this a case of life (meaning the real Kiss) imitating art (meaning the parodistic Tap) imitating life (meaning the real Kiss) imitating fantasy (meaning the inner thoughts of barely pubescent males)? Not that the issue means spit to the men of Kiss, who would rather turn their amps up to 12 and inspire their fans to flick Bies and shout along to these catchy-yet-heavy tunes. R.G.

The Boss Gets Real

The Boss is dead; long live the Boss. Bruce Springsteen has dramatically altered the circumstances of his life since he last recorded, calling it quits with his E Street Band and his first wife, leaving Jersey for the West Coast, marrying for a second time, fathering two children, and crossing the forty-year threshold in the bargain. The cumulative effect of those life passages provides the shadow-filled subtext for the hard-soul philosophizing that fills "Human Touch." The album finds Springsteen wearily rejecting a lot of dogmatic baggage about happy endings and heavens above in exchange for a blunt, un-sentimental shot of reality. The real world, not the promised land that never materialized, is the object of his search this time round.

Some of the lyrics insinuate that Springsteen is less obsessed with feeling good than feeling, *period*, even if the prevailing mood is one of existential distress: "Well life ain't nothin' but a hard ride" and "I feel my soul waist deep and sinkin' into this black river of doubt" (*Cross My Heart*). In *57 Channels (And Nothin' On)*, a blackly comic parable about television, the humor definitely comes second to Springsteen's admonition about the emptiness that underlies our leisure.

Some may mourn the loss of the E Street Band, but Springsteen needed to make this sojourn alone. Besides, except for the rhythm section he hasn't so much replaced the band as downsized it. E Streeter Roy Bittan remains on keyboards, and the studio band is rounded out by veterans Randy Jackson on bass and Jeff Porcaro on drums. They provide expert support with no illusion of community, which serves Springsteen's interests well. This is very much his album, and his alone.

Of course, the album's intensity is its burden. Outside of heavy metal, which is a world unto itself, a long run of songs with this sort of razor-edged passion is probably too much for the general audience during our prolonged national malaise. But it should not be missed, for it is a pivotal album in Springsteen's career and rivals his best previous work. And it rings with the honest conviction that is this artist's lasting hallmark.

"Human Touch" closes with *Pony Boy*, a peaceful acoustic lullabye for Springsteen's son, which serves as a bridge between this album and "Lucky Town," the companion album that was released simultaneously. If "Human Touch" is about the darkness on the edge of one man's town, the quickly and spontaneously recorded sequel is about dawn approaching on the horizon. Springsteen takes a poke at himself in *Better Days*, the opening track, while underscoring that his blues were very real: "Now a life of leisure and a pirate's treasure / Don't make much for tragedy / But

it's a sad man my friend who's livin' in his own skin / And can't stand the company." In the title track he announces, "I wanna lose these blues I've found."

There are several wonderful, touching paeans to the newfound peace he's obtained within the realm of family: *Book of Dreams*, *My Beautiful Reward*, and *Living Proof* ("just a close band of happy thieves," he sings of his brood). And you'll seldom hear a promise of and plea for commitment as heartfelt as that in *If I Should Fall Behind*. Overall "Lucky Town" is a less interesting record than "Human Touch," because Springsteen frequently sings too many words with too little tune to support them. It lacks the musical, if not emotional, breadth of the other album. He plays all the instruments himself except drums in nearly every song, and the musical scenery winds up being monotonous in comparison. Yet "Lucky Town" is still a valuable release, particularly for its lyrics, which provide an epilogue to the inner turmoil of "Human Touch." Parke Puterbaugh



BRUCE SPRINGSTEEN: Human Touch

Human Touch; Soul Driver; 57 Channels (And Nothin' On); Cross My Heart; Gloria's Eyes; With Every Wish; Roll of the Dice; Real World; All or Nothin' at All; Man's Job; I Wish I Were Blind; The Long Goodbye; Real Man; Pony Boy (COLUMBIA)

BRUCE SPRINGSTEEN: Lucky Town

Better Days; Lucky Town; Local Hero; If I Should Fall Behind; Leap of Faith; The Big Muddy; Living Proof; Book of Dreams; Souls of the Departed; My Beautiful Reward (COLUMBIA)

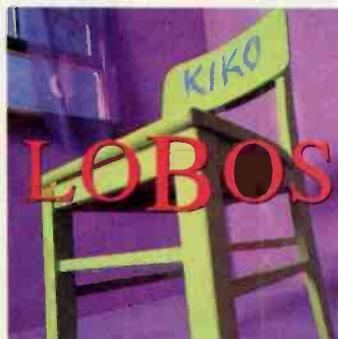


ANNIE LENNOX
Diva
ARISTA

Performance: Limited
Recording: Good

Annie Lennox has a fabulous voice, soft and velvety when things are mellow, hard and razor-sharp when things turn rough. But in "Diva," her first solo album, she cloaks her voice in gauzy, languorous arrangements—musical conceits so dark and brooding that the occasional brisk tempo almost seems like a happy face planted on a lonely-hearts column.

Taken separately, nearly all of these songs glow with a gloomy charm, but after you hear the combination of gliding synthesizers and pillow bass over and over again, the tunes begin to lose any individual character. At least Lennox turns a few lacerating phrases ("Dying is easy, it's living that scares me to death," she sings in *Cold*), and she always extracts the subtlest and least sentimental emotional truth from a lyric, no matter how anonymous the accompanying melody. Isn't that just what we expect from a diva? R.G.



LOS LOBOS
Kiko

SLASH/WARNER BROS.
Performance: Riveting
Recording: Very good

With "Kiko," Los Lobos prove once again just what a treasure they are. In the course of their distinguished career, they've produced a number of crosscultural masterpieces, packing together a variety of Mexican and American musical styles, including two recent thematic albums. Now Los Lobos have returned to genre-blending—but with a difference. While "Kiko" provides a minimum daily requirement of various styles, from American blues-boogie guitar to Mexicali marching band to Paris street accordion, each of the sixteen cuts in this album has such clarity and distinction that it doesn't seem like a blend of different sensibilities at all, but rather the

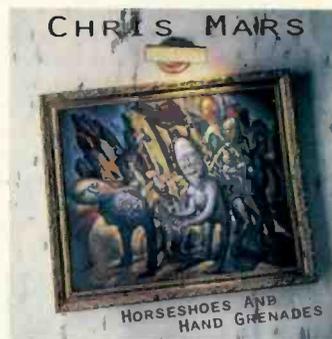
product of one very sophisticated imagination. Whether placing dream imagery to a snappy beat, sketching the humanity of the homeless to a somber shuffle, or bemoaning the evils of whiskey to a nasty stomp, in "Kiko" Los Lobos seem to have become a genre unto themselves. R.G.

CHRIS MARS
Horseshoes and Hand Grenades
ISLAND

Performance: Great surprise
Recording: Good

Who'd have thought Chris Mars, the Replacements' jet-propelled drummer, was also a first-rate garage-pop singer/songwriter? Maybe Paul Westerberg, the leader of the Replacements, who ousted Mars from the group shortly before it broke up in early 1991. Westerberg sounds like the obvious inspiration for Mars's *Ego Maniac*, a

frenetic, Who-like exercise in churning guitars, full-tilt drumming, and jumpy keyboards that's a fine example of the tone of this record, in which Mars sings all the lead vocals in a rough-hewn



The Troubadours



Bruce Langhorne, Carolyn Hester, Bob Dylan, and Bill Lee
at the 1962 recording session for *I'll Fly Away*

A three-volume collection of folk music from the late Fifties and early Sixties—the original songs that sparked the folk explosion of that era and later inspired such contemporary performers as Suzanne Vega and Tracy Chapman—"Troubadours of the Folk Era" is both a thing of beauty and a source of sadness. Beauty because the songs by Woody Guthrie, Joan Baez, Eric Andersen, Odetta, and such lesser lights as Mimi and Richard Farina, Ramblin' Jack Elliot, and Tim Hardin recall a time when the word "folksinger" meant something, when it suggested equal amounts of courage and conscience, politics and personal power, when some of the best minds of a generation picked up a guitar to talk about the injustice of segregation, the travesty of the bomb, the importance of poetry and realism and truth. Sadness because no musical genre since has been quite so ambitious or so meaningful as a cultural tool.

"Troubadours of the Folk Era" includes essentially every major artist and group of the folk era except Bob Dylan and Peter, Paul and

Mary (whose recordings were not available for licensing, though Dylan plays harmonica in one Carolyn Hester song), and it demonstrates how folk music bridged the gulf between early Elvis and the British Invasion of 1964, spawned the folk-rock movement, and played a part in helping rock re-establish itself as the major expression of this country's popular culture. Most of the collection focuses more on personal songs of love and the human condition than on songs of protest, subversion, and overt politics. But those who were part of those years, who heard such songs as *Turn! Turn! Turn!*, *Ramblin' Boy*, and *The Circle Game* when they were fresh and new, will find this set enormously stirring and evocative. Those who know the era only secondhand, and have no idea what Woody Guthrie, Judy Henske, Fred Neil, and the Weavers really sounded like, will likely find it a revelation. And, one hopes, an inspiration.

