

Stereo Review

OCTOBER 1988 \$2.25

HOW TO BUY A CD PLAYER
PREVIEW: TWO DAT PORTABLES
THE DIGITAL CONNECTION
TESTED: AUDIO DYNAMICS
AMPLIFIER, NEC SURROUND
SOUND PROCESSOR, KOSS
SPEAKERS, AND MORE

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MR DAVID S BUCHANAN
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LOUISVILLE 40222
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Bose® engineers use advanced design technology to bring the benefits of new technologies to the constantly-refined 901® Direct-Reflecting® speaker. The Integraph InterAct 32 CAD/CAM system (above) at Bose corporation's Framingham, Massachusetts worldwide headquarters is part of this commitment to "better sound through research."

The Bose® 901® Direct/Reflecting® speaker system: A technological breakthrough 20 years ago— pushed to the edge of today's technologies.

"I am convinced that it ranks with a handful of the finest home speaker systems of all time."

—Julian Hirsch, *Stereo Review*, 1968

"The 901 VIs sound live and exciting the moment you fire them up . . . There are more than a few music lovers who won't listen to anything else . . ."

—Daniel Kumin, *Digital Audio*, 1988

Twenty years ago, an MIT research project into the physics of sound produced its first tangible result: a design for a speaker system capable of accurately reproducing live music's balance of direct and reflected sound energy.

The professor in charge of the research project—Dr. Amar Bose—directed his engineering team to build such a speaker, making full use of the most advanced technologies available. The result was the original Bose 901 Direct/Reflecting® speaker system. The response from the public and the critics turned the Bose 901 system into a legend practically overnight.

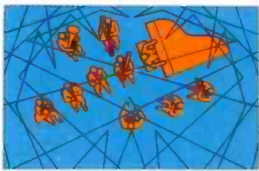
"There is no doubt that the much-abused and overworked term, 'breakthrough,' applies to the Bose 901 system and its bold new concepts."

—Bert Whyte, *Audio*, 1969

"Many people swear by these speakers as the ultimate."

—Complete Buyer's Guide to Stereo Hi-Fi Equipment, 1975

Since then, Bose 901 systems have earned more critical acclaim and rave reviews than any other product in audio history. The reason? Bose research has continued to develop and refine the 901 system, pushing the system's concept to the very limits of advanced technology. In fact, the system's Acoustic Matrix enclosure and HVC driver, developed to dramatically improve power handling and efficiency, represent more research and development than other manufacturers invest in their entire speaker lines.



Live music is a combination of direct and reflected sound energy.



Bose Direct/Reflecting® speakers accurately reproduce live music's natural balance of direct and reflected sound energy, in full stereo (blue area) throughout the room.

"Without doubt the Bose 901 . . . must rank among the very best speaker systems yet produced, one that can be called a speaker for all seasons' or for 'all reasons.'"

Ovation, 1983

"In terms of musical veracity, the Bose 901 ranks with the finest and is convincing with any type of music . . ."

—Hans Fantel,

The New York Times, 1984

The technological concept behind the new 901 Series VI system is identical to the original for one reason: *the scientific principles*

governing sound and its reproduction have not changed. But since the introduction of the first 901 system, Bose engineers have worked continuously to develop and perfect new and diverse audio technologies with one common denominator: if they demonstrate the potential to improve performance, they

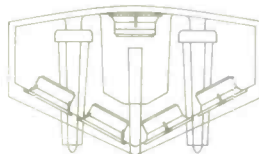
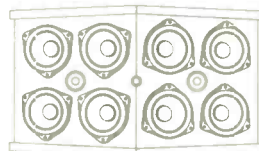
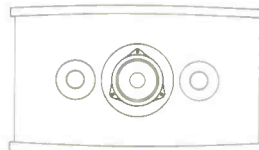
become part of the Bose 901 system. It's not surprising that today's Bose 901 Series VI system incorporates some 1,000 improvements over the original—and that 20 years after its introduction, the 901 speaker system remains the technological flagship of Bose Corporation.

" . . . the 901 delivers a unique value for the money—both in terms of quantity and quality."

—Daniel Kumin, *Digital Audio*, 1988

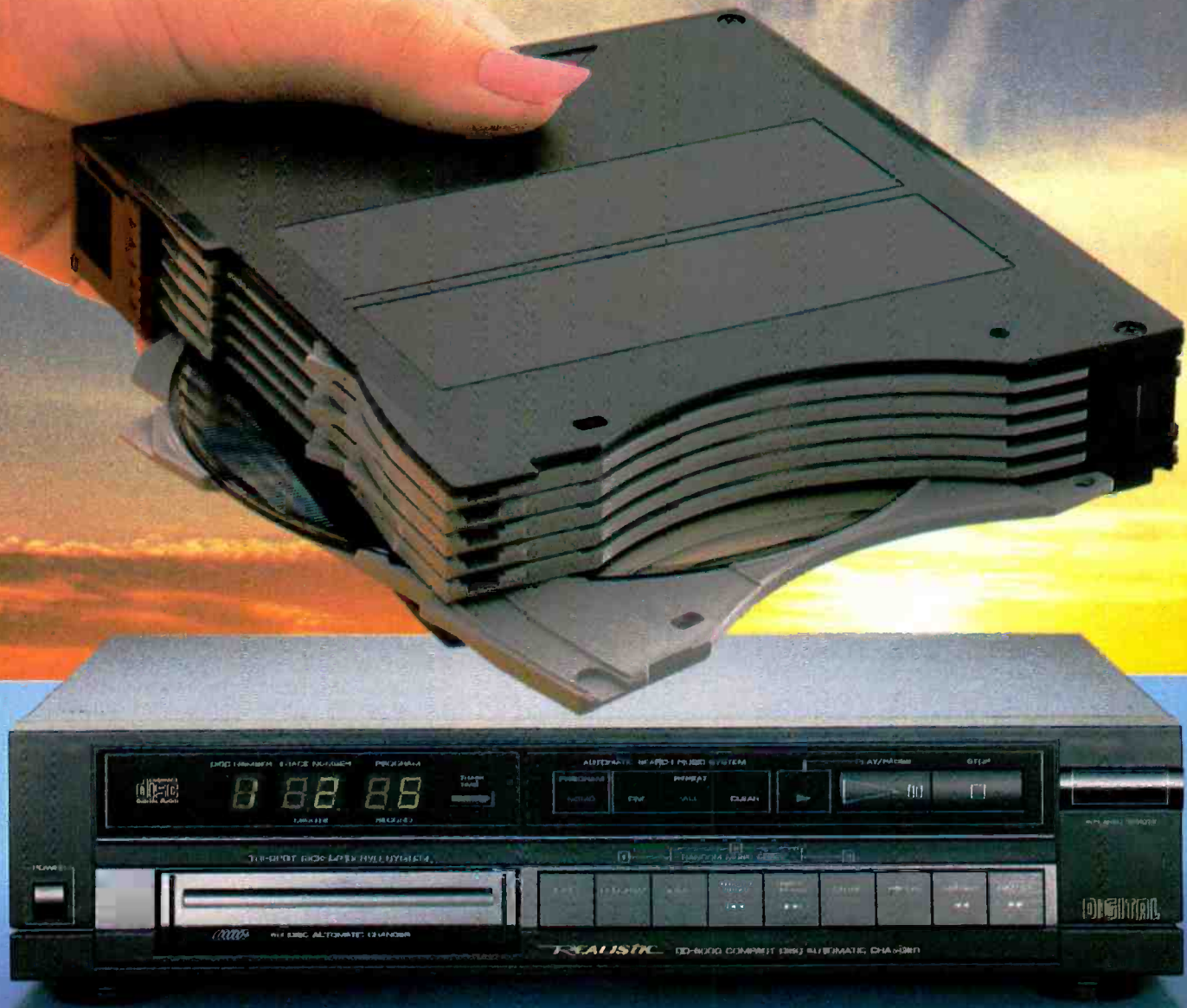
We submit that the research and development behind the Bose 901 system make it the most advanced, lifelike sounding speaker you can buy—regardless of size or price. The industry's most respected critics have echoed that sentiment. But the final judge is you. Audition the Bose 901 Direct/Reflecting® system. Once you listen, you'll know why it's "the speaker to which all others must be compared." Bose also makes an entire line of Direct/Reflecting® speakers

incorporating much of the audio technology developed for the 901 system.



We invite you to audition the Bose line at a dealer nearest you. For more information, call 1-800-444-2673 between 9 a.m. and 5 p.m. EST.

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For the Changing Times

The New 6-Disc Realistic® CD Changer

Now there's a more convenient way to enjoy the best in sound—the new compact disc *changer* from Radio Shack. You can load up to six discs in its magazine, sit back, and enjoy hours of superb digital stereo. Or, program up to 32 selections from the six discs to play in any sequence. Either way, you can pause, replay, program and search, using the wireless infrared remote control.

The large LED display simplifies remote operation. Manual and automatic search make it easy to find selections.

This high-performance changer has a heavily cushioned deck mechanism and Tri-Spot laser pickup system for accurate tracking. Two-times oversampling provides superior sound. And Radio Shack stocks

extra magazines so you can protect all of your CDs and have them loaded in your preferred order, ready for play anytime.

Come in and try the Realistic CD-6000. It's affordably priced at only \$359.95—so you can enjoy the convenience of a changer for less than the price of some single-disc players. Sold only at Radio Shack. Low as \$18 per month*.



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Stereo Review

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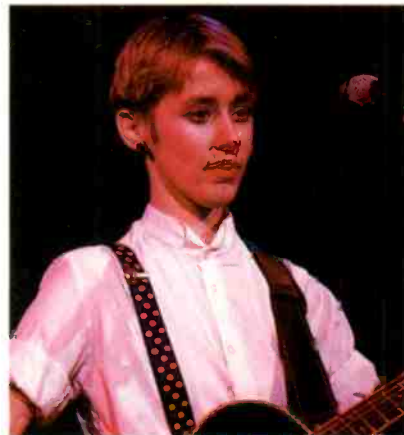
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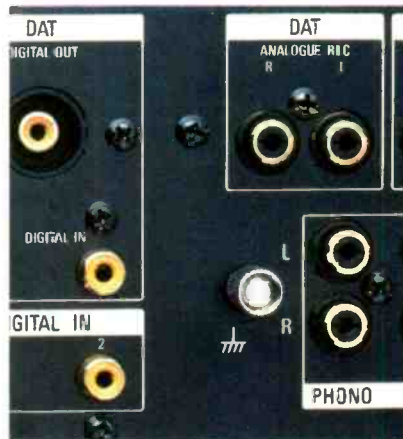
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Cover: The new top-of-the-line Philips CD player, the two-piece LHH-1000; its external digital-to-analog converter is shown above the player section (see page 56).
Design by Sue Llewellyn, photo by Robert Butler.

STEREO BUYER POLL, SEE PAGE 119
Please fill in if you bought equipment in the past thirty days.
READER SERVICE INFORMATION CARD, FACING PAGE 119
Circle the items you want to know about.



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Most low tar cigarettes are just watered-down versions of old brands. Merit was designed from the ground up to be a great-tasting low tar. Enriched Flavor™ was developed exclusively to give Merit a rich, full, satisfying taste, with even less tar than other leading lights. In fact, the majority of smokers in a nationwide test agreed that Merit tastes as good or better than cigarettes with up to 38% more tar. So don't just join the Johnny come-lightlies. Go for the original.

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SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.

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Kings: 8 mg "tar," 0.6 mg nicotine av. per cigarette by FTC method.