Alanna Nash

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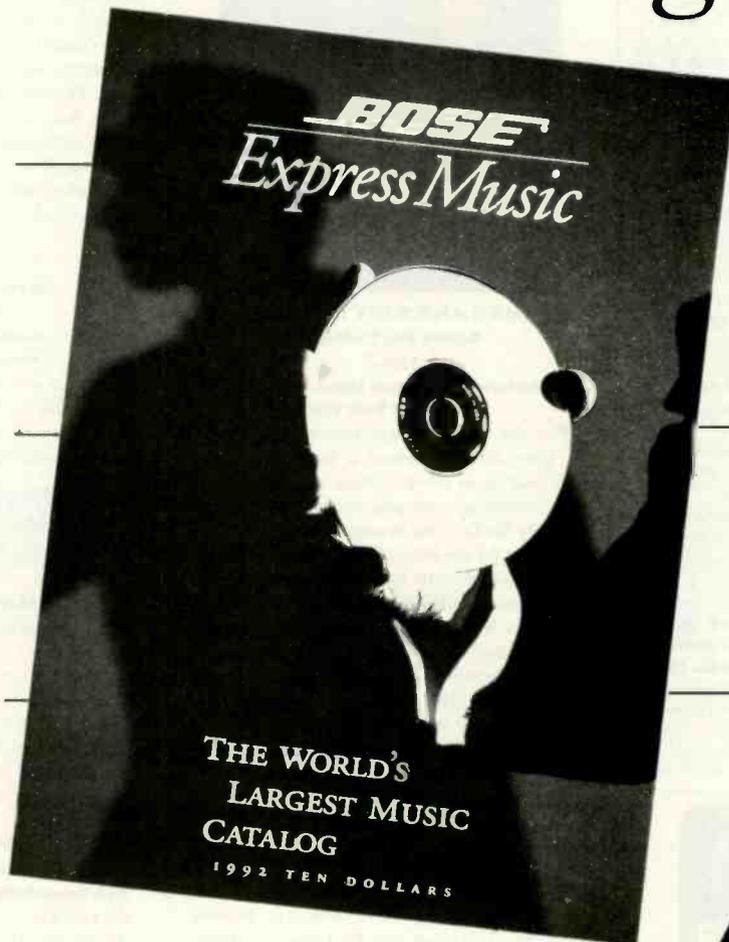
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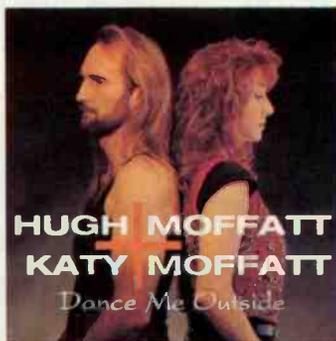
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DENON

Popular Music

bleat and plays virtually all the instruments except bass.

Joyful, crammed with energy and an almost British wit. "Horseshoes and Hand Grenades" is great fun—raw and pumping—even when it takes on the gloomy subjects of self-destruction (*Don't You See It*) and rejection (*Get Out of My Life*). In Mars's world, nothing is so terrible or final that it can't be overcome, and hope and optimism rule the day. Did I mention his gift for quirky melody? Check it out. A.N.



HUGH AND KATY MOFFATT

Dance Me Outside

PHILO

Performance: Great blend, but . . .

Recording: Very good

You don't have to be perturbed to find something titillating about a brother-and-sister team singing an entire concept album about romantic cheating, especially when the duo is Hugh and Katy Moffatt—he better known as a country songwriter for the likes of Alabama and Lacy J. Dalton, and she better known as a country singer (four albums for CBS and Rounder/Philo since the Seventies). But you do have to be a big fan (and I mean colossal) to think this album delivers either the fire or the guilty thrill that it should.

Taken alone, Hugh's baritone is lackluster, to say the least, but together the Moffatts sound like angels. The trouble is, we never for a millisecond believe that these two voices are entangled in any way other than musically. Part of the problem is that the songs don't have much shame or even tension built in, and when they do, such as *Dark End of the Street* or the classic *We'll Sweep Out the Ashes*, the Moffatts seem more interested in how their versions stack up next to the ones by Richard and Linda Thompson and by Emmylou Harris and Gram Parsons than in how convincing they are as anguished lovers. The high point comes in Katy and Greg Leisz's *Right Over Me*, where she cuts loose on a lusty lead and her brother chimes in when necessary. Next time out, maybe Katy should just cut an album of her brother's songs and think dirty thoughts. A.N.

U. UTAH PHILLIPS

I've Got to Know

ALCAZAR

Performance: A crazy quilt

Recording: Good

Braconteur. Whether writing the songs about cowboys, hoboes, and trains that made up much of the Sixties "folk-song" catalog for such performers as Joan Baez and Rosalie Sorrels, or grandstanding about the evils of the American government, Phillips excels at spinning yarns and sharing anecdotes, always with a persuasive and nudging force. "I've Got to Know" brings him in

from the West and out of the train yard to wax passionate about his anarchistic and pacifistic political philosophy. In thirty-three short selections he weaves commentary, poetry, song, personal reflection, and memory into a call for peace. In explaining the difference between loving the country and despising the government, he seldom wavers from activist jargon, but most of what he says—such as the title track's insistence on putting arms money into eradicating homelessness and AIDS—makes plenty of sense, even if it's often of an obvious kind.

White-bearded and rumped in the old political-troubadour fashion, Phillips has a warm and naturally inviting speaking voice, punctuated by hissy s's and by passionate outbursts that offset his pedestrian singing and acoustic-guitar strumming. Overall, his material works best when there's less of a knee-jerk message and more history and humor, but that hardly matters. This is still a record for the already converted, or else for those who want to see what the fuss—and the legend—is all about. A.N.

QUEEN

Live at Wembley '86

HOLLYWOOD

Performance: Pointless

Recording: Indifferent

Say what you will about Queen, but they were essentially a studio band. That probably explains why their arena shows became such gargantuan, over-the-top spectacles—they knew

TALES FROM THE VAULTS

NEIL DIAMOND

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From the three-chord Sixties pop/rock gems (*Cherry Cherry*) to the Adult Contemporary ballads that sound like Elvis looked when he died (*Love on the Rocks*), this is more than a Greatest Hits collection—it's a metaphor for the Decline of the West.

THE LEFT BANKE

There's Gonna Be a Storm—

The Complete Recordings 1966-1969

(MERCURY)

All the hits (*Walk Away Renee*) and should have been (*Desiree*) by one of the most innovative and overlooked American bands of the Sixties. And it's nowhere near as effete as you might think—in fact, these guys made power pop before the term was coined.

ELVIS PRESLEY

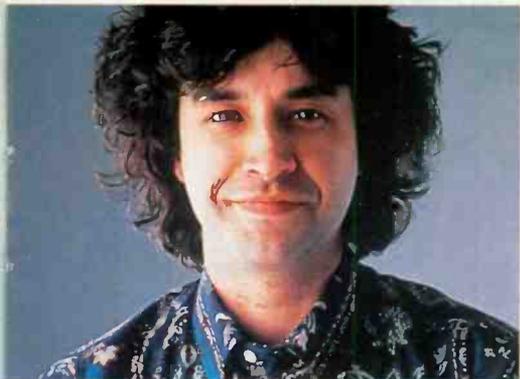
The Complete 50's

Masters (RCA)

Finally, in one package, here's every note Elvis recorded before he entered the army, in the original (gloriously restored) mono. And isn't it nice to know that these songs will be listened to long after all of Albert Goldman's books are out of print?

Steve Simels





Mars: God is in the garage

SMASH/PG

they couldn't duplicate the power of the records on stage, so they must have figured they had to distract us. This new live album, released to (let us not mince words) cash in on the post-Wayne's World Queen revival and the tragic death of Freddie Mercury, pretty much tells the story: Without the endless vocal and instrumental overdubs that the band and their producer, Roy Thomas Baker, perfected in songs like *Bohemian Rhapsody*, Queen in person sounded like what it was—a fairly anemic power trio, though one with a particularly charismatic front man.

Die-hard fans may want this album for the heretofore unreleased curiosities (the no-great-shakes acoustic runthroughs of Ricky Nelson and Elvis songs, a snippet of *Gimme Some Lovin'*), but the rest of us should probably stick with the studio albums. S.S.

RAIN
A Taste of . . .
COLUMBIA

Performance: Vague
Recording: Good

Listening to Rain makes me (1) shake my body and nod my head to the ready-steady-go pulse of their songs, (2) sing along to the unabashedly sweet-and-soaring choruses, and (3) scrunch up my face and say, "Huh?" Two out of three isn't bad, especially because (1) and (2) take my mind off (3). It's only during the pauses between songs that I think about how these crisp British Invasion melodies (Beatles, etc.) propelled by spare, American-indie-band arrangements (R.E.M., etc.) seem like power-pop launching pads to nowhere. All too often, a lyric just doesn't add up to anything despite being powerfully sung. Take, for example, "Brothers, you were one / You changed the things you came upon / Now what was real has gone / Lemonstone desired has won" in *Lemonstone Desired*; it's unclear who the brothers are, what they changed, what is gone, and who or what "Lemonstone desired" is. The music in "A Taste of . . ." rings clear and true. I wish I could say the same for the words. R.G.

BILLY JOE ROYAL
ATLANTIC

Performance: Wasted
Recording: Very good

Billy Joe Royal—yes, the same one who cut the 1965 classic *Down in the Boondocks*—has been hanging around the fringes of country music for the past few years. Here, in an album produced by Rick Hall, the king of homogenized r-&b, Royal demonstrates that his tense and throbbing tenor has lost none of its elasticity or its

edge. He still conveys all the determination, anger, and hurt of *Boondocks* and sounds as if he's right on the brink of doing something dangerous every time he opens his mouth.

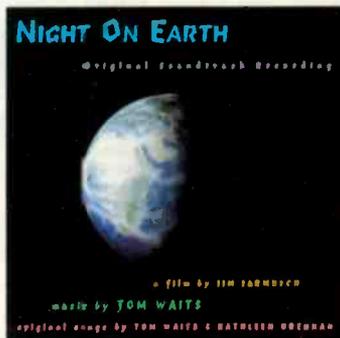
But Hall has saddled Royal with a schlocky production and inferior material, including needless remakes of *Funny How Time Slips Away*, *Just When I Needed You Most*, and *I'm Sorry*. When he gets his teeth into something decent Royal is a wonder, a singer who can shake your skin right off your bones. Here's hoping he gives Hall the boot and makes the record that's obviously burning in his soul. A.N.

SISTER SOULJAH
360 Degrees of Power

EPIC

Performance: Ticked-off
Recording: Sample city

Boy, is this rapper (and former Public Enemy associate) angry at the racist, sexist, genocidal powers that be—although not, apparently, at the multinational corporation marketing her album. As for me, I may not agree with what she says, but, like Voltaire, I will defend to the death her right to say it. I'm not so sure about *The Count Floyd Show* samples she uses on the first track, however. S.S.



TOM WAITS
Night on Earth
ISLAND

Performance: Haunting
Recording: Very good

Judging from Tom Waits's soundtrack for *Night on Earth*, Jim Jarmusch should have titled his film *Nightmare on Earth*. Although it is a comical assemblage of five stories about the interaction between taxi drivers and their fares in New York, Los Angeles, Paris, Rome, and Helsinki, Waits's original music is anything but lighthearted. Instead, it's menacing, brooding, and terror-filled—the perfect music to slash your wrists by.

Waits's heretofore depressing rasp now mimics the deeper-throated growl of a singing gorilla, but there are only three vocal numbers. The mostly instrumental score creates a moody, disturbing atmosphere in which dissonance and atonality float through a brilliant kind of space jazz along with melodramatic melodies harking back to old European folk songs. Such titles as *Dragging a Dead Priest* and *New York Theme (Hey, You Can Have that Heartattack Outside, Buddy)* pretty much tell the tale, but they can't compete with such Fellini-esque lyrical images as, "And I drink champagne from your thin blue veins." Maybe this music won't be so unsettling if you've seen the film, but without any memory of its images, you'd have to be very up, indeed, not to let this bring you down. A.N.

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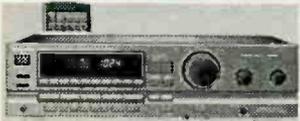
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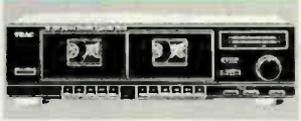
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QUICK FIXES

JAZZ

DUKE ELLINGTON Happy Birthday, Duke!

LASERLIGHT (five discs)

Performance: Fine, vintage Ellington
Recording: Good mono remotes

Duke Ellington's long career yielded a staggering number of commercial recordings, but even more recordings were made privately, often with his blessings. "Happy Birthday, Duke!" is a collection of mono recordings made by Wally Heider, a professional audio engineer with a penchant for big bands, during a number of engagements at McElroy's Ballroom in Portland, Oregon, on the Duke's birthday, April 29. Although this is a legitimate release made by arrangement with Mercer Ellington, there are no dates given, but the personnel and presence of the vocalist Jimmy Grissom suggest that these performances took place in the early Fifties. The brass section boasts the trumpeters Willie Cook, Cat Anderson, and Clark Terry and the trombonists Britt Woodman, Quentin Jackson, Juan Tizol, and John Sanders. The reeds are equally impressive: Russell Procope, Paul Gonsalves, Jimmy Hamilton, Rick Henderson, and Harry Carney. The violinist Ray Nance is also present, and the bassist is Wendell Marshall.

Ranging in total time from 38 to 47 minutes, the five discs capture a festive atmosphere and provide a wonderful glimpse of Ellington's orchestra on the road. The program is a pleasant mixture of familiar Ellington fare, including standards, a few rarely heard tunes such as *Coffee and Kisses* and Cat Anderson's *Blue Jean Beguine*, and items from the Ellington dance book like *Primpin' for the Prom* and *Boodah* (these were, after all, ballroom gigs). There is also some typical verbal kidding around, and the whole thing is brimming with good solos. C.A.

DIZZY GILLESPIE To Dix with Love

TELARC JAZZ

Performance: Excellent
Recording: Good remote

Dizzy Gillespie's seventy-fifth birthday is this October 21, but the celebration started with the new year. New York City's Blue Note club devoted a whole month to Gillespie and his friends, forty-seven sets during which an impressive roster of colleagues dropped by to sit in. Telarc captured those meetings on tape for a Diamond Jubilee series, of which this CD is the first release. Beautifully supported by the pianist Junior Mance, the bassist Peter Washington, and the drummer Kenny Washington, Gillespie is joined by several generations of trumpet players, from eighty-six-year-old Doc Cheatham to the bebop ace Red Rodney to the relative newcomers Jon Faddis and Wynton Marsalis. In pairs, they ride with Gillespie through five bebop standards and an Ellington perennial, *Mood Indigo*—which features Cheatham and Faddis with two decidedly different yet eminently compatible approaches. The results are fine when Marsalis shares the guest spot in *Confirmation* with Red Rodney and in *Straight No Chaser* with Charlie Sepulveda. I was less pleased with *Billie's Bounce* and *A Night in Tunisia* featuring Wallace Roney and Claudio Roditi—the latter's screechy, downright unmusical sounds are the album's only weakness. The pain was eased somewhat by the veteran trumpeter Lew Soloff's brief, unscheduled appearance in *Tunisia*, which brings the enjoyable celebration to a rousing finish. C.A.

TORI AMOS

Crucify (ATLANTIC)

The big news on this EP is a trio of covers: the Stones' *Angie*, Zeppelin's *Thank You*, and Nirvana's *Smells Like Teen Spirit*. The last notable mainly because you can make out the words. For me, though, the real value of the package is in the cover photo, featuring wacky Tori wearing a necklace of grape hyacinths. Just what the world needs: Joni Mitchell with a pagan streak. Glenn Kenny



LAVERNE BAKER

Woke Up This Morning (DISQUES SWING/DRG)

Baker, perhaps the biggest female star of rock's first generation, makes a comeback here with an album of jazz, soul, and pop standards. A perhaps too prominent aroma of Supper Club permeates the proceedings, but signs of life (a nice job with Otis Redding's *Can't Turn You Loose*) are occasionally detectable. S.S.

NICK CAVE AND THE BAD SEEDS

Henry's Dream (MUTE/ELEKTRA)

In which our old pal Mr. Death pulls a neat trick, wedding his grim scenarios to lively music that often verges on the catchy without compromising his dour vision. Bracing stuff that should, but probably won't, help St. Nick out of the alternative-rock ghetto. G.K.



DIM STARS

(CAROLINE)

A post-punk super-session featuring two members of Sonic Youth, plus Robert Quine and Richard Hell (the co-founder of Television). The legendary bluesman Robert Johnson might not recognize his *Stop Breaking Down* as performed here, but fans of abrasive noises will find much to enjoy. S.S.

ENCINO MAN

(HOLLYWOOD)

Okay, so it's the dumbest movie of the decade thus far, but the soundtrack has its moments, particularly a hilariously over-the-top Smithereens remake of the venerable *Woolly Bully*. Party on. S.S.

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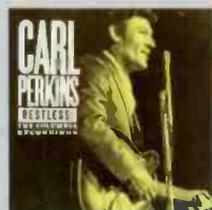
Destination Universe (MERCURY)

Last time out, the pop/rock that these Big Star wannabes made sounded both contrived and a little wimpy. This time, however, the songs are direct, melodically memorable, and heartfelt, and the performances are so alive they all but jump from the speakers. Imagine that—a young band actually growing before our ears. Very, very impressive. S.S.

MARC MOSS AND THE ART FARM

(TARGET)

Intelligent, extremely well-crafted, and additively tuneful prog-rock, somewhere between Steely Dan and XTC. Pick hit: *Nothing's Perfect*, which is sonically gorgeous and has a chorus hook for the ages (\$12 postpaid from Target Records, 801 Valley Rd., Newark, DE 19711). S.S.