BULLETIN

by Christie Barter
and Michael Smolen

DIGITAL RADIO

Digital Radio Laboratories (DRL) of Lomita, California, has demonstrated a service that delivers sixteen stereo channels of CD-quality music transmitted in the digital domain via cable television. DRL proposes to broadcast music twenty-four hours a day without commercials or DJ's. Monthly cable charges are predicted to be \$6 a month, with a one-time charge of \$150 for a special receiver that connects the cable system to the subscriber's stereo system.

AUDIO ON VIDEO DISC

In what is claimed to be the first use of a laser videodisc for an audio-only program, Criterion has released "Theatre of the Imagination: Radio Stories by Orson Welles and the Mercury Theatre," which was produced by the Voyager Company of Los Angeles. The 12-inch disc—playable on any laser videodisc player—contains six hours of digitally encoded audio remastered from original acetates and other sources dating back to the late Thirties and early Forties. Ticks, pops, and surface noise were digitally removed, resulting in what is said to be the highest audio quality ever for reissues of radio programs from this period.

TECH NOTES

NBC's 208 affiliated stations voted unanimously to donate \$3 million to the David Sarnoff Research Center for development of a broadcast-compatible system for high-definition television (HDTV). Another \$500,000 was donated to the cause by Capital Cities/ABC. . . . Sanyo cooperated with Dolby Laboratories in developing a new single-chip integrated circuit for Dolby Pro Logic Surround systems. . . . Proton has a new surround processor, the SD-1000, with technology licensed from Apex Systems. The suggested list price is \$999. . . . Hi-Pro-Tech has released the Identadisc system, a

small device that marks CD's with a thermal stamp for security purposes. . . . TDK is distributing a free booklet titled *Preserving Magnetic Tape*. Write to TDK, Customer Service Division, 12 Harbor Park Dr., Port Washington, NY 11050. . . . Toy manufacturer Fisher-Price has introduced the Pocket Rocker, for kids aged five and up, which contains a miniature tape player that plays two songs in a continuous loop from a tiny cassette. . . . The International Magnesium Association awarded second prize in its annual design competition to a senior from the University of Saskatchewan for his magnesium loudspeaker enclosure, which is supposed to lower vibration amplitudes and raise natural frequencies. . . . Toshiba plans to enter the U.S. car stereo market early next year. . . . According to *Japanese Industry Newsletter*, Japanese exports of stereo components to the United States for the first quarter of 1988 were up 3.5 percent over the same period of 1987, but the value (in yen) was down by 9.3 percent.

DONATIONS

The Recording Industry Association of America has awarded the National Museum of American History a start-up grant of \$100,000 for its American Music Exhibition, scheduled to open in the spring of 1991. The museum is a division of the Smithsonian Institution in Washington, D.C. . . . Michael Jackson will donate the proceeds of his October 24 concert in Detroit to the Motown Museum Historical Foundation, an offshoot

of the record company with which he got his start as a nine-year-old. . . . Bruce Hornsby and the Range are turning over the royalties from their hit single *Look Out Any Window* to Greenpeace and the Chesapeake Bay Foundation. . . . Profits from *Downtown*, a 12-inch single from Virgin featuring the Petula Clark classic in a performance by more than fifty of New York City's "downtown" artists and scene makers, will go to the American Foundation for AIDS Research and the Gay Men's Health Crisis.

CD-GRAPHICS


JVC has announced that it will introduce a CD-graphics decoder in major U.S. cities in time for this year's Christmas season. The device, an add-on adaptor that can be used with compact disc players having digital output terminals, will sell for around \$400. Next year, JVC says, it will introduce a line of CD players with built-in decoders. Albums already available with CD-graphics are the Talking Heads' "Naked," Simply Red's "Picture Book," and a debut record by the Minneapolis-based group Information Society, and more should be released soon.

DIGITAL OLYMPICS

Philips and DuPont Optical (PDO) will produce compact discs for the music of the 1988 Olympics in Seoul, Korea. NBC, which will broadcast some 180 hours of the games, chose the CD format because of "its state-of-the-art sound and easy access." Each of fifty location producers will have a library of thirty CD's, forty cuts apiece, to work with.



TERRY ALLEN



Monitor 10B
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Polk's remarkable Monitor Series Loudspeakers have received worldwide acclaim by offering state of the art technology and performance usually found only in systems which sell for many times their modest cost. (stands optional)

"Polk Monitors Deliver Incredible Sound and Value." They Utilize the same State-of-the-Art Components As the top of the line SDAs.

Polk Audio was founded in 1972 by three Johns Hopkins University graduates who were dedicated audiophiles with a common dream: superior sound for everyone.

"The affordable dream"

Off the Record

They believed that it was possible to design and manufacture loudspeakers of uncompromising quality which performed as well as the most expensive and exotic loudspeakers available, but in a price range affordable to virtually every music lover. The Monitors are the spectacularly successful result of their quest.

The original Monitor 7 was the first product of their efforts and it was so successful that when it was shown at the Consumer Electronics Show, dealers and experts alike could not believe its superb performance and affordable price. Audiogram Magazine said, "when we heard the Polk speakers at the CES Show we were so impressed we could not believe the prices." The entire Polk Monitor Series was designed in this tradition of incredible, state-of-the-art sound and affordable prices.

"Vastly superior to the competition"

Musician Magazine

Polk Audio has worked hard over the ensuing years to maintain the Monitor Series' preeminent position as *the* standard for quality and value in the audio industry. The Monitors have been continually improved and refined as a result of Polk's never ending search for better sound quality. There have been literally thousands of improvements made to the Monitors and the result is that today, as in the past, the Polk Monitors are absolutely the best sounding loudspeakers for the money available on the market. Musician Magazine said, "If you're shopping for stereo, our advice is not to buy speakers until you've heard the Polks." You owe it to yourself.

"The best high performance speaker value on the market."

Off the Record

A new generation of Polk Monitors is now available which incorporate the same high definition silver coil dome tweeter and Optimized Flux Density drivers developed for the SDAs. Polk Monitor Series loudspeakers have always had a well deserved reputation for offering state-of-the-art performance and technology usually found only in systems which sell for many times their modest cost. In fact, many knowledgeable listeners consider that outside of the SDAs, the Polk Monitors are the finest imaging conventional speakers in the world, regardless of price. They have been compared in performance with loudspeakers which sell for up to \$10,000 a pair and are absolutely the best sounding loudspeakers for the money available on the market.

"Absolutely first rate... superior sound at a modest price"

Stereo Review Magazine

All the Polk Monitors regardless of price offer consistently superb construction and sonic and performance. They achieve open, boxless, three-dimensional imaging surpassed only by the SDAs. The Monitors' silky smooth frequency response assures natural, non-fatiguing, easy to listen to sound; while their instantaneous transient response results in music that is crisply reproduced with lifelike clarity and detail. In addition dynamic bass performance, ultra wide dispersion, high efficiency and high power handling are all much appreciated hallmarks of Monitor Series performance.

The consistently superb performance of the Polk Monitors is in large part due to the fact that they all utilize very similar components

and design features. However, more importantly, it is the elegant integration of concepts and components which results in the superior sonic performance and value which sets the Monitor Series apart. Audiogram magazine said, "How does Polk do it? We think it is mostly execution. They hear very well and they care." Audiogram is absolutely right. At Polk we take the same care with each and every product we build, whether it is our most or least expensive. We lavish the same lengthy amount of critical listening and tuning on every single Polk speaker because we know that having a limited budget does not necessarily indicate that you have a limited ability to appreciate true musical quality.

"At the price they're simply a steal."

Audiogram Magazine

No matter what your budget is there is a superb sounding Polk speaker perfect for you. Polk's incredible sounding/affordably priced Monitor Series loudspeakers utilize the same basic components as the SDAs and begin under \$100. each. The breathtaking sonic benefits of Matthew Polk's revolutionary True Stereo SDA technology are available in 5 SDA models priced from \$395. to \$1495 ea.

You can afford the incredible sound of Polk

The experts agree: Polk speakers sound better! There is a Polk speaker which is perfect to fulfill your sonic dreams at a price you can afford. Visit your nearest Polk dealer today and audition the remarkable Monitors and the revolutionary SDAs. You'll always be glad you bought the best.

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MICHAEL SMOLEN
Executive Editor

SUE LLEWELLYN
Art Director

WILLIAM WOLFE
Technical Editor

CHRISTIE BARTER
Music Editor

DAVID STEIN
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WILLIAM GOLDMAN
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Contributing Editors: Robert Ackart, Chris Albertson, Richard Freed, Phyl Garland, David Hall, Ron Givens, Bryan Harrell (Tokyo), Roy Hemming, Julian Hirsch, Ralph Hodges, Stoddard Lincoln, Ian Masters, Louis Meredith, Alanna Nash, Mark Peel, Henry Pleasants (London), Ken Pohlmann, Charles Rodrigues, Eric Salzman, Steve Simels, Craig Stark
Production Director: Karen Rosen
Production Manager: Barbara Ross

WINSTON A. JOHNSON
Vice President and Publisher

ADVERTISING

Advertising Director: Nick Matarazzo

National Manager: Charles L. P. Watson
(212) 719-6038

Consultant: Richard J. Halpern
(212) 719-6025

Account Executive: Sharon Dube
(212) 719-6037

Assistant to the Publisher: Nadine L. Goody

Classified Advertising: (800) 445-6066

Midwestern Managers: Arnold S. Hoffman,

Jeffrey M. Plaster, (312) 679-1100

Western Managers: Robert Meth,

Paula Borgida, (213) 739-5130

Tokyo Office: Iwai Trading Co., Ltd.

603 Ginza Sky Heights Building, 18-13,

Ginza 7-Chome, Chuo-Ku, Tokyo, Japan 104

Japan Representative: J. S. Yagi, (03) 545-3908



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LETTERS

"Fast Bass"

I think Julian Hirsch's July "Technical Talk" column missed the mark on the importance of group delay. "Fast bass" is as real as cone breakup or doubling. Those of us with subwoofer design experience know that while you cannot change a pitch, anything can change a waveform. Most woofer makers are striving for low cone mass and high magnet strength to achieve fast response so that the cone "doesn't meet itself coming back" (the doubling or breakup effect).

In most acoustic subwoofers you can't even insulate the enclosure because it slows down the waveform and muddies the sound. The enclosure size must be of the correct volume or the waveforms will not fully develop or will linger. Enclosures are sealed to help damping and response time. All this is so that the bass is reproduced (ideally) as fast as the source can send the signal. In the end, what gets to my ears (not my computer) is what matters. It is either muddy or . . . "fast bass."

KENT R. WILLIAMS
Tacoma, WA

Julian Hirsch replies: I believe I stated the facts correctly regarding the unsuitability of "fast" as a description of a low-bass audio characteristic. I suspect that what Mr. Williams is talking about is a hangover, or "ringing," problem caused by an underdamped resonance in the woofer (or in the room—the two are difficult to separate and can be very similar in their effects).

The sound of a speaker lacking a significant resonance in its operating range will be "tighter" than that of one with a high-Q resonance that causes it to ring for a period after excitation by a signal. To me, "tight" bass is not "fast." Admittedly, this is a matter of definition, but my dictionary defines "fast" as—among other things—having the quality of quick motion, which is fundamentally impossible in anything limited to operating in the low-bass range, while "tight" implies an absence of slackness or looseness, which I think is a better description of the audio quality we are discussing.

Casting Bellini

It is obvious from Robert Ackart's review in August of the new London recording of *Norma* that he objects to the casting of Montserrat Caballé in the role of Adalgisa. He writes that "hers is not a small voice, but when compared with [Joan] Sutherland's wonted fullness of tone it sounds slim at times, and there is not enough contrast in timbres to bring off the big scene between the

two women that culminates in 'Mira, o Norma.'" Since Bellini wrote the role of Adalgisa for a soprano and not a mezzo, as we have become accustomed to hearing, this recording for the first time adheres strictly to the composer's intention.

GERALDINE SEGAL
Randallstown, MD

Two-Disc "Tommy"

In response to Walter Schoenheim's letter in your July issue, the total time of the Who's *Tommy* is seventy-four minutes and thirteen seconds. At the time *Tommy* was released on CD, that total time exceeded the physical limitations of a single disc by four minutes. Even today, that length of time stretches the production capabilities of CD pressing plants.

That, Mr. Schoenheim, is why *Tommy* is on two CD's, not one. No "greedy individual" at MCA was to blame for that decision.

ANDY MCKAIE
Director, A&R, Special Markets
and Products, MCA Records
Universal City, CA

Where to Buy Records

You've probably heard this story before. You had a favorite record store with good variety, lots of selections to choose from. Then came cassettes. These were pretty neat; they made music portable for the first time. But oops, not so much room in the shop any more for the abundant selections. Oh well, not to worry. If you reduce the number of records, there's plenty of room for the cassettes. Then along came video! A great money maker, renting out videotapes! Gotta make a buck, so your favorite "record shop" converts half its floor space to video. Not so much room for the good ole records and tapes now, huh?

Then, record scratches and tape hiss being major annoyances, along come compact discs! They're going to revolutionize the recorded-music industry. But where to put them? Might as well reduce some more of the vinyl record inventory—nobody buys them any more anyway.

So what do we have left in our favorite record shop? We have a shop at least half full of videotapes (including the blank ones), and the rest is divided up for a few records, a few more cassettes, and the rest CD's. This makes just about enough room for the Top 20 on the rock-and-roll charts and the soul charts, a bit of "jazz," and maybe a miscellaneous rack for classical music, country music, and a movie soundtrack or two. The next problem will be where to put

The biggest audio sensation in recent history just got even bigger.



In 1986, Yamaha's DSP-1 was hailed as the greatest advance in the control of auditory space since stereo.

So what have we been up to the last two years?

Discovering how to push soundfield processing to its outer limits.

And beyond.

The result is the DSP-3000. An incredible new digital soundfield processor that, once again, finds itself in a field all alone.

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Thirty-five bigger-than-life soundfields, plus sufficient memory to store 20 of your favorite soundfield variations.

And a remote control that puts the whole works directly under your thumb.

Including a master volume control for main

The only digital soundfield processor worth comparing with the DSP-3000 is our own DSP-1. Here's a side-by-side comparison.

DSP-1		DSP-3000	
16 pre-set acoustic environments:		20 pre-sets with 35 variations:	
Hall 1	Disco	Hall 1-A & B	Rock Concert
Hall 2	Pavilion	Hall 2-A & B	- A & B
Hall 3	Warehouse Loft	Hall 3-A & B	Disco-A & B
Chamber	Stadium	Hall 4-A & B	Pavilion
Münster	Presence	Hall 5-A & B	Stadium-A & B
Church	Surround 1	Opera House	Presence-A & B
Jazz Club	Surround 2	- A & B	Surround-A & B
Rock Concert	Dolby Surround	Cathedral	Movie Theater 1
		Church	- A & B
		Jazz Club 1-A & B	Movie Theater 2
		Jazz Club 2-A & B	- A & B
		Chamber	Dolby Surround
Memory for 16 additional user programs		Memory for 20 additional user programs	

and all effects channels.

You'll also undoubtedly appreciate the small but extremely significant sound improvements we've made.

By using 4 times oversampling, Hi-Bit digital filters plus separate D/A converters for each effects channel, we've reduced

distortion and greatly improved S/N ratios.

Then to improve sound you didn't think could possibly be improved, we offer direct-digital input for your CD player, taking full advantage of the 4 times oversampling and Hi-Bit twin D/A converters in the main channels.

But we didn't stop there. Our clever engineers also added 4 additional outputs for "fill" or subwoofer speakers.

There's even an on-screen video display of each soundfield's parameters, so you can make changes without losing sight of what you're hearing.

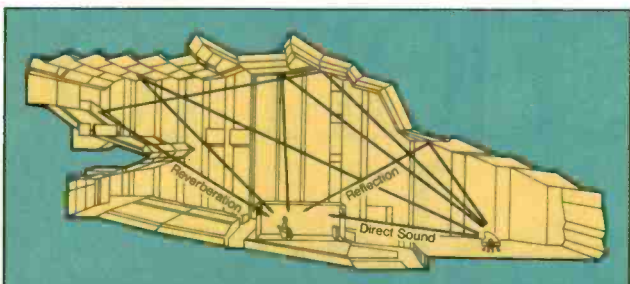
Drop by your Yamaha dealer for a demonstration. We think you'll be impressed, to say the least.

We've packed everything we've got into the new DSP-3000.

Everything, that is, except room for improvement.



A full-function remote features a master volume control to balance all sound-level settings to the front, back and main speakers.



The DSP-3000 reproduces the distinct acoustic patterns measured in 20 actual performing spaces — ranging from intimate jazz clubs to symphonic concert halls.

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ES

After inventing
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The New Sony ES Series: Superior Audio Components To Which We Proudly Entrust The Reproduction Of Digital Sound.

As the inventor of the Compact Disc format, Sony continues to expand the limits of digital reproduction. Yet, while proudly leading this revolution, the Sony ES engineers have been equally conscientious about designing analog components that fully realize the potential of the digital era. This uncompromising commitment defines the entire ES Series.



The CDP-707ESD:

Simply stated... "the reference against which to judge" others.—*Len Feldman, Audio Magazine.*

Historically, Sony ES Compact Disc players have been the benchmark for advancing the state-of-the-art. The CDP-707ESD is no exception. As the world's first CD player to incorporate dual 18 bit linear D/A converters, along with a proprietary 8X oversampling digital filter, it brings the listener closer to the theoretical limits of Compact Disc performance. This advanced technology provides greater low level signal resolution and improved linearity, for more faithful reproduction of musical depth and detail.

And there's more to the ES Series than the CDP-707ESD, and its host of sophisticated features. You'll find our advanced 8X oversampling filter technology in the less costly CDP-507ESD, as well as the CDP-C15ESD, which combines 18 bit linear D/A converter performance with 10-disc changer convenience for the very first time.



The STR-GX10ES:

The quality of separate components in a fully integrated design.

Traditionally, few receivers have offered the performance necessary to meet the demands of digital sources. These demands on receiver technology come at a time when the requirements for total audio and video integration have created more compromises than ever before.

To avoid those compromises, Sony created the STR-GX10ES, with 150 watts-per-channel. It, along with our

full line of receivers, achieves unsurpassed musicality, thanks to a unique Spontaneous Twin-Drive amplifier stage that eliminates power supply fluctuations, regardless of current demand. Add to this such refinements as discrete outputs and a non-resonating G-Chassis™ design, and you have accurate reproduction of music detail and dynamics even under the most demanding speaker load conditions.

Yet the STR-GX10ES also brings you the convenience of total integration with a supplied Remote Commander™ unit that allows for control of virtually any infrared audio or video component, regardless of brand. And with its special high resolution S-Video circuitry, the STR-GX10ES is compatible with components you might buy in the future.



The TC-WR11ES:

Finally, a level of performance never before achieved in a dual-deck design.

Accurate reproduction of digital source material has placed a heavy burden on the finest analog cassette decks. A burden compounded in dual-well designs, where compromises are often made for operating convenience.

The uncompromising new Sony TC-WR11ES is a magnetic and mechanical accomplishment that rises to the digital challenge by combining superb music reproduction with ultra-sophisticated operations. A unique 210 kHz Super Bias™ circuit extends frequency response, without the beat frequency noise that's typical of high speed dubbing decks. Even at normal speed, the TC-WR11ES, like all ES cassette decks, achieves clean, transparent recordings, plus an astoundingly uniform 20-20,000Hz (+/- 3dB) frequency response. Add to this the patented Laser Amorphous heads and 4-motor transport, and the TC-WR11ES indisputably demonstrates the technical refinement needed to triumph in the digital age.

The Sony ES Commitment.

The Sony ES Series is a skillfully crafted line that not only includes the finest Compact Disc players, but superb analog components as well, all doing full justice to the ES engineers' exceedingly high standards. Further expression of this excellence is reflected in the 3 year limited warranty that backs each and every model (see your authorized Sony ES dealer for details).

For more information on where you can audition the full line of Sony ES components, call 201-930-7156.



SONY

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CIRCLE NO. 106 ON READER SERVICE CARD

LETTERS

digital audio tapes when they get out of court!

CHUCK MERIGOLD
Tucson, AZ

I subscribed to STEREO REVIEW in the hope that it would provide me with reviews of classical CD's that I could use to make purchases. Vain hope! The problem lies in the unavailability of the items you review, despite the reported openings of new CD plants in the U.S. To the contrary—the availability of classical CD's seems to have declined in the last six months.

What to do?

DONALD R. BECK
South Range, MI

Music Editor Christie Barter replies: If you cannot find many of the classical recordings we review at your local record outlet, the reason is probably a glitch in the distribution network or a failure on the part of the dealer to order the CD's you want. In either case, your best bet may be to order from one of the large chains or retailers, such as Tower Records or J&R Music World, that sell by mail. Tower's toll-free number is 800-648-4844 (in New York City, call 800-522-5445); J&R's is 800-221-8180 (in New York, Canada, or Alaska, call 718-417-3737).

"DDD" No Guarantee

I am shocked that in this day of the compact disc there should be such an inferior recording as Polydor's *The Phantom of the Opera*. It was recorded in 1987 and is coded AAD, but it sounds like a mono recording. Although it's in English, the words are unintelligible (and I can understand operas that are sung in French, German, Italian, and English). The producers get a D— for not making this a DDD recording and for not including a libretto. Their problem is that they're still living in the LP age.

JOSEPH MAKSYMIK
Chandler, AZ



Like most audiophiles, I appreciate the great advantages of the compact disc. The recording industry, however, seems intent on giving consumers the idea that in order for music to be worth purchasing, it must have been produced *entirely* in the digital mode, not just in the final stage. I would like to challenge that idea.

As a recording engineer by trade, I have used both analog and digital tape recorders. Although I must agree that most digital tape machines perform as claimed and are easy to operate and maintain, two-track and multitrack open-reel digital machines are still very expensive and not in the means of the average-size recording facility. Consequently, a large number of studios are still equipped with high-quality analog tape decks.

Any of these analog recorders, in the hands of an engineer who knows what he/she is doing, will give superb results. If the engineer has taken the time (from fifteen minutes to two hours) to align the machine properly, making sure that all of the many variables are within specifications, the sound on playback will be accurate.

What about tape hiss? If one of the many professional noise-reduction systems is employed, then the hiss problem will quickly disappear. Of course, I will be the first to admit that these systems do alter the quality of the sound, and sometimes (but not always) this alteration is detrimental. One noise-reduction system, however, comes very close to being perfect: Dolby Spectral Recording (SR).

Since attending a demonstration of Dolby SR at a local Audio Engineering Society meeting, I am convinced that the difference between a digital recording and an analog recording made with Dolby SR is nonexistent. Furthermore, a Dolby SR-encoded analog recording made at low flux levels shows less measurable distortion than the same program recorded digitally at the same low level. In other words, with Dolby SR, you get analog "warmth" along with digital "silence." (I am in no way associated with Dolby Labs, but I will say that Dolby SR works.)

Just having "digital" printed on the label does not make for an excellent recording. An excellent recording takes a committed attention to a large number of details (or steps). If integrity is not maintained through all of these steps, the project will be compromised. The type of tape machine used is just one of the many details. Don't pass up a recording just because the label doesn't have the DDD code. You may never know what you missed!