CARL PERKINS Restless: The Columbia Recordings

(COLUMBIA/LEGACY)

These post-*Blue Suede Shoes* rockabilly workouts may not be as epochal as Perkins's Sun stuff, but they're certainly entertaining. If Columbia really wants to do the world a favor, however, it should reissue the album Perkins did with NRBQ (two tracks from which are included here), and pronto. S.S.

PHAROAH SANDERS

Rejoice / Journey to the One

(EVIDENCE)

Recent-vintage Sanders recordings have been giving the lie to those who once pegged the visionary tenorman in the "can't play" category. These two sprawling sets showcase him sounding off with equal amounts of control and passion, equally satisfying in old ballads and original world-music excursions. G.K.



TOM SCOTT

Born Again (GRP)

Still more yawn inducements from the world's most tedious jazz/fusion session hack. And as they say in *The Texas Chainsaw Massacre*, there's no need for that. S.S.

TEXAS TWISTED

Psychedelic Microdots of the Sixties, Vol. 2 (SUNDAZED)

Newly discovered, and vastly entertaining, live TV performances by the legendary Austin LSD band the 13th Floor Elevators, among others. If Motown in the Sixties was "The Sound of Young America," then, on the evidence here, Texas acid/garage rock in the Sixties was "The Sound of Young America Frying Its Brain Pan." S.S.

"WEIRD AL" YANKOVIC

Off the Deep End (SCOTTI BROS.)

Just as Evel Knievel wasn't particularly evil, the trouble with "Weird Al" is that he's not really that weird—no weirder, say, than the parodies in *Mad*. This new album's Nirvana takeoff, however, is kinda funny, and some of the other numbers will doubtless make amusing videos. S.S.

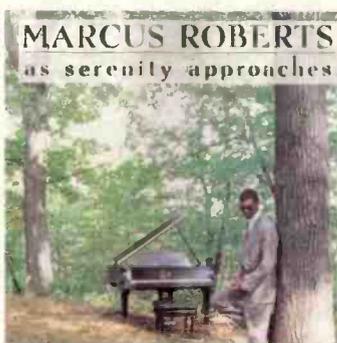
JAZZ

ERNIE KRIVDA
Ernie Krivda Jazz
CADENCE

Performance: **Stunning**
Recording: **Excellent**

Ernie Krivda has played professionally for close to thirty years, is a household word in his home town (Cleveland), has made more albums than many better-known musicians make in a lifetime, and has worked with some of the top names at the world's leading jazz festivals, but most jazz fans still don't know his name. Perhaps this album, his first in three years, will change that. It's a marvelous stylistic romp in which the saxophonist has teamed up with several other musicians in various combinations.

The first two selections feature the accordionist Pete Selvaggio. Accordionist? Correct, and much as I loathe that instrument (except when I hear the fishermen play it on a certain tiny Baltic Sea island where I grew up), I have to admit that it sounds super here. In the second track, *Irv's at Midnight*, Bob Fraser lays down a solid rhythm on the acoustic guitar, giving Krivda the kind of feathery foundation we used to hear from Basie's rhythm section. This album is a stunning fusion of sounds, not all of which come from the jazz tradition, and not a single track is conventional. Krivda is a true original who does not stoop to gimmickry. He doesn't have to, because the creativity is there in full force. C.A.



MARCUS ROBERTS
As Serenity Approaches
NOVUS

Performance: **From the heart**
Recording: **Good**

Marcus Roberts gets better and better, which of course means that nowhere is he better than in his latest album, "As Serenity Approaches." This generous 73-minute set overflows with the pianist's talent, starting with a highly unorthodox version of Ray Noble's *Cherokee* that offers such stylistic diversity it might be thought of as a 5½-minute lesson in jazz history. But it's only the beginning of a wonderful program that includes several splendid Roberts originals, a good dose of Jelly Roll (the classic *King Porter Stomp* and an original tribute, *Ferdinand LeMenthe*), some lovely Ellington with the trombonist Ronald Westray, and a duet with Ellis Marsalis in Fats Waller's *The Jitterbug Waltz*. Other duets feature Todd Williams (on clarinet and tenor) and the trumpeters Scotty Barnhart, Nicholas Payton, and Wynnton Marsalis. I cannot praise this release highly enough. If you think old-fashioned, two-fisted piano playing is a thing of the past, Marcus Roberts has a surprise for you. And if you think boogie and stride *have* to be old-fashioned, think again. C.A.

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BEETHOVEN: Diabelli Variations

Stefan Vladar
SONY SK 48060

Performance: Glittery
Recording: Bright

At age twenty, Vienna-born Stefan Vladar won the 1985 International Beethoven Competition, and in 1990 his recording of the five Beethoven Piano Concertos appeared on the British Naxos label. Even so, it's a bit startling that for his first solo Beethoven release Sony Classical should trot out the composer's formidable Thirty-Three Variations on a Waltz by Diabelli—a work that encompasses the whole range of Beethoven's keyboard composing technique and a whole range of musical expression, from the comic to the profoundly introspective.

The very opening sets the tone. Vladar is aggressive and steely-fingered, and the predominantly bright sound is accentuated by the spacious hardness of Vienna's Musikvereinsaal. While virtuosity is much in evidence throughout the 53-minute performance, Vladar is also capable of great delicacy, as in Variation No. 24, with its echoes of Bach's *Well-Tempered Clavier*, and in his handling of the elaborate ornamentation in Variation No. 31. He turns the following big double-fugue into a tremendous showpiece, climaxed by the demonic closing cadenza, but he also captures convincingly the transcendent quality of the final pages. Nevertheless, I am not prepared to retire my predigital recordings of the work by such old masters as Rudolf Serkin (CBS) and Artur Schnabel (Pearl).

D.H.

BEETHOVEN: Piano Sonatas Nos. 13, 14 ("Moonlight"), and 15 ("Pastoral")

Maurizio Pollini

DEUTSCHE GRAMMOPHON 427 770-2

Performance: Patrician
Recording: Close up

Maurizio Pollini's approach to the late Beethoven sonatas worked especially well for me, and his patrician style, perhaps surprisingly, is just as persuasive in these early ones. The playing is direct, a little analytical rather than dramatic in a conventional sense, and splendidly articulated. There is not the slightest hint of condescension toward either the music or the audience. This is serious musicmaking, but it's never heartless, and it is refreshing from first note to last. Casual listeners may be disappointed to find so little in the way of the cozy old "pictorial" quality that used to be the norm in the Sonata No. 14 in particular, but they will find something better here, something that will encourage them to forget about the "Moonlight" (a sobriquet Beethoven did not devise and did nothing to encourage), to forget about comfortable old notions, and to open up to the music on its own

REVIEWS

**CLASSICAL
MUSIC**

**Discs and tapes
reviewed by Robert Ackart,
Richard Freed, David Hall,
George Jellinek,
Eric Salzman, and
David Patrick Stearns**

terms. These early works were more than mere warm-ups for Op. 111, after all.

The recording is close up, giving a power boost here and there that Pollini hardly needed, but it is very lifelike for all that, and the program overall should be a tonic for jaded listeners.

R.F.

IBERT: Divertissement; Concertino da Camera. POULENC: Sinfonietta

San Diego Chamber Orchestra, Barra
KOCH INTERNATIONAL CLASSICS 3-7094-2

Performance: Workmanlike
Recording: Attractive

Ibert should have been the seventh member of Les Six. He outdoes the original members of that famous group of French composers in pure sass and boisterousness. The *Divertissement* is fairly outrageous: alternating rooey-toot, a commercial sound, chase music, Stravinsky imitations, nose-thumbing, quotations, sentimentality, cheap shots, a bit of rueful lyricism, and what Poulenc used to call "that adorably terrible music." The *Concertino da Camera* for alto saxophone and eleven instruments is a more serious Neoclassical effort and consequently less amusing—without too many compensations.

Speaking of Poulenc, one of his major efforts, possibly his instrumental *magnum opus*, is offered here almost as an afterthought. His *Sinfonietta*, written in 1947, is a 30-minute piece in four traditional movements—by any other name, a full-fledged symphony. An affecting work of intense lyricism, until the amusing finale it is virtually without the bite and campy wit that we usually associate with Poulenc. It constantly flirts with commonplace sentiment along the thin edge of banality and sentimentality but never quite falls over; in this it resembles and anticipates his great opera, *The Dialogues of the Carmelites*. It is certainly the most notable work on this CD, and it is surprising that it is not featured more prominently.

Michael Whitcombe is the talented saxophone soloist in the Ibert *Concertino*. The San Diego Chamber Orchestra under Donald Barra gives solid, workmanlike performances, and the recording, made at the department of music of the local branch of the University of California, is attractive.

E.S.



**IVES: Symphony No. 1
BARBER: Three Essays for Orchestra**

Detroit Symphony, Järvi
CHANDOS CHAN 9053

Performance: Mostly good
Recording: Somewhat diffuse

Neeme Järvi and his Detroit Symphony capture nicely the predominantly idyllic tone of the first movement of the Ives First Symphony (completed in 1898), but they make rather slow going of the adagio. Fortunately, the pace picks up in the Mendelssohnian scherzo and in the blustering finale.