RAY D. FISHEL
Austin, TX

Classical Essentials

In July's "Letters" Thomas Cheesman wrote that he was being drawn into the world of classical music thanks to the CD. To aid Mr. Cheesman in adding to his collection, I have compiled a list of twenty-five "essential" classical CD's, CD's that I and many critics have concluded are classics of their kind:

1. Brahms: *Violin Concerto*. Isaac Stern (CBS Great Performances). My favorite CD: both piece and performance dropped from heaven!

2. Orff: *Carmina Burana*. Get either Shaw (Telarc) for impact and sound quality or Dorati (London Jubilee) for interpretive insight.

3. Mahler: *Symphony No. 9*. Karajan (DG).

4. Tchaikovsky: *Symphony No. 6*. Bernstein (DG). That last movement!

5. Chopin: *Nocturnes*. Rubinstein (RCA).

6. Tchaikovsky: *Violin Concerto*. Heifetz (RCA).

7. Dvořák/Haydn: *Cello Concertos*. Du Pré (Angel).

8. Beethoven: *Symphony No. 9*. Get both Norrington (Angel) and Karajan (DG Galleria).

9. Beethoven: *Symphony No. 6*. Bernstein (DG).

10. Shostakovich: *String Quartets Nos. 7 and 8*. Borodin Quartet (Angel).

11. Stravinsky: *The Rite of Spring*. Abbado (DG Galleria).

12. Liszt: *Piano Music*. Nojima (Reference).

13. *Spanish and Italian Guitar Music*. Fernandez (London).

14. Holst: *The Planets*. Karajan (DG) or Solti (London).

15. Purcell: *Music for Queen Mary*. Gardiner (Erato). Used in the movie *A Clockwork Orange*.

16. Beethoven: *Piano Sonatas Nos. 21 ("Waldstein"), 23, and 26*. Gilels (DG).

17. Bach: *French Suites*. Gould (CBS).

18. Beethoven: *Violin Concerto*. Stern (CBS Great Performances).

19. Copland: *Rodeo, Appalachian Spring, Fanfare*. Lane (Telarc).

20. Verdi: *Requiem*. Shaw (Telarc).

21. *René Clemencic and His Flutes* (Harmonia Mundi [discontinued]).

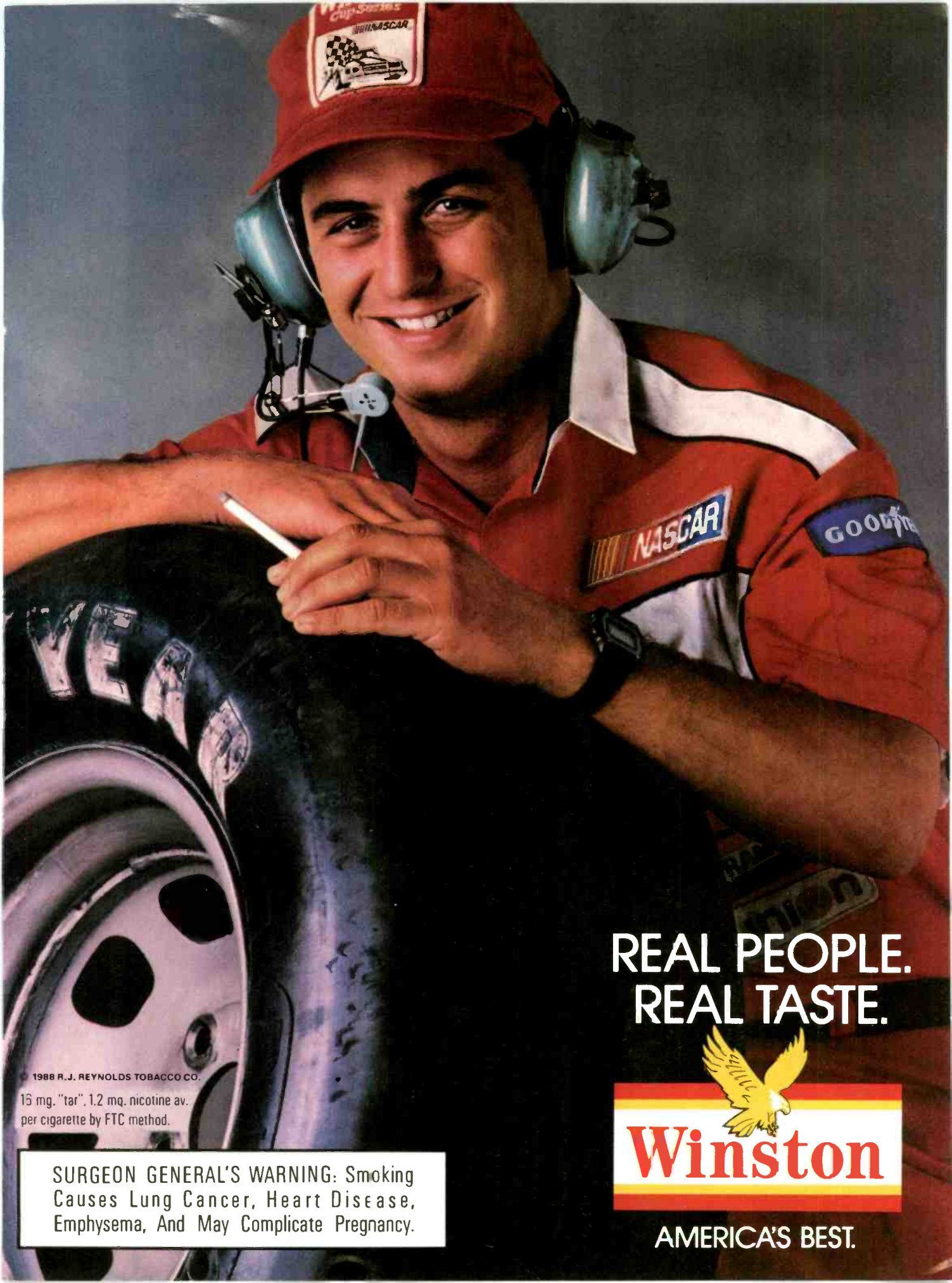
22. Mussorgsky: *Pictures at an Exhibition*. Ashkenazy (London).

23. Mozart: *Sonata for Two Pianos, K. 448*. Schubert: *Fantasia for Piano Four Hands, D. 940*. Perahia, Lupu (CBS).

24. Tchaikovsky: *Symphony No. 4*. Solti (London).

25. *Pleasures of Their Company*. Battle, Parkening (Angel).

BARRY KRUSCH
Brooklyn, NY



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CIRCLE NO. 60 ON READER SERVICE CARD

NEW PRODUCTS



Wharfedale

The four speakers in Wharfedale's Performance Series—the top two models are shown at left—are said to offer high-quality sound at budget prices. All four feature a proprietary ¾-inch soft-dome tweeter. The largest model, the three-way, floor-standing Delta 90 (\$700 a pair), uses a 10-inch version of Wharfedale's new Mineral Filled Homopolymer Polypropylene woofer in a 27½-inch-high infinite-baffle enclosure. The two-way Delta 70 (\$450 a pair) uses the same woofer in a smaller, front-ported enclosure. The Delta 30 (\$270 a pair) is a two-way, rear-ported system whose 7-inch woofer has a four-layer voice coil; size is about 15 x 8½ x 6¾ inches. The slightly larger Delta 50 (\$350 a pair) is a two-way, acoustic-suspension system with an 8-inch woofer.

Frequency response is given as 45 to 20,000 Hz for the Delta 30 and 50, 40 to 20,000 Hz for the Delta 70, and 35 to 20,000 Hz for the Delta 90. Power handling is 75 watts for the two smaller models, 100 watts for the larger ones. Sensitivity for all four models is rated as 89 dB sound-pressure level at 1 meter with a 1-watt input. Finish is scratch-resistant woodgrain vinyl. Wharfedale, Dept. SR, c/o Vector Research, 1230 Calle Suerte, Camarillo, CA 93010.

Circle 120 on reader service card



Infinity

The first plate speaker in Infinity's Reference Standard Kappa Automotive Series has a 6½-inch injection-molded graphite woofer and an EMIT (electromagnetic induction tweeter) high-frequency driver with a neodymium magnet. Designed for ease of installation, the 6¾ x 9-inch speaker requires only a 4½-inch cutout and a mounting depth of 2¼ inches. Frequency response is rated as 40 to 45,000 Hz ± 3 dB, sensitivity as 88 dB sound-pressure level at 1 meter with an input of 1 watt, and power-handling capability as 150 watts. Nominal impedance is 4 ohms. Price: \$400 a pair. Infinity, Dept. SR, 9409 Owensmouth Ave., Chatsworth, CA 91311.

Circle 121 on reader service card



Outer Circle Products

The Clic!Case from Outer Circle Products is a CD storage unit for use at home or on the go. The weather-resistant plastic case holds up to sixteen compact discs; pop open the lid and it displays discs at an angle for easy selection. Available in black or white, the Clic!Case is said to be considerably slimmer than comparable products. Dimensions are 11 x 14½ x 3½ inches. Price: \$11.99. Outer Circle Products, Dept. SR, P.O. Box 3667, Merchandise Mart, Chicago, IL 60654.

Circle 122 on reader service card

Sansui

Sansui's DA-a607i outboard digital-to-analog (D/A) converter can handle up to four distinct digital sources and features eight-times oversampling as well as an analog filter stage. The dual-channel converter has coaxial inputs for a CD player, a digital audio tape (DAT) deck, and a direct broadcast satellite (DBS) receiver as well as one optical digital input and two line-level analog inputs. It has both coaxial and optical digital outputs for a DAT recorder, two unbalanced sets of analog outputs, and one balanced set; it can convert an unbalanced input into a balanced output.

The power supply has separate transformers for the analog and digital sec-

tions. Digital sampling frequencies can be selected on the front panel for recording; the unit automatically selects the proper playback frequency. There is an output volume control as well as a level control for the headphone jack. A wireless remote control is included. Frequency response is given as 4 to 22,000 Hz ± 3 dB, dynamic range as 100 dB, total harmonic distortion at 1,000 Hz as no more than 0.002 percent, and signal-to-noise ratio as 115 dB. The converter's dimensions are 17¾ x 5¾ x 14¾ inches. Price: \$1,000. Sansui, Dept. SR, 1250 Valley Brook Ave., Lyndhurst, NJ 07071.

Circle 123 on reader service card



NEW PRODUCTS



Optonica by Sharp

The Optonica SM-A75, part of a revived line of audio/video components, is a four-channel surround-sound amplifier that features a two-channel, 16-bit digital delay system. With nine audio inputs, three audio outputs, five video inputs, and four video outputs, the SM-A75 can control up to fourteen sources. Its four amplifier sections can power either two or four speakers; ratings are 35 watts per channel into 8 ohms in stereo mode, 25 watts per channel in four-channel surround mode,

both with no more than 0.8 percent total harmonic distortion. Frequency response is rated as 30 to 20,000 Hz. In addition to Dolby Surround, the unit has several factory-preset ambience modes suitable for music, movies, or sports programs as well as three user-programmable modes. Bass-boost circuitry and a wireless remote control are also included. Price: \$599.95. Sharp, Dept. SR, P.O. Box 650, Mahwah, NJ 07430.

Circle 124 on reader service card



Thiel

The Thiel CS1.2 Coherent Source speaker is a floor-standing two-way system that has a 1-inch aluminum-dome tweeter and a 6½-inch polypropylene woofer. The woofer is enclosed in a cast-magnesium chassis and uses a special magnet that is said to increase bass output and reduce distortion. A sloping baffle is used for time alignment of the drivers, and a synthesized first-order acoustic crossover system is said to provide perfect time, phase, amplitude, and power response. Rated frequency response is 52 to 18,000 Hz \pm 2 dB; sensitivity is 87 dB sound-pressure level at 1 meter with 1 watt input. Dimensions are 10½ x 3½ x 10½ inches. The CS1.2 is available in black laminate or teak, walnut, oak, or rosewood veneers. Price: \$1,090 a pair. Thiel, Dept. SR, 1042 Nandino Blvd., Lexington, Kentucky 40511.



Panasonic

The SL-P3900C, Panasonic's first multidisc CD player, uses a removable magazine that holds up to six discs. The changer can be programmed to play up to thirty-six selections from any of the discs. Single tracks can be selected through a keypad on the front panel. The player can also select a random program from all the discs in the magazine. Other features include track repeat

and forward and reverse skip/search. The SL-P3900C uses a quadruple-over-sampling digital filter. Frequency response is rated as 2 to 20,000 Hz \pm 0.5 dB, signal-to-noise ratio as 96 dB, and dynamic range as 93 dB. A wireless remote control is included. Price: \$399.95. Panasonic, Dept. SR., One Panasonic Way, Secaucus, NJ 07094.

Circle 125 on reader service card

Hills Products

The Hills Products CD-BOX (left in photo) can hold up to sixty compact discs in their cases. Designed like a filing cabinet, it has two drawers with dividers to keep discs upright; both single CD's and multidisc sets can be accommodated. The cabinets measure 6¼ inches wide, 12¾ inches high, and 14¾ inches deep, and they are finished in black woodgrain vinyl with solid hardwood fronts finished as shown or

in dark oak, walnut, or black lacquer.

The similar Hills TAPE-BOX (right) stores up to sixty-four audio cassettes or 8mm videocassettes in its four drawers. Dimensions and finishes are the same as for the CD-BOX. Prices for either module: \$64.95 in oiled or dark oak, \$69.95 in walnut or black lacquer. Hills Products, Dept. SR, P.O. Box 1015, Hillsboro, NH 03244.

Circle 126 on reader service card



BACK TO THE FUTURE



At Marantz, we believe quality equipment should not become obsolete every six months. Which separates the Century Series of audio products from every other line on the market. Quite simply, our back is your system's future.

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CIRCLE NO. 53 ON READER SERVICE CARD

NEW PRODUCTS

Monster Cable

Monster Cable describes its T-Series Turbine Connector as a "rethinking" of the traditional RCA-type phono connector. Named for its resemblance to a jet turbine engine, the Turbine Connector has a massive grounding shell. Twelve diagonal cuts along its circumference are said to allow "a more complete transfer of the audio signal," and the shell's thickness is claimed to insure a precise, long-lasting fit. The Turbine Connector also uses Monster Cable's split-center-pin construction and has a 6-micron plating of 24-carat gold. Price: \$35 a pair. Monster Cable, Dept. SR, 101 Townsend St., San Francisco, CA 94107.

Circle 127 on reader service card



Koss

The new top-of-the-line Koss Pro/450 stereophone utilizes a hybrid dual-element design that is said to provide increased bass performance and an extended dynamic range. According to Koss, the copper-clad aluminum voice coil reduces moving mass and increases diaphragm velocity, and the neodymium-magnet motor structure increases the reliability and focus of the reference voltage. The headphones' multipivoting "spider" design and patented Pneumalite ear cushions are said to cancel outside noise effectively and comfortably. Two detachable coiled cords, 25 and 8 feet long, are included. Price: \$174.95. Koss, Dept. SR, 4129 N. Port Washington Ave., Milwaukee, WI 53212.

Circle 128 on reader service card



Pioneer

Pioneer's CDX-M100 CD changer and DEX-M300 AM/FM tuner/control unit are designed to function either as add-ons to an existing car stereo system or as replacements for a cassette-based system. The DEX-M300 can be dash-mounted in a DIN-size cutout or attached to a wired remote controller. The trunk-mounted CDX-M100 uses six-disc loading magazines—the same as Pioneer's home CD changers—and

can be programmed for up to thirty-two selections from a magazine. Programming for up to sixteen different magazines can be stored in memory. The DEX-M300 features twenty-four station presets, preset scan, best-stations memory, and local-seek tuning. Prices: CDX-M100, \$670; DEX-M300, \$500. Pioneer, Dept. SR, 2265 E. 220th St., P.O. Box 1720, Long Beach, CA 90801.

Circle 129 on reader service card

Soundesign

The Soundesign Model 4928 portable CD player has a three-beam laser pickup, sixteen-track programming, and repeat and search functions. The six-digit LED display shows the current track number and elapsed time, and there are other indicators for pause, repeat, program number, and battery level. There is both a mini phone jack and a line-out jack, and an AC adaptor is included. The player can also be powered from a 9-volt battery. Dimensions are 5 1/4 x 1 1/4 x 6 3/8 inches. Price: \$199.95. Soundesign, Dept. SR, Harborside Financial Center, 400 Plaza Two, Jersey City, NJ 07311.

Circle 130 on reader service card



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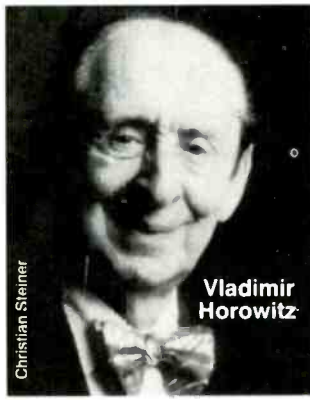
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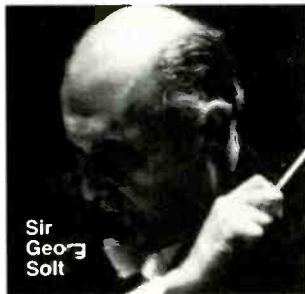
Christian Steiner

Vladimir Horowitz

Handel, Messiah (Highlights) Musica Sacra/Westenburg. Hallelujah Chorus, I Know That My Redeemer Liveth, more. RCA DIGITAL 153586

Jascha Heifetz: Tchaikovsky & Mendelssohn, Violin Concertos Chicago Symphony/Reiner; Boston Symphony/Munch. RCA 104833

Ravel, Daphnis et Chloé (Complete) Montreal Symphony/Dutoit. "An absolute dream performance."—Stereo Review London DIGITAL 115520



Sir Georg Solti

Mozart, Overtures Academy of St. Martin-in-the-Fields/Marriner. Don Giovanni, Marriage Of Figaro, 7 more. Angel DIGITAL 134267

Brahms, Cello Sonatas Yo-Yo Ma, cello; Emanuel Ax, piano. "Distinguished...handsomely recorded."—Stereo Review RCA DIGITAL 154044

Kronos Quartet: White Man Sleeps Music of Ives, Volans, Hassell, Coleman, Johnston & Bartok. Nonesuch DIGITAL 140256

Mozart, Requiem Leipzig Radio Choir; Dresden State Orchestra/Schreier. "Exceptionally satisfying."—High Fidelity Philips DIGITAL 115039

Slatkin Conducts Russian Showpieces Pictures At An Exhibition, Classical Symphony, 3 more. RCA DIGITAL 154358

Pops In Love The Boston Pops/Williams. Clair de lune, Gymnopédies Nos. 1 & 2, Albinoni Adagio, Fantasia On Greensleeves, Pachelbel Canon, more. Philips DIGITAL 125230

Michael Feinstein: Isn't It Romantic Title song, How About You, My Favorite Year, A Fine Romance, 7 more. Elektra 172393

Horowitz In Moscow The historic return! Music by Scarlatti, Mozart, Rachmaninov, Liszt, Chopin, Scriabin, Schumann, others. DG DIGITAL 125264

Mozart, The Piano Quartets Beaux Arts Trio; Bruno Giuranna, viola. "Absolutely indispensable."—Stereo Review Philips DIGITAL 115271

Copland, Billy The Kid & Rodeo (Complete Ballets) Saint Louis Symphony Orchestra/Slatkin. Angel DIGITAL 141491

The Canadian Brass: High, Bright, Light & Clear Air On The G String, Masterpiece Theatre Theme, others. RCA DIGITAL 144529

Pops In Space John Williams leads The Boston Pops in music from Star Wars, Close Encounters, Superman, more. Philips DIGITAL 105392

Pachelbel, Canon in D Also includes other works by Pachelbel & Fasch. Maurice André, trumpet; Pailard Chamber Orchestra. RCA 133877

Gershwin, Rhapsody in Blue; An American In Paris; Concerto Pittsburgh Symphony/Previnn (pianist & conductor). Philips DIGITAL 115437

Vivaldi, The Four Seasons The English Concert/Pinnock. "The finest recording of [it] I've heard."—High Fidelity Archiv DIGITAL 115356

Sousa, Stars & Stripes Forever Philip Jones Ensemble. Plus Semper Fidelis, Washington Post, more. London DIGITAL 115051



James Galway

James Galway—Greatest Hits Memory, Angel Of Music, Perhaps Love, Clair de lune, The Pink Panther, Sabre Dance, Danny Boy, 13 more. RCA 173233

Dvořák, Symphony No. 9 (From The New World) Chicago Symphony Orchestra/Solti. London DIGITAL 115168

Teresa Stratas Sings Kurt Weill Havana-Lied, Foolish Heart, Lonely House, Surabaya-Johnny, One Life To Live, more. Nonesuch 124748

Beethoven, Symphony No. 6 (Pastorale) Plus Egmont Overture. Royal Philharmonic Orch./Previnn. RCA DIGITAL 143612

Rossini, Overtures Orpheus Chamber Orchestra. The Barber Of Seville, The Turk In Italy, Tancredi, 5 others. DG DIGITAL 115527

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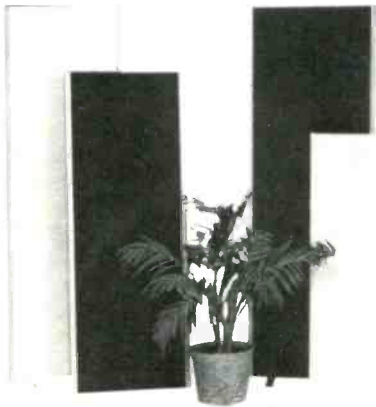
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Equipment for Overseas

Q I will soon be returning to my home country, where the electrical system operates at 220 volts, 50 Hz. While I'm in the U.S., I plan to buy a stereo system to take home. Will I be able to use components made to the North American standard if I connect a 220-to-110-volt transformer? And will my components function properly with 50-Hz AC power?

RONEN MIR
Sunnyvale, CA

A As long as you make sure that the transformer you use can handle the power drain of your equipment, there should be no problem in converting the voltages in this way. Check the owner's manuals of the components in question and add up the power-consumption figures to determine the rating the transformer should have. You may have to use more than one if you have a large number of components or if any of them use a lot of current—power amplifiers are usually most demanding in this respect.

A fair number of components have a selectable voltage, however, and these models should be investigated. Most manufacturers prefer to provide this facility where they can, because it means that the same units can be sold in many countries. But not all jurisdictions allow multivoltage equipment to be sold, so you might have to look fairly hard to find what you need.

As for the line frequency, most audio

components will tolerate both 50 and 60 Hz. Again, it makes more sense for the manufacturers to make equipment that will handle both than to produce separate versions for different areas, particularly since both frequencies are used in Japan. Only turntables and tape decks that have synchronous motors, which use the AC line frequency for speed regulation, should be avoided, as they will require fairly extensive modification for use in another country.

Early Digital and Stereo

Q Reading the liner notes with several compact discs, I noticed that some material was digitally recorded long before CD's were introduced. If they were recording digitally in the 1970's, why did we have to wait so long for the first compact disc players? Also, were recordings made in the 1950's originally stereo, or was that created in the digital remix?