The Barber performances, like the Three Essays themselves, are a mixed bag. The First Essay (from 1937) is a tautly constructed minor masterpiece. Järvi sets forth the opening pages in an overly lugubrious fashion, however, and the subsequent fast section is also rather slack. The Second Essay (1942), for me one of Barber's best works, eloquent and superbly built up from its germinal elements, gets the best performance here. The late Third Essay (1978), for all its coloristic devices, is a somewhat bitter pill, expressively speaking, and neither Järvi, Slatkin (RCA), nor Mehta (New World) has made a convincing case for it on disc.

I would recommend Michael Tilson Thomas's equally fine Ives reading on Sony, which has much better sonic presence than Järvi's. For the Barber First Essay, go for Andrew Schenck on Stradivari, and for the Second, do not pass up the remarkable Vanguard Classics CD transfer of the fine 1960 performance by Vladimir Golschmann and the Symphony of the Air (the erstwhile NBC Symphony).

D.H.



MAHLER: Das Lied von der Erde

Meier, Jerusalem; Chicago Symphony,
Barenboim
ERATO 45624-2

Performance: Mostly very good
Recording: Mostly very good

In this 1991 concert recording, Daniel Barenboim follows the example of Herbert von Karajan's 1975 recording of *Das Lied* and emphasizes

the music's delicate textures and varied instrumental coloration, in contrast to the *Angst*-ridden treatment made standard by Bruno Walter, who conducted the work's première. The result is one of the better digitally recorded versions.

The tenor Siegfried Jerusalem takes the fear-some hurdles of *The Drinking Song of Earthly Woe* in stride, though his "Dark is life; dark is death" refrain seems a bit uninflected (Barenboim's rapid pacing may have something to do with that). The opening of *The Lonely One in Autumn* is more notable for the exquisite oboe descant over soft strings than for the mezzo-soprano Waltraud Meier's delivery of the text, but she redeems matters with a truly piercing eloquence in its closing lines. Jerusalem's tonal buoyancy is a delight in the picturesque *Of Youth*, and though *Of Beauty* has some wicked bits where the mezzo's low register is set against most of the orchestra, Barenboim controls the balance. Jerusalem's finest moments are in *The Drunkard in Spring*, where his coloration of the bird episode is elegant.

Der Abschied (The Farewell), the final movement of the cycle and as long as all the rest combined, is one of the great tests for any singer. If Meier does not quite measure up to the exalted standards of such predecessors as Janet Baker, Kerstin Thorborg, Kathleen Ferrier, and Brigitte Fassbaender, she does come within striking distance, especially in the final pages.

My one serious complaint about Barenboim's interpretation is that in the great orchestral interlude he seems to let the basic pulse slip away from him. Except for some overemphasized details, the sonics are remarkably fine throughout, and the orchestral execution is impeccable. *D.H.*



MEDTNER:
Piano Concertos Nos. 1, 2, and 3;
Sonata-Ballade

Tozer; London Philharmonic, Järvi
CHANDOS CHAN 9040 (two discs)

Performance: Cool and serious
Recording: Crisp

Niccolò Medtner's piano concertos, written between 1918 and 1943, signify the three periods of his life: his younger years in Russia, the middle years in which he attempted to pursue an international performing career similar to that of his friend and countryman Rachmaninoff, and his final years of neglect in London. Although the three concertos are clearly the product of the same distinctive personality—all so lush and sumptuous that you find yourself exclaiming in intoxication and bewilderment, "Too many notes, Medtner!"—the first seems to have been written under the spell of Tchaikovsky, the second has a thematic clarity suggesting a desire to communicate with a wider audience, and the third is so concentrated and introverted it suggests what

Holy Mozart!



Andrew Parrott and the Boston Early Music Festival

ALTHOUGH Leonard Bernstein was not known as a Mozart conductor, one of his last performances was of the C Minor Mass in Munich, and Deutsche Grammophon has now released the recording. It goes totally against the current trend toward small-scale Mozart performances, but the grandeur of Bernstein's conception—with dramatic outbursts, rubatos, and a lineup of star soloists (including Arleen Augér and Frederica von Stade)—can be awe inspiring. For those who love Bernstein, this CD is a must, even if it doesn't have much to do with Mozart.

Two other recent recordings of the Mass illustrate how radically different "authentic" performances can be. Philippe Herreweghe's recording on Harmonia Mundi has all of the intelligence, musicality, and polish you would expect from him, though it's not one of his more individual interpretations. Aside from the sound of the instruments, the performance isn't very different from the sort of middle-of-the-road reading you'd get from, say, Neville Marriner. Herreweghe doesn't do anything with the piece that anyone else hasn't done, but he does it a bit better.

Andrew Parrott's recording on Denon continues the effort, evident in his earlier recording of the Requiem, to divorce Mozart's music from the romanticization that even the most conscientious modern performers usually can't help imposing on it. No, Parrott seems to be saying, the music is not autobiographical or symbolic of Mozart's ambivalence toward his religion, his father, or the world at large; it's simply great music.

The C Minor Mass in particular has never seemed greater than it does in Parrott's live recording. The playing isn't quite as polished or the vocal soloists as suave as in Herreweghe's (or as famous as in Bernstein's), but the music blooms with Parrott's fast tempos (his *Kyrie*, for instance, is about 2 minutes shorter than Herreweghe's and almost 3 minutes shorter than Bernstein's). The Handel and Haydn Society Chorus produces a remarkable, vibrato-free sound that's almost mesmerizing in its clarity, and they glide effortlessly, fluidly through ornate runs. This is one of those original recordings that may forever change the way you hear a great work.

David Patrick Stearns

MOZART: Mass in C Minor; Exultate
Jubilate; Ave Verum Corpus

Augér, Von Stade, Lopardo, Hauptmann;
Bavarian Radio Chorus and Orchestra,
Bernstein
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MOZART: Mass in C Minor;
Meistermusik, K. 477

Oelze, Larmore, Weir, Kooy; Collegium
Vocale; La Chapelle Royale; Orchestre des
Champs-Élysées, Herreweghe
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MOZART: Mass in C Minor; Church
Sonatas, K. 67 and 329

Armstrong, Labelle, Thomas, Morrison;
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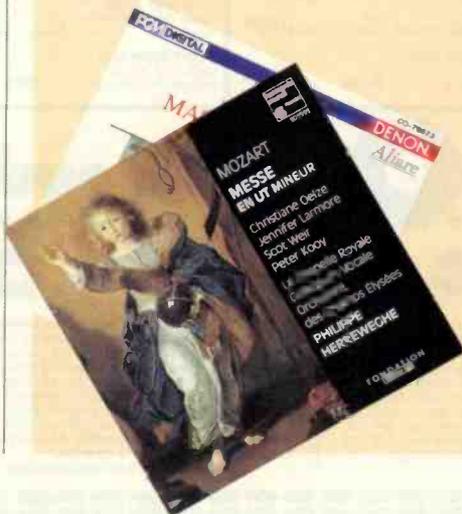
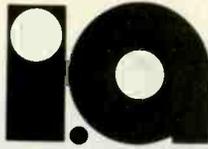


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The Tchaikovsky Fifth on Erato 45755-2, recorded live in Leningrad in 1983, is an absolute stunner. The reading is tauter than in 1956, and that is all to the good, especially in the opening pages. Not one detail of rhythmic stress, dynamics, or phrasing is left to chance, yet the result sounds utterly spontaneous, as if it were the finest imaginable chamber music.

The many high points of the performance include the plaintive clarinet solo that leads to the first climax of the slow movement, and also its marvelously hushed closing pages. Mravinsky placed the strings in the Classical European manner, violins at left and right, and it worked superbly in Tchaikovsky. His fierce lead-in to the finale simply lifts you right out of your chair, and from there to the end the tension and excitement are relentless. The recorded sound has immense power and presence. Even without a coupler work (playing time is a mere 43 minutes), this CD offers a listening experience to be remembered.

David Hall

Ferruccio Busoni might have written had he lived another ten years.

There are three Medtner concerto cycles on disc or under way, and in many ways this Chandos set is the most desirable. Without ever seeming to apologize for the overwritten music, Geoffrey Tozer takes a fairly cool view of it, with tempos more brisk than in the other recordings and a leaner, more transparent approach to the dense piano textures. This might seem to go against the grain of the music, but Medtner's Romantic stance was only skin deep. Tozer reveals that behind the music's surface extravagance lies a highly concentrated composing style with constant thematic transformations.

The collaboration between Tozer and the conductor, Neeme Järvi, is a strong one, and the engineering treats piano and orchestra as a single entity, particularly important in the remarkable Third Concerto. That dark, introverted work almost completely forgoes the usual competitive relationship between concerto soloist and orchestra. I wish these performances sounded as if the interpreters had lived with the music longer, but such versions may exist only in the vaults of EMI, which recorded Medtner himself playing these works in the 1940's. *D.P.S.*

MOZART: Violin Concerto No. 1; Adagio in E Major, K. 261; Sinfonia Concertante

Mutter; Giuranna; Academy of St. Martin in the Fields, Marriner
EMI CDC 54302-2

**Performance: Ultrapolished
Recording: Sumptuous**

Anne-Sophie Mutter first came to the attention of the world through her recordings of Mozart violin concertos with Herbert von Karajan. Now, roughly fifteen years later, Mutter has completed her recorded output of Mozart concertos with this convenient collection. While her playing has inevitably lost some of the warmth and naturalness of her earlier years, she now has a deeper comprehension of the music as well as a gleaming, immediately identifiable tone quality.