ROBERT TISHEVICH
Columbia, MD

A The technology of the recording studio has often been ahead of home audio. Efforts to record in stereo go back almost as far as the phonograph itself, and all the basics for the stereo disc were developed as early as 1931. The first professional stereo tape recorder was made in 1949, and it was followed six years later by its domestic equivalent. A mini-boom in prerecorded stereo tapes (open-reel, of course) ensued, and many of the recordings from that period now being rereleased were mastered both in mono for general release and in stereo for the tape market. The stereo disc became a commercial reality in 1958, which increased the number of stereo masters (although many records were still mono only), and the introduction of true stereo FM broadcasting in 1961 encouraged the record companies to master everything in stereo, even though they continued to release mono versions for some years. From the early 1950's, therefore, stereo master recordings were fairly common; the ones that existed in mono only are usually rereleased in that form, so if your liner notes say a particular recording is stereo, it almost certainly is.

A similar thing happened with digital recording. The idea of using computer technology to record music goes back a long way, and practical digital studio recorders date from about 1972. Throughout the 1970's, several "audiophile" record companies used these digital recorders, even though the final product was analog. Now virtually all of these digital recordings have been rereleased on compact discs.

The delay between the start of digital



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AUDIO Q&A

recording and the availability of the CD had to do with the difficulty of creating a suitable medium to provide the obvious benefits of digital sound at prices consumers could afford. The original pro machines were extremely expensive, and while the interim use of video recorders with digital adaptors brought the cost down somewhat, it wasn't until Philips and Sony perfected the compact disc format that digital audio became practical at the consumer level. By the time it did, some of the major record companies had switched to digital mastering for at least part of their catalogs.

Cassette Crosstalk

Q All three of the cassette decks I own exhibit the same annoying problem: During quiet passages the heavy beat of the music on the other side of the tape is clearly audible in the right channel. I have had the decks checked out by their manufacturers' service centers, and two of them have even been replaced, but nothing seems to help. Tapes made on friends' machines do the same thing when I play them, while tapes I have made sound fine on other systems. What's going on, and what can I do about it?

RAYMOND TSUI
Nepean, Ontario

A Since the effect is not limited to one cassette deck, I suspect that something else in your system is to blame. To some extent this sort of leakage is inevitable: The tracks on a cassette are very close together, and low-frequency information has a tendency to spill onto the next track slightly. The inner tracks on the tape correspond to the right channel in each direction, so it is there that such crosstalk is likely to occur. Normally the levels are low enough that the spurious signal is masked by the correct one, but it can be audible when the "forward" signal is quiet and the "backward" one is loud. Even so, the crosstalk effect is usually pretty subtle.

On the other hand, I have encountered one situation in which such leakage became annoyingly prominent. The owner of the system in question was fond of lots of bass, and he not only had powerful subwoofers but habitually boosted the low-frequency portion of the program to gut-wrenching levels. In this case, the phantom bass became much more audible than it would have been if the frequency response had been closer to flat. To some degree, this might be your problem as well, although it's hard to tell without knowing something about the rest of your system and about your listening and recording practices. □

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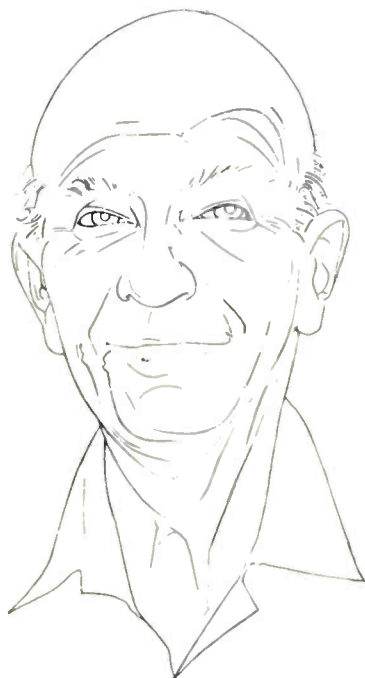
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TECHNICAL TALK

by Julian Hirsch



A New Measurement System at Hirsch-Houck Labs

FROM time to time I have devoted this column to significant changes in our laboratory instrumentation that have improved our ability to measure the more subtle characteristics of the products we evaluate. The last occasion was on the acquisition of a Panasonic frequency-synthesis signal generator, with stereo FM and stereo TV modulators, whose stability, frequency resolution, and extremely low distortion levels enable us to measure the most advanced FM tuners and related products with some assurance that the test instruments are better than the products being tested. A few years before that, the IQS FFT signal-analysis system made it possible to measure a number of loudspeaker characteristics in a live room.

I have also commented on the "leapfrog" effect between the performance of consumer hi-fi components and the capabilities of high-grade laboratory test instruments. No matter how good the test instru-

ments may be, ongoing improvements in tuners and amplifiers seem to outstrip their measurement capabilities every few years. Most recently, the development of the compact disc, and now digital audio tape (DAT), effectively made many otherwise satisfactory instruments obsolete, as they are unable to measure noise, distortion, or audio levels of signals in the microvolt range. The same rate of progress exists in the instrument field, so that over a similar interval the newest equipment is strikingly more accurate and sensitive, or simply more versatile and convenient to use, than the best of a few years earlier.

In 1984, a group of engineers who had been with Tektronix, a leading test-equipment manufacturer, established a company whose name succinctly defines their expertise and goals: Audio Precision, Inc., of Beaverton, Oregon. The company has developed a unique test instrument, the System One. Dedicated to audio testing, its specifications far exceed the performance capabilities of the most advanced consumer hi-fi components. Also, the System One's built-in self-checking systems verify that it meets its own specifications (usually with a large margin of safety).

The Audio Precision System One could not have been developed before personal computers reached their present state of refinement. It is essentially a dedicated computer that is controlled by an IBM or IBM-compatible personal computer. The user establishes the operat-

ing parameters of the test system on the PC's keyboard, and the measurement results appear in a graph or table on the computer monitor (the screen can be printed out on a dot-matrix printer in about 20 seconds at the touch of a key). The System One itself is a control-less box, with input and output connectors being its only front-panel features.

While many of the AP System One tests could be made with conventional instruments, few (if any) of those can approach its measurement range, accuracy, or speed. It can measure amplitude (calibrated in volts, watts, or arbitrary decibels) from the range of microvolts to well over 100 volts with 1 percent or 0.1 dB accuracy, and it can calculate total harmonic distortion (THD) plus noise from less than 0.001 percent up to 100 percent. The frequency of a signal between 10 Hz and 500 kHz can be measured with six-digit resolution and an accuracy of 0.003 percent. Phase angle can be measured across the audio range, and beyond, with a resolution of 0.1 degree and accuracy of 1 percent. The measurement detector characteristics can be set for average, rms, or peak response, and the instrument contains a number of standard weighting filters (including CCIR and A curves) as well as pre-emphasis or de-emphasis filters for FM and TV sound and RIAA phono equalization. Additional custom equalization responses can be programmed into it by the user.

The System One can be adjusted to make a full test in a few seconds or to obtain much higher resolution by measuring more slowly. It can drive both stereo channels simultaneously and plot their responses simultaneously. Multiple measurements (such as a family of tone-control response curves) can appear on a single display. The analysis portion of the instrument can "track" the sweeping signal on a test CD and plot the frequency response (or channel separation) of both channels of a CD player simultaneously in the 1-minute duration of the sweep. In addition to a normal sine-wave output, the generator section of the instrument can deliver random-noise signals (pink noise), tone bursts, or a variety of two-tone sig-

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TECHNICAL TALK

nals for measuring intermodulation (IM) distortion. And these are only a few of the capabilities of this remarkable instrument.

Obviously, the AP System One can replace a distortion analyzer, an ultra-low-distortion audio generator, a swept-frequency audio source, a random-noise generator, an IM signal generator, a tone-burst generator, a frequency counter, an AC voltmeter, and a graphic plotter. In certain applications, it can substitute for a spectrum analyzer as well, and an accessory unit enables it to perform as a precision digital DC voltmeter and ohmmeter. Only an oscilloscope and FM signal generator are currently beyond its capabilities. Since I already have all of the above-named instruments, you might think that I would welcome the chance to gain some room on the test bench by replacing them with the System One. Not quite!

For one thing, many measurements do not require the extreme precision and extended range of the System One. If only a few spot measurements are needed, simply turning on a distortion analyzer and reading its meter is much faster and easier than firing up the System One and going through its setup procedure. Sometimes a glance at a waveform on the oscilloscope tells me all I need to know. And, of course, most RF measurements require the Panasonic signal generator and can make only limited use of the System One's potential.

So what will the AP System One do for our test reports? Don't expect a noticeable difference in the report format, since reproducing the system's output graphs would exceed the space we have in the magazine. In my experience so far with the Audio Precision system, it appears that while it can make many measurements that are beyond the range of my other instruments, its chief advantage is the sheer number and variety of tests it can make very rapidly, giving me access to previously unavailable data that will contribute to a fuller assessment of the product being tested. Not all of these data will necessarily appear in a given report, but overall we should be able to provide better insight into the limitations and strengths of a product. The System One is strongest in testing CD players and other digital products whose performance challenges the capabilities of most separate test instruments, but I suspect that it can make a real difference with almost any component.

Despite its external simplicity, the AP System One is a very complex instrument. A few weeks of experience with it has enabled me to use it for routine measurements, and a few that I could never make before, but it is plain that only through extended use and understanding of its inner operation can its full potential be realized. That will come in time, and I expect that all of us will benefit. □



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MONITOR AUDIO R452/MD SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

MONITOR AUDIO of Cambridge, England, is a well-known loudspeaker manufacturer in Great Britain and continental Europe, but it entered the United States market only about a year ago. The company's U.S. line currently ranges from minispeakers to moderately large speakers, including both closed-box and ported systems. All are de-

signed to be placed on stands and away from walls. The stands are not included with the speakers but are available as options.

One of the newest additions to the line is the R452/MD. A two-way system like the others, it has a 1-inch metal-dome tweeter and an 8-inch woofer with a doped-paper cone. The ported (reflex) enclosure is 25 inches high, 9 $\frac{7}{8}$ inches wide,

and 12 $\frac{1}{2}$ inches deep. The cabinet is finished in genuine wood veneer (walnut, black ash, or oak is standard; other finishes are available at additional cost). The black cloth grille, which is retained by plastic snaps, is easily removed to reveal the finished speaker panel. Each speaker weighs about 33 pounds, exclusive of the recommended stand.

The heavy wooden stand, finished to match the cabinet, raises the speaker about 14 or 15 inches from the floor, depending on whether the supplied spikes are installed. When the R452/MD is stand-mounted, its tweeter is approximately at the ear level of a seated listener. The woofer is near the middle of the panel, and its port is at the bottom. The stand tilts the enclosure backward slightly, apparently for improved phase coherence. Insulated binding-post connectors, which also accept single or dual banana plugs, are recessed into the rear of the cabinet. There are no external fuses or user adjustments.

The complementary characteristics of the woofer and tweeter allow the use of a simple 12-dB-per-octave crossover. The aluminum tweeter dome is suspended on a soft polyamide surround, and its ferrofluid-filled, vented-pole design aids in heat dissipation. The R452/MD, a relatively efficient speaker, is recommended for use with amplifiers rated from 15 to 150 watts output. The nominal system impedance is 8 ohms, and rated frequency response is 50 to 20,000 Hz \pm 3 dB. Price: \$1,099 a pair; stands, \$189 a pair. Monitor Audio, Dept. SR, P.O. Box 1355, Buffalo, NY 14205.

Lab Tests

Except for a slight bump between 250 and 300 Hz, which did not appear in our quasi-anechoic FFT measurements and was evidently caused by a room-boundary reflection, the room response of the Monitor Audio R452/MD was smooth and relatively uniform across the audio range. In fact, it came close to matching the speaker's rated response of \pm 3 dB from 50 to 20,000 Hz; we measured a \pm 4-dB variation through that range.

The close-miked woofer response,

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TEST REPORTS

including the contribution of the port, which we measured separately and combined with the cone output, was ± 2 dB from 35 to 1,400 Hz. It spliced readily to the room response, with an overlap of more than an octave, to produce a composite frequency response of ± 4 dB from 30 to 20,000 Hz. A slight "shelving" of the high-frequency response, which was about 2.5 dB lower above 2,000 Hz than in the octave below that frequency, was a clue to the effective crossover frequency, which is not stated in the system specifications.

The Monitor Audio R452/MD delivered an 87-dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts of pink noise. Though slightly lower than the system's 91-dB rating, this sensitivity is nevertheless typical of systems of this size. Unlike most speakers we have tested in recent years, the impedance of the R452/MD never dropped below 7.5 ohms (at 170 Hz), and it reached its maximum of 32 ohms at 1,750 Hz (another indication of the probable crossover frequency). Its two bass resonances were at 22 and 72 Hz.

Our on-axis FFT frequency-response measurement showed a dip between 2,000 and 3,000 Hz that was not present at angles off the driver axis. It also revealed a large, undamped tweeter resonance at about 26,000 Hz (the amplitude was about 17 dB). Since this resonance did not affect the response below

22,000 Hz, it was inaudible. The tweeter's dispersion was excellent, with no more than a 6-dB difference up to 20,000 Hz between its response on-axis and 30 degrees off-axis. The group delay, ± 0.2 millisecond (ms) from 2,000 to 22,000 Hz, confirmed the linearity of the tweeter's phase shift in its operating range. The woofer's group-delay variation, 1 ms overall from 200 to 2,000 Hz, was also very good.

The limitations of a small bass radiator were evident, however, in the speaker's distortion characteristics. With a constant drive of 4 volts, equivalent to a 90-dB SPL, the distortion increased from less than 0.5 percent, in the 90- to 100-Hz range, to 6 percent at 50 Hz and 11 percent at 30 Hz. Clearly, the speaker's specified low-frequency limit of 50 Hz is realistic. In pulse power tests the woofer began to rattle with a 100-Hz input of 135 watts into its 11-ohm impedance. At higher frequencies, the amplifier clipped before the speaker distorted significantly, with maximum inputs of 385 watts at 1,000 Hz and 765 watts at 10,000 Hz.

Comments

As usual, we listened to the Monitor Audio R452/MD speakers for some time before making any measurements. Right out of its shipping carton, it sounded like a well-designed speaker. The sound was balanced, uncolored, and easy, neither bass-heavy nor shrill.

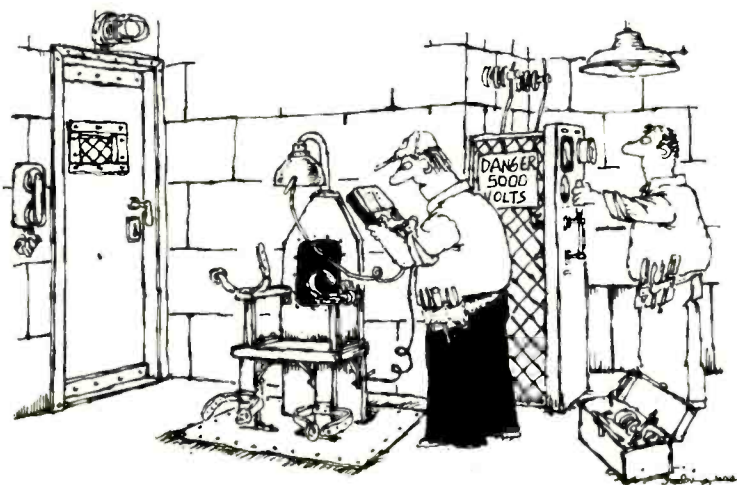
Our measurements essentially confirmed that impression, though our composite response curve suggested a stronger low-bass performance than we actually heard. This sort of discrepancy is common since the close-miked woofer measurement yields an anechoic response that is independent of listening-room acoustics or speaker placement. In rooms of modest size the lower-bass register may not be reproduced at the level such a response curve would imply.

Placing a speaker close to a wall, or even in a corner, can sometimes make a worthwhile improvement in its low-bass output. This speaker, however, like many others, was meant to be placed in the open, several feet from any wall. Such placement delays the first reflected signals for several milliseconds, imparting a sense of spaciousness or depth to the overall sound. Initially we put the Monitor Audio speakers about 18 inches out from the wall, and they sounded pleasant and listenable, but not striking in any way. Later, we moved them about 3 feet away from the wall, and the improvement was dramatic. There was a more distinct sense of depth and less tendency for the sound source to be associated with the speakers.

Like a number of other British speaker manufacturers, Monitor Audio strongly recommends the use of the pointed mounting feet supplied with their stands. We have never found that "spiking" offered any audible benefits, and we didn't find any with these speakers either. Furthermore, it was almost impossible to adjust the four pointed feet to obtain a level, stable base for the speaker (a plane, after all, is defined by *three* points, not four).

With or without feet, the Monitor Audio R452/MD is an excellent speaker, with a fine sense of "air" and depth and very good overall sound quality. It is not unduly large, heavy, or expensive; it does not have a bizarre or unconventional appearance; and it should present no compatibility problems with any amplifier we know of. All in all, it is an admirable addition to the Monitor Audio line.

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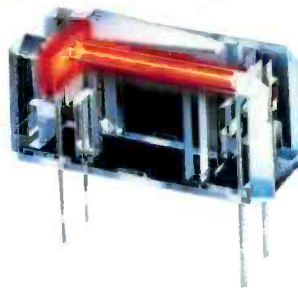
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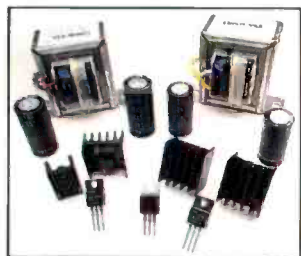
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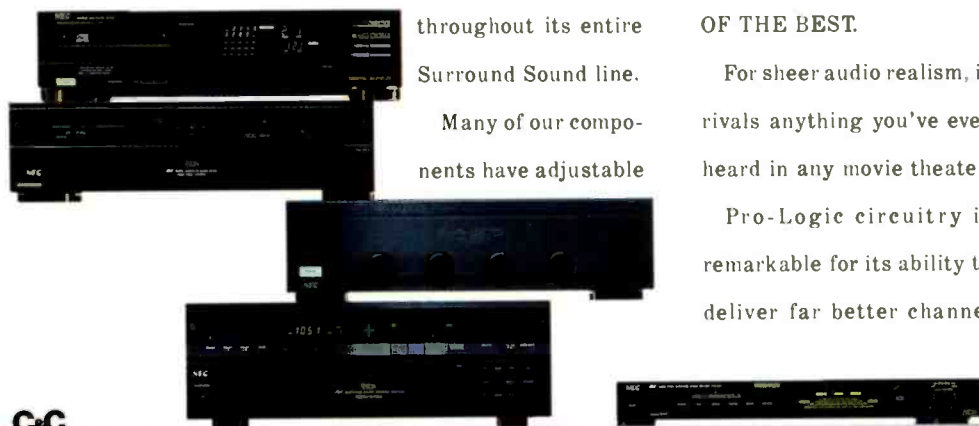
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AUDIO DYNAMICS CA-2000E INTEGRATED AMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

SINCE its recent reorganization and relocation from Massachusetts to California, Audio Dynamics Corporation (ADC) has announced a new line of distinctively styled audio components designed to be operated by a unified system remote control. Heading the new ADC lineup is the CA-2000E integrated amplifier, which is rated to deliver 100 watts per channel into 8-ohm loads from 20 to 20,000 Hz with no more than 0.05 percent total harmonic distortion (THD). The CA-2000E also carries a 4-ohm FTC rating of 120 watts over the same frequency range with less than 0.1 percent THD.

Despite its deceptively simple and unadorned appearance, the CA-2000E is a full-featured integrated amplifier. The tone and balance controls are small, black center-detented knobs that contrast nicely with the dark-gray panel. The larger volume knob is turned by a motor during remote operation. Except for the small source/tape-monitor knob, the other controls are all pushbuttons. All control functions are clearly marked on the panel.

The CA-2000E has inputs for a tuner, a CD player, an MM or MC phono cartridge, two tape decks, and an auxiliary source. Each source-selector button contains a

small red LED to identify the program being heard or recorded. Smaller buttons activate the two sets of speaker outputs, the infrasonic filter, and the loudness-compensation circuit. The DIRECT button bypasses all switches and active circuitry between the CD inputs and the amplifier volume control, eliminating all filters, tone controls, and the muting function (a 30-dB volume reduction that can be selected only from the remote control). The front panel also has a stereo headphone jack.

On the rear apron is a button that switches the phono input between its moving-magnet and moving-coil modes. The phono and CD input jacks are gold plated, and the two pairs of speaker outputs are multi-way insulated binding posts on 3/4-inch centers that are compatible with single or dual banana plugs as well as wire leads.

The circuitry of the CA-2000E

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was designed for optimum functionality rather than merely to create an impressive list of features. For example, the infrasonic filter has virtually no effect in the audible frequency range above 20 Hz, but it reduces the output by 29 dB at 4 Hz, where normal LP warps have their maximum effect and can overload an amplifier, creating intermodulation distortion. All inputs as well as the tape outputs are buffered to minimize leakage between sources and interaction with cable characteristics. The tone controls affect only their assigned frequency ranges, with no overlap or excessive sound coloration.

Even the remote control has been "beefed up"; it has three signal LED's (one facing upward), so that

the controller need not be pointed at the amplifier, nor is its useful range limited to a few feet. There is no power switch, however.

The exceptionally complete performance specifications of the CA-2000E indicate that it has been designed to drive almost any speaker load likely to be found in a home music system. This capability is illustrated by its impressive dynamic power ratings of 150, 225, and 325 watts per channel into loads of 8, 4, and 2 ohms, respectively.

The ADC CA-2000E measures 17 inches wide, 14½ inches deep, and 4 inches high, and it weighs 22 pounds. Price: \$799, including the system remote control. Audio Dynamics Corp., Dept. SR, 851 Traeger Ave., San Bruno, CA 94066.

Lab Tests

The top of the amplifier ran moderately warm in normal operation, and it became very hot during our preconditioning and high-power tests. During our high-power continuous-output measurements into 2-ohm loads, the protection circuits shut the amplifier down, and at one point the 6.3-ampere AC line fuse blew. Since these occurrences are unlikely when the amplifier is driving speaker loads, even those rated at 2 ohms, with program material, they do not reflect a weakness; rather, they provide a testimonial to its protection system.

The 1,000-Hz output clipped at 125 watts into 8 ohms, 196 watts into 4 ohms, and 295 watts into 2 ohms (the first two measurements were made with both channels loaded and driven, the last with one channel loaded by 4 ohms to avoid blowing the line fuse). At most listening levels, the 1,000-Hz harmonic distortion was about 0.01 percent into 8 ohms, slightly less into 4 ohms, and 0.01 and 0.02 percent into 2 ohms.

Through much of the low- and mid-frequency range, the distortion was 0.0025 to 0.005 percent at power outputs from 10 to 100 watts. It rose at higher frequencies to a maximum of 0.02 percent at 20,000 Hz and 100 watts output. The amplifier's slew factor exceeded 25, and it was stable with reactive simulated speaker loads.

The sensitivity (for a 1-watt reference output) was 15.5 millivolts (mV) at the high-level inputs, 0.27 mV for MM phono, and 0.024 mV for MC phono. The respective A-weighted noise levels (referred to 1 watt) were -83, -80.4, and -79.2 dB. The MM phono input overloaded at levels from 110 to 130 mV over the 20- to 20,000-Hz range. The input's impedance was 47,000 ohms in parallel with 140 picofarads.