She makes no special case for the early Violin Concerto No. 1 (K. 207), allowing it to seem bland and tentative, springing to life only in the slow movement, which is the only place her performance rises above a polished professionalism.

The Sinfonia Concertante is a different story. Mutter and the violist Bruno Giuranna have often played with Mstislav Rostropovich in a string trio, and their rapport is particularly apparent in the easy playfulness of the first movement and their emotional unanimity in the slow movement, where Mutter is again outstanding. On all levels, and particularly in Neville Marriner's interpretation of the orchestral part, the performance is incredibly alert and rhythmically alive. The only drawback is that expressive points occasionally seem contrived or synthetic. While this isn't a must-hear disc, it's a worthwhile one, especially with the bonus of the rare Adagio in E. *D.P.S.*

PUCCHINI: La Fanciulla del West

Zampieri, Domingo, Pons; Chorus and Orchestra of La Scala, Maazel
SONY S2K 47183 (two discs)

**Performance: B+
Recording: Stagy**

Puccini saw David Belasco's play *The Girl of the Golden West* at the old Belasco Theater in New York City. He fell in love with it and turned it into *La Fanciulla del West*. It is a great irony that

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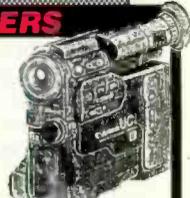
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QUICK FIXES

BACH: Goldberg Variations. Maggie

Cole (VIRGIN 91444-2). Maggie Cole's interpretation is intelligent, enlightened, learned, and highly musical, but she seems to lack a deep identification with the music. Her reticent performance, on harpsichord, doesn't bring out the individual character of each variation. *D.P.S.*

BARBER: The School for Scandal, Overture; Knoxville—Summer of 1915; Two Essays for Orchestra; Adagio for Strings; Medea's Dance of Vengeance. McNair; Atlanta Symphony, Levi (TELARC CD-80250).

There is nothing but pleasure in the consistently crisp, clear orchestral playing here and in the rich brilliance with which it is reproduced. Every phrase is shaped with real conviction. Yoel Levi finds and sustains a fine natural momentum, and the soprano soloist in *Knoxville*, Sylvia McNair, is first-rate. *R.F.*



BARTÓK: The Miraculous Mandarin. WEINER: Hungarian Folkdance Suite. London Voices; Philharmonia Orchestra, Järvi (CHANDOS CHAN 9029).

This CD offers the complete score for Bartók's weird sex-and-violence ballet in a performance and recording that do justice to its dark, exotic drive and dissonant color. The substantial encore by a lesser-known Hungarian composer, Leó Weiner, is charming and decidedly unweird. *E.S.*

BERLIOZ: Symphonie Fantastique. WEBER (arr. Berlioz): L'Invitation à la Valse. Cleveland Orchestra, Dohnányi (LONDON 430 201-2).

Christoph von Dohnányi's reading of the *Symphonie Fantastique* is refined and scrupulous to the last degree. There is gripping drama and the requisite Classical line, but the element of hysteria is rather downplayed. The recording is crystal clear. *D.H.*

HANDEL: Clori, Tirsi e Fileno. Soloists; Philharmonia Baroque Orchestra, McGegan (HARMONIA MUNDI 907045). Nicholas McGegan leads a polished performance of one of the longest and best cantatas of Handel's Rome period. The extraordinary effects come off even with small-scale performing forces, including the graceful flute writing, the hair-trigger vocal exchanges, and the piquant exchanges between the soprano and lute soloists. *D.P.S.*

JANÁČEK: Violin Concerto; Sinfonietta; Taras Bulba; From the



House of the Dead, Overture. Tetzlaff; Philharmonia Orchestra, Pešek (VIRGIN 91506-2).

The one-movement Violin Concerto, only recently fished out of Janáček's sketchbooks, is a strange work that's not very convincing in the heavyhanded "realization" here. But it's well played by the soloist, Christian Tetzlaff, with the fine Czech conductor Libor Pešek, and my doubts about it barely dampen my enthusiasm for the rest of the disc. The wonderful Sinfonietta gets a particularly dynamic, intense performance. *E.S.*

SHOSTAKOVICH: Symphony No. 7 ("Leningrad"). Dallas Symphony, Mata (DORIAN DOR-90161).

An A for effort to the conductor Eduardo Mata and his Dallas players, but his predominantly low-voltage reading is clearly outclassed by those from the likes of Bernstein, Jansons, Järvi, Rozhdestvensky, and Rostropovich. The recording level is on the low side, and an overly distant microphone pickup dilutes presence and tonal body. *D.H.*

TCHAIKOVSKY: Variations on a Rococo Theme; Pezzo Capriccioso; and six others. Harnoy; London Philharmonic, Mackerras (RCA VICTOR 60758-2).

The appeal of this package, which consists mostly of arrangements, must rest primarily with the Rococo Variations, in which the cellist Ofra Harnoy displays an attractive sound and a high level of competency but little beyond that. I miss the poetry, the flair, the charm that can make the difference between a compelling listening experience and pleasant background music. *R.F.*



WAGNER: The Ring of the Nibelung, excerpts. Chicago Symphony, Barenboim (ERATO 45786-2).

These are spacious, richly detailed performances that underplay the drama and stress poetic expressiveness and textural transparency. Orchestral virtuosity is captured in somewhat bass-shy sonics. In Brünnhilde's Immolation Scene the soprano Deborah Polaski measures up to today's modest Wagnerian standards. *G.J.*

his greatest score, and one of the last major operas in the Italian tradition, is a spaghetti western, a horse-opera opera! Here it is conducted by an American at La Scala—part of Lorin Maazel's ongoing Puccini series begun at CBS Masterworks and now continuing on Sony Classical.

Like the others in the series, this is a live recording, and although that's not without an up side, there are quite a few minuses, too: boxy, stagy sound, intrusive applause, ensemble imbalances, occasional orchestral roughness, unevenness in interpretation. Plácido Domingo is superb as Dick Johnson and deserves the gumption, as it were—that makes the Belasco/Puccini Minnie so striking. Juan Pons is an okay Jack Rance; the trouble is, there is no depth to what is potentially the most interesting and complex character of the triangle.

This is not really a bad performance, but a run-of-the-mill *Fanciulla* is not what the world is crying for just now. As an evening in the opera house, I'm sure it was reasonably rewarding, but as a recording for repeated home listening, it's a B+ at best. *E.S.*

RACHMANINOFF: Piano Concertos Nos. 2 and 3

Bronfman; Philharmonia Orchestra, Salonen (SONY SK 47183)

**Performance: Expansive
Recording: All right**

Among recent digital recordings of Rachmaninoff's two most popular concertos, they are similarly coupled in performances by Horacio Gutiérrez with the Pittsburgh Symphony under Lorin Maazel on Telarc. Yefim Bronfman is decidedly more expansive in the outer movements of both works, emphasizing lyricism and poetry in contrast to Gutiérrez's more driving "powerhouse" approach. Not that Bronfman is wanting in drive, or Gutiérrez in expressiveness, but the basic contrast in their approaches is underscored by the similar contrasts between the crisp focus of Telarc's recording and the somewhat more diffuse one of Sony's and between the relatively amorphous character of the Philharmonia under Esa-

Zampieri, Domingo in Fanciulla



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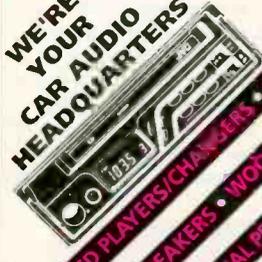
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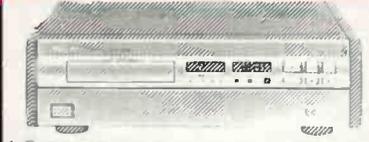
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Pekka Salonen compared with Maazel's more alert and robust-sounding Pittsburghers.

To reduce it all to the simplest and most subjective terms, Gutiérrez and Maazel are more animated and enlivening, Bronfman and Salonen more dreamy and rhapsodic. Both approaches can give pleasure, but listeners with strong ideas about these works who want them coupled on the same CD should have no difficulty choosing one or the other. Bronfman, by the way, opts for Rachmaninoff's alternative extended cadenza in the first movement of the Third Concerto; Gutiérrez plays the more concise original one. *R.F.*

RACHMANINOFF:
Symphony No. 3; Symphonic Dances
Philadelphia Orchestra, Dutoit
LONDON 433 181-2

Performance: Low-voltage
Recording: Handsome

Charles Dutoit leads the Philadelphia Orchestra here in what appears to be its debut on London. The big, luxuriant sound from Fairmont Park's Memorial Hall has a slight tilt toward the lower end of the frequency spectrum, along with a nice sense of space. The orchestral playing is polished to the nines, but I miss the Romantic surge that is part and parcel of the composer's musical language. A rationalist Gallic (or Swiss-Gallic, if you will) approach just doesn't work in this music. Dutoit does best in the finale of the symphony, where he lets the Philadelphians have their head in the brilliant fugato episode, yet the later pages are wanting in the expectant atmosphere that can make the end truly convincing.

The Symphonic Dances lack the savagery called for in the opening movement, and the central waltz comes off as merely a pretty ballet piece rather than a poignant study in nostalgia. The final *Totentanz* is good but doesn't equal the Ashkenazy or Maazel versions in impact. *D.H.*

RAVEL:
Alborada del Gracioso; La Valse;
Daphnis et Chloé, Suite No. 2; Boléro

Cleveland Orchestra, Dohnányi
TELDEC 44945-2

Performance: Powerful
Recording: Very good

RAVEL:
Daphnis et Chloé (complete); Boléro

City of Birmingham Symphony, Rattle
EMI CDC-54303-2

Performance: Stunning Boléro
Recording: Good

Christoph von Dohnányi perhaps brings more power than poetry to Ravel, and his Teldec disc is not very generously filled (barely more than 50 minutes), but he has his great orchestra at

or near its awesome peak, and that kind of playing is vastly enjoyable in its own right in such show-piece works. His scrupulous but subtle attention to detail throughout these performances insures that every one of Ravel's imaginative effects is fully realized without in any way impeding the wonderful momentum. There is ample poetry in both *La Valse* and the *Daphnis* suite (in which the chorus is used). The two other works, however, have little more than efficiency to recommend them—though a very high level of efficiency!

Simon Rattle has developed his allegedly provincial orchestra into a remarkable ensemble in many respects, one of them being—as his complete *Daphnis* (also, of course, with chorus) reminds us—its ability and willingness to play a real *pianissimo* when called for. But in spite of more than a few impressive details, the performance as a whole fails to achieve the level of conviction required to sustain its length. It is a little too obviously painstaking, a little plodding



here and there; it lacks the sweep, the instinctive dramatic impulse, and the voluptuousness that make the Dutoit and Monteux versions (both on London) so irresistible. Rattle's *Boléro*, however, far from being a mere filler, is outstanding in every respect. It's one of the most refreshing and altogether compelling realizations of this overexposed piece one is likely to hear, with virtuosity to burn and a quite unexpected sense of fantasy. *R.F.*

SCHUBERT (arr. Mahler):
String Quartet No. 14
("Death and the Maiden")

BEETHOVEN (arr. Mahler):
String Quartet No. 11
Moscow Soloists, Bashmet
RCA VICTOR 60988-2

Performance: Brilliant
Recording: Likewise

It was a reasonable enough idea to couple Mahler's string-orchestra expansions of these two quartets on a single disc, and Yuri Bashmet conducts performances that lack absolutely nothing in the way of brilliance. But something seems to be missing. The Beethoven is unconvincing because it is a work that arose out of the nature of the specific performing medium for which it was created, while the Schubert is an expressive work that happened to be cast in the form of a string quartet. This impression, though, may have less to do with the success of Mahler's respective transcriptions (in which he made no real changes beyond expanding the number of players and reinforcing the cellos with double basses) than with the success of these particular performances in capturing the spirit of either work.

In a recent Quintana recording, János Rolla conducts the Liszt Chamber Orchestra in a per-



formance of the Schubert that goes far more deeply and directly to the music's essence. If that group is somewhat less brilliant than Bashmet's Moscow Soloists, it more than compensates with a warmth and expansiveness that are as indispensable as dramatic tension to a full realization of this work, and that is more to the point than the convenience of having Mahler's two quartet arrangements in a single package. *R.F.*

SCHUBERT:
Violin Sonata; Rondo for Violin and Piano; Fantasia for Violin and Piano
 Kremer; Afanassiev
 DEUTSCHE GRAMMOPHON 431 654-2
Performance: Rich and moving
Recording: Excellent

The violinist Gidon Kremer is considered by some the ultimate modernist of the violin, a performer whose often-revelatory interpretations can border on the perverse. In this all-Schubert disc, however, he maintains his usual sense of earnest intensity but is so yielding that the performances border on the genial. Everything about them—the roundness of the phrases, the flexibility of the tempos, the general sense of warmth and intimacy—suggests that Kremer has had a long, affectionate relationship with these works. Particularly wonderful are the jewel-like variations in the Fantasia in C Major, and even the slight, little-known Rondo in B Minor sounds major here.

I suspect that much of the credit is due the pianist Valery Afanassiev, whose live recording of Schubert's Piano Sonata in B Major on ECM several years back showed a total sympathy for the composer's idiom. He's been Kremer's recital partner for a long time, and their attunement to each other shows, not only in the short pieces but in the Duo-Sonata in A Major. This is easily among the best chamber-music recordings I've heard so far this year. *D.P.S.*

R. STRAUSS: Die Frau ohne Schatten
 Behrens, Domingo, Van Dam, Varady, others;
 Vienna Philharmonic, Solti
 LONDON 436 243-2 (three discs)
Performance: Excellent, but . . .
Recording: Excellent

With its orchestral splendors, dazzling scenic spectacle, and enormous cast, *Die Frau ohne Schatten* is an overwhelming theatrical experience, and this recording captures more of its thrills than any of its predecessors. And yet, for all the efforts of Georg Solti, the magnificent orchestra, and the outstanding cast, total success remains beyond their grasp. The performance may dazzle you, but it cannot hide that the opera itself is noisy, pretentious, and overwritten.

Curiously, however long *Die Frau* may be, the

cuts frequently made for staged performances damage the musical continuity; thus, retaining every note, as this version does, is beneficial. Lovers of the opera, therefore, will need no further recommendation. Even apart from completeness, this new version has a lot to offer, above all the stunning control, precision, and vitality of its dedicated conductor and the virtuosity of the Vienna Philharmonic. The vocal contributions also merit high praise considering the uncommon challenges facing the singers.

Surely no other Emperor on records sounds as full and glorious as Placido Domingo, despite his less than idiomatic German—not unfit for an Oriental ruler of indistinct origins. Though Julia Varady may lack the dramatic thrust of Leonie Rysanek, she copes admirably with the Empress's soaring music, and her third-act spoken melodrama is thrilling. The music of Barak lies a bit high for José van Dam's bass-baritone, but he gives it his all, creating a character of human dignity ennobled by his customary flowing legato. Hildegard Behrens, taunting and bitter in her opening scenes as the Dyer's Wife, remains a vivid dramatic presence, but vocally she is uneven.

As the Nurse, a role that is enormously expanded when the opera is given uncut, Reinhild Runkel offers a powerful portrayal but squally vocalism. Sumi Jo (the Falcon) and Robert Gambill (the Young Man) stand out in the overpopulated supporting cast—there are other worthy efforts engulfed in the Straussian orchestral torrents. The wide dynamic range of the recorded sound is frequently stunning, and I doubt very much that Strauss himself hoped to attain more clarity and comprehensibility from the noisy ensembles he contrived for the opera's second act. If it falls short of perfection, in most respects this recording sets an exemplary standard. *G.J.*

Collections

ALESSANDRA MARC
American Diva

New Zealand Symphony, Wallberg
 DELOS DE 3108

Performance: Excellent
Recording: Rich and spacious

The soprano Alessandra Marc has been recognized as a major operatic talent by insiders for at least a decade. Let us hope that this auspicious recital debut, in which she sings ten arias by Verdi, Catalani, Cilèa, Puccini, Charpentier, and Wagner, will lead to further exposure on record. Hers is a genuine soprano voice, warm and vibrant, with plenty of thrusting power and a satisfying evenness throughout the range. And she uses her instrument wisely—she knows how to lead up to the big climaxes in the *Aida* and *La Wally* arias and how to avoid stridency in the high reaches of Turandot's "In questa reggia." But she also knows how to shade and modulate her tones to achieve expressive and dynamic variety.

Every one of the arias receives big-time treatment from this highly talented vocalist, whose dramatic abilities on stage are not yet known to me. If this impressive sequence—a studio product, very well recorded—unavoidably lacks a certain theatrical urgency, that lack is compounded by the conductor Heinz Wallberg's broad tempos, which reach a degree of somnolence in "O patria mia," though the orchestral execution is always above reproach. *G.J.*

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August

CENTER STAGE

BY WILLIAM LIVINGSTONE

José Carreras

SOLDIERS, sailors, painters, poets, peasants, an Egyptian warrior, a Biblical strongman, and even Christopher Columbus—such are the roles played on the operatic stage by the Spanish tenor José Carreras. In private life he is also the head of a medical foundation and a cultural ambassador for Spain.

The many activities honoring the five-hundredth anniversary of Columbus's first voyage to the Western Hemisphere have made 1992 the Year of Spain. Not everyone sees the Spanish colonial era as one of gold and glory, however, because for the original inhabitants of North and South America Columbus's voyages opened the door to poverty, slavery, and genocide.

In New York earlier this year on a good-will tour, Carreras was tactful in commenting on opposition to the quincentennial celebrations. "Even in Spain there are some people who think this anniversary is not an occasion to celebrate," he said. "Considering that there were tragic consequences to the so-called Age of Discovery, perhaps instead of 'celebrate' we should use a word like 'observe.' Although we should not try to hide the dark side of our history, I hope the anniversary will permit us to show the world the best of Spanish culture."

José Carreras is among the opera singers who are conspicuous Spanish cultural treasures. In 1989 he sang the title role in Leonardo Balada's Columbus opera, *Cristóbal Colón*, which was written specifically for him. Last year he joined a group of his most distinguished Spanish colleagues in the gala opening of a new opera house in Seville, completed in time for this year's world's fair, Expo '92, in that city. BMG Classics recorded that performance and has released it on the RCA Victor label on CD, cassette, video-disc, and VHS tape as "*Gala Lbrica*."

Carreras is the music director of the



opening and closing ceremonies of this year's Olympic Games being held in Barcelona from July 25 to August 9. "When the athletes enter the arena, instead of the traditional marches, they will come in to a special arrangement of Spanish music," he said. "And we have planned a medley of operatic music—not too long—in which I will participate with Giacomo Aragall, Teresa Berganza, Montserrat Caballé, Plácido Domingo, and Juan Pons. This will be carried on TV worldwide and will also be issued by RCA."

Today, Spain is a mature country and a democracy, he said, where life is very different from the way it was twenty years ago when he made his American debut. First at the New York City Opera Company and later at the Metropolitan he sang such operas as *La Traviata*, *La Bohème*, *Lucia*, and *Tosca*, winning the affection of fans as well as their admiration.

When it was announced in 1987 that he was undergoing dangerous and painful treatment for leukemia, his fans responded with a great outpour-

ing of love. "The thousands of letters I received from people I didn't know touched me deeply and were fundamental to my recovery." Since his dramatic cure, he has established the José Carreras International Foundation Against Leukemia, in which he is quite active. His illness also led him to write an autobiography, *Singing from the Soul* (\$27.95 from Y.C.P. Publications in Los Angeles; toll-free telephone, 800 247-6553). It has sold 650,000 copies in nine languages.

On home video his triumphant return to the concert stage, documented in "José Carreras: Comeback Recital in Spain" (Kultur 1218), demonstrates that his voice survived his illness. In July 1990 he sang in a phenomenally successful outdoor concert in Rome with Domingo and Luciano Pavarotti, usually called "The Three Tenors."

The London recording of it is probably the best-selling classical album in history. "I think popular events like this help classical music by attracting new audiences," he said.

Although he has recorded a good bit of popular music, he continues to add to his operatic portrayals with such works as *La Juive* and *Samson et Dalila* (both on Philips). And when pressed to cite his best recordings, he said, "For vocal work *Simon Boccanegra* with Abbado and *Lucia di Lammermoor* with Caballé and López-Cobos, but for interpretation I am really, really proud of I would choose *Manon Lescaut* with Chailly and *Carmen* with Agnes Baltsa and Von Karajan."

Although he intended to maintain a lighter schedule after his illness, engagements are piling up, including a possible return to the Metropolitan in the season of 1993-1994 and a possible repeat of the Three Tenors recital in Japan in 1994. "Since I am now well," he said, "it would be hard not to work as before and lead a normal life." □

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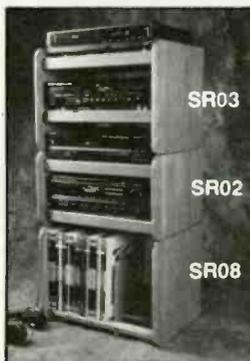
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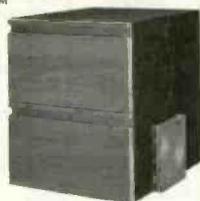
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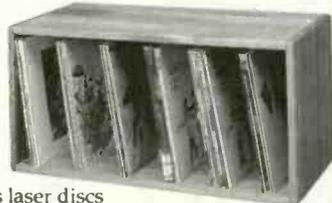
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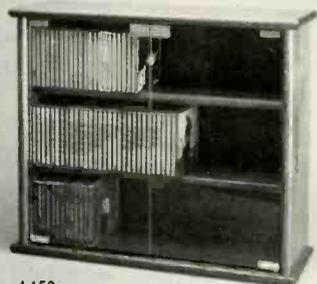
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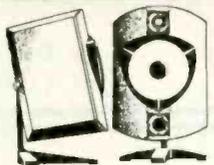
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THE HIGH END

BY RALPH HODGES

Ambisonics

AT the height of the Seventies, when the quadraphonic pot was at full boil, there emerged from England, courtesy of academician Michael Gerzon and colleagues, something called Ambisonics. As a multichannel (that is, more than two) matrix concept concerned with enhancing the stereo experience, it appeared to be in direct competition with the several four-channel matrix systems then current. Indeed, Ambisonics took an aggressive stance toward the quad systems readily enough, but with a sort of if-that's-really-what-you-want-to-do-then-you-ought-to-try-and-get-it-right attitude.

Whereas other matrix systems strove largely to shore up the integrity of four semiseparate channels and then, through the techniques of conventional stereo, persuade them to create side and rear sound stages, Ambisonics was about the sampling and subsequent recreation of the interplay of sound fields at a single point in space. In a normal acoustic space, sound fields will impinge from all directions, and portraying this activity is central to the Ambisonic idea. But, unlike other multichannel schemes, it didn't care about the actual origins of sound. All that concerned it was what happened at that single point.

The literature of Ambisonics tends to be heavy going (which is one way of saying I'm pretty sure I'm not grasping it all), but it seems clear that special efforts were made to get the matrix's phase rotation to track the arrival direction of audio information appropriately and in all its complexity. If this is done, it should be possible to put a loudspeaker not just in one of four corners, but almost anywhere in a room, and derive from the matrix a signal for it that is uniquely correct. A full-strength Ambisonic recording even has height information, and you can put a speaker on the ceiling to exploit it if you wish.

In that era, the future of any multichannel system was not promising unless it was affiliated with a major rec-

ord label—and Columbia and RCA were going to find out that even that was not enough. Ambisonics' position was therefore not strong, but it seemed to get a boost with the appearance of the Calrec microphone. This device is a single case with multiple capsules pointing every which way. It was not everyone's favorite microphone (there were some serious noise problems), but it served to define Ambisonics in a physical way, and it inspired superior elaborations. With some fairly solid theory in place, partisan practitioners had a place to go; and they went, making recordings as they traveled. After a protracted retreat to the point of near-invisibility, Ambisonics is creeping back, and it is the recordings made with the technique, some of them superb, that are leading the way.

To my chagrin at not having known earlier, I have just learned that the entire catalog of Nimbus Records is the product of single-point pickup and is Ambisonically encoded. Now, you might suppose that a pickup placed far enough from an orchestra that the first rows don't overpower everything would yield somewhat remote and murky-sounding results—and that is so with a few (mostly mono) recordings I own. But not here. The orchestra (or whatever) on a typical Nimbus recording is at a discernible distance, to be sure, but in no case would I want it to be closer, and scale and perspective tend to be delightfully natural and convincing.

Referring to miking diagrams provided by Nimbus, I found example after example of that rarest of all things: a recording that sounds like it *ought* to with the mike positioned where it was. I think this felicitous state of affairs might be attributable directly to the Ambisonic process. My one quibble is that extraneous noise (air conditioning, outside traffic, and so forth) is difficult to control.

Nimbus says that Ambisonic encoding affords excellent stereo compatibility (for sure!) and that multichannel effects such as sounds from the sides and behind are possible even with stereo playback (I'm dubious). Characteristics of speakers and rooms play a large part in any such capability with

just two speakers, as do individual responses to various aural cues. At times I can talk myself into sensing a sort of sonic envelopment in this situation, but none of the Ambisonic material I've heard approaches a brute-force curiosity like Q Sound, and I consider that just as well.

Naturally I'm thinking about getting into line for an Ambisonics decoder, but I seem to be a little early. Hitachi and Onkyo both list decoders in their catalogs, but they come as part of larger hardware packages (Onkyo, for example, has put its decoder in its top A/V receiver, the TX-SV909PRO). There are also compatibility issues to be faced.

Many current multichannel systems, and Dolby Surround in particu-

**After a protracted
retreat, Ambisonics is
creeping back, and
some superb recordings
are leading the way.**

lar, are "front-loaded" affairs. If you want a theater experience with surround effects, you acquire some smallish speakers, perhaps in the Home THX configuration, and put them toward the sides or back of the room and rather high up. Everything you should be paying attention to is going to happen up front, and so a certain sonic invisibility is desirable in rear speakers. Ambisonics, however, presents you with a "level-loaded" situation. A sound field is a sound field, whether emanating from in front of the listener or behind, and there should be no discrimination. For best results, rear speakers must match the front ones and be at the same height.

There could be war in a lot of households if Ambisonics gains further ground. □

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All drivers
are not
created equal.



Rules



The speaker on the left is designed with Injection-Molded Polypropylene (IMPP™) cone technology. The speaker on the right is paper. The speaker on the left offers cleaner, richer bass. The one on the right doesn't. The one on the left can handle extraordinary amounts of power without distortion. The one on the right can't. The one on the left is from a full line of new high-performance component speakers from Pioneer.® The one on the right isn't. To find out more, call 1-800-421-1604, ext. 444.

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