At the maximum settings of the bass and treble controls, the response was down 3 dB at about 180 and 4,000 Hz, respectively, providing ample control at the frequency extremes without affecting the mid-range response. The basic frequency response, with the tone controls centered, was flat within ±0.2 dB

FEATURES

- High-current capability for driving low-impedance loads
- No current-limiting circuits; protected by fuses and output relays against damage from short circuits, overdriving, high temperatures, or DC offset voltage
- Phono-preamplifier section switchable for MM or MC cartridge; uses FET's and high-quality precision components
- Pushbutton selection of input source: CD, tuner, phono, two tape decks, auxiliary
- Switchable infrasonic filter with sharp cutoff at 12 Hz
- Audio mute (30-dB) operable from remote control
- Separate selector switches for two pairs of speakers
- Switchable loudness compensation; boosts low frequencies only
- Tape-monitor switch with dubbing in either direction
- Tone-control turnover frequencies of 160 and 4,000 Hz
- CD-direct switch to bypass all other switches and circuits ahead of volume control
- Gold-plated phono and CD input jacks
- Three AC outlets, one switched
- Wireless remote control; can operate complete ADC system, including CD player, tape deck, and tuner
- Extra-powerful infrared controller output for operation from any point in room

LABORATORY MEASUREMENTS

Output power at clipping (1,000 Hz): 125 watts into 8 ohms, 196 watts into 4 ohms, 295 watts into 2 ohms

Clipping headroom (relative to rated output): 1 dB at 8 ohms, 2.13 dB at 4 ohms

Dynamic power output: 132 watts into 8 ohms, 242 watts into 4 ohms, 360 watts into 2 ohms

Dynamic headroom: 1.2 dB into 8 ohms, 3 dB into 4 ohms

Harmonic distortion (THD + noise at 1,000 Hz into 8 ohms): 1 watt, 0.011%; 10 watts, 0.0073%; 100 watts, 0.03%

Maximum distortion (20 to 20,000 Hz into 8 ohms): 0.02% at 100 watts (20,000 Hz)

Sensitivity (for a 1-watt output into 8 ohms): CD, 15.5 mV; MM phono, 0.23 mV; MC phono, 0.024 mV

Phono-input overload (MM): 110 to 130 mV

A-weighted noise (referred to a 1-watt output): CD, -83 dB; MM phono, -80.4 dB; MC phono, -79.2 dB

Phono-input impedance (MM): 47,000 ohms in parallel with 140 pF

RIAA equalization error: 0.5 dB overall from 20 to 20,000 Hz

Tone-control range: 100 Hz, ±6 dB; 10,000 Hz, ±7 dB

Frequency response: +0.15 dB at 40 Hz, -0.2 dB at 20,000 Hz

TEST REPORTS

from 20 to 20,000 Hz. In the CD-direct mode, the response was flat within 0.05 dB from 10 to 12,000 Hz and down 0.25 dB at 20,000 Hz. The infrasonic filter raised the output at 20 Hz by about 0.25 dB and cut the output off sharply below 15 Hz, to about -6 dB at our low-frequency measurement limit of 10 Hz.

The loudness compensation boosted only the frequency range below 200 Hz, to a maximum of 9 dB at 20 Hz. The maximum boost was obtained at all volume-control settings below -20 dB, so that further reduction of the control setting had no additional effect on the frequency response.

Comments

The ADC CA-2000E performed to perfection in our music system. Its understated styling and simplified controls did not limit its operating flexibility in the least. And even though the amplifier can do just about anything one might wish in an advanced audio system, its operation is largely intuitive.

The dynamic power capability of the CA-2000E, especially into 2-ohm loads, gave it the ability to play very loud with almost any speaker without sounding strained or placing the speaker in jeopardy. We never drove the amplifier to clipping in our listening tests because the sound was becoming uncomfortably loud (but still clean) before we reached that point.

Given the ideal characteristics of the infrasonic filter, we chose to use it at all times. Leaving the filter on gave us the freedom to boost the bass to any degree without risking damage to the speakers or audible distortion. Both of the CA-2000E's tone controls had excellent characteristics as well, among the best we have used. They did not significantly degrade listening quality even when set at their limits.

Finally, the remote control lived up to its promise. Used anywhere in the same room with the amplifier, and pointed in any direction, it never failed to operate properly. Overall, the CA-2000E is a very fine product and represents an auspicious new beginning for Audio Dynamics.

Circle 141 on reader service card



KOSS M/100 PLUS POWERED SPEAKERS

Julian Hirsch, Hirsch-Houck Laboratories

THE Koss M/100 Plus "Dyna-Mite" powered loud-speaker system consists of a pair of small two-way speakers, one of which contains a 20-watt-per-channel stereo amplifier. The amplifier's heat sink is on the rear of the powered speaker, together with a pair of RCA-type input jacks, a toggle power switch, and a volume control that adjusts the level from both speakers. There are also insulated spring clips for the wire connection to the other speaker, an 1/8-inch stereo phone jack for listening through headphones, and a two-position switch to match the amplifier's input sensitivity to different program sources.

The second (unpowered) speaker looks just like the powered unit and has similar connectors for the cable joining the two, but it has no built-in electronics. Each speaker contains two 4 1/2-inch woofers vented by a 1 1/2-inch port in the rear of the

cabinet. A 1-inch dome tweeter is located between the woofers. The crossover frequency is 2,500 Hz. Thermal circuit breakers protect the drivers from overload damage.

The attractively finished walnut-grain wooden cabinets of the Koss M/100 Plus measure 6 inches wide, 12 inches deep, and 15 inches high and have removable black grille cloths. The unpowered speaker weighs 14 pounds, the powered one 18 1/2 pounds. Both speakers are magnetically shielded, allowing them to be placed close to a TV set without affecting the picture. The system is furnished with the connecting cable, signal cables, and an adaptor for 1/8- to 1/4-inch phone jack connections. Price: \$259.95. Koss, Dept. SR, 4129 N. Port Washington Ave., Milwaukee, WI 53212.

Lab Tests

We measured the acoustic output of the Koss M/100 Plus system

TEST REPORTS

using its own amplifier. The speakers were placed several feet from a wall on 26-inch-high stands. We also measured the electrical characteristics of the amplifier at the output terminals normally used to drive the unpowered speaker, using amplifier loads of 8 and 4 ohms (only one channel at a time was driven during these tests).

The averaged room-response variation of the system was only ± 2.5 dB from 500 to 20,000 Hz. Close-miked woofer measurements indicated a decrease in output of about 7 dB from 100 to 1,000 Hz. The output at the woofer cones also fell off rapidly at lower frequencies, to about -18 dB at 50 Hz. Measuring the output at the port extended the speaker's *apparent* response down to 20 Hz, although the low-frequency distortion, even at modest volume levels, made the lower octaves unusable. The effective crossover between the port and the driven cones was at about 70 Hz.

Above 80 Hz, the spliced composite response curve corresponded reasonably well with what we heard from the system, showing a broadly elevated output in the 80- to 300-Hz range and a relatively uniform and smooth output above 500 Hz. The low-frequency harmonic distortion rose so rapidly below 70 Hz that this must be considered the practical lower limit of the speakers' response. The harmonic distortion (measured at a level well below the 90-dB reference output we use for most speakers) was 2 to 3 percent from 100 down to 80 Hz, then increased steeply to 7 percent at 70 Hz and 11 percent at 60 Hz.

The impedance of the unpowered speaker reached its minimum of 4 ohms at 45 and 200 Hz, with low-frequency peaks of 11 and 13 ohms at 27 and 90 Hz, respectively. The maximum of 29 ohms occurred at 1,500 Hz. With an input of 1 volt of pink noise (using the amplifier's HI-level sensitivity setting), the sound-pressure level measured 82 dB at 1 meter.

At its maximum volume setting the amplifier delivered 1 watt into 4 ohms with an input of 0.178 volt (HI) or 0.042 volt (LO). Its output at clipping was 34.8 watts into 4 ohms and 29.6 watts into 8 ohms. The 4-

ohm distortion at 1,000 Hz was between 0.02 and 0.06 percent from 0.1 to 30 watts output; at the rated 20 watts output the distortion readings were similar from 20 to 20,000 Hz. Its A-weighted noise was -87.5 dB referred to a 1-watt level. The amplifier's frequency response was $+0$, -0.3 dB from 20 to 10,000 Hz and down 1.7 dB at 20,000 Hz.

Comments

Although the Koss M/100 Plus is obviously intended for convenient installation in small rooms, or for relatively noncritical listening, its usefulness is by no means limited to those applications. One of its obvious uses is in conjunction with a portable CD or tape player, perhaps one including an FM tuner. Such a combination would form a music system of surprisingly high quality for its small size and modest cost, and it would be suitable for installations where conventional components might not be considered.

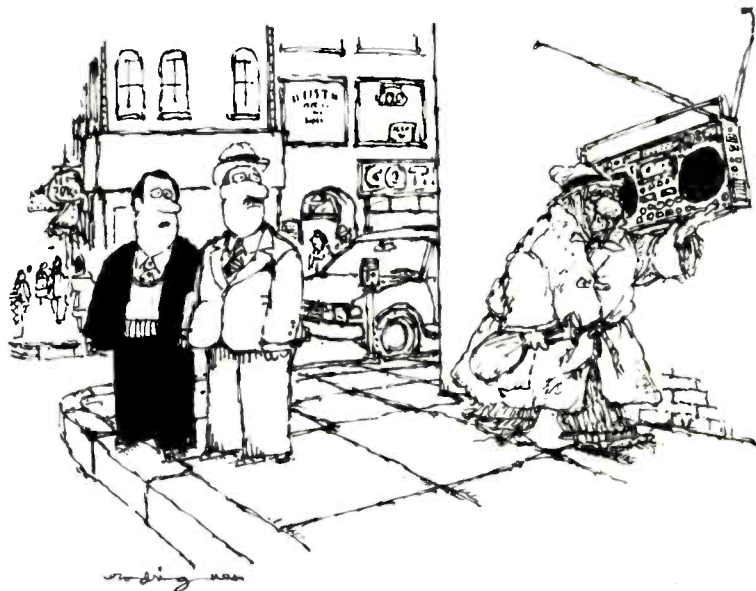
In the absence of a portable player, we connected the M/100 Plus to a deluxe CD player costing about six times the price of the speaker system. The results were quite agreeable. The tiny woofers delivered a clean and well-balanced sound, making up for the lack of

deep bass by a healthy amount of middle and upper bass (this tradeoff is typical of small speakers, although not very many we have heard are as successful at it as these). The tweeter also did its job superbly, with a strong output to 20,000 Hz or higher and very good dispersion.

The amplifier of the Koss system contributed to its performance in no small measure. We have often suspected that the power ratings of some powered speakers were exaggerated, but without disassembly of the speaker it is usually impossible to verify them. We were pleasantly surprised at the conservatism of the amplifier ratings for this system—30 to 35 clean watts per channel is not typical of low-priced "20-watt" amplifiers.

Although the Koss M/100 Plus may not be the answer to an audiophile's dream, it was not intended to play that role. Given an appropriate program source, it can deliver a quantity and quality of sound completely out of proportion to its size and price. Furthermore, it is strikingly attractive and would not be out of place in many rooms where a conventional hi-fi system would be aesthetically unsuitable.

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JOCK LEUNG

PS AUDIO MODEL 100C POWER AMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

THE PS Audio Model 100C dual-mono power amplifier is rated to deliver 120 watts per channel into 8-ohm loads from 20 to 20,000 Hz with no more than 0.1 percent total harmonic distortion. Its 4-ohm rating is 200 watts per channel. Although it resembles a number of other basic high-power amplifiers externally, the PS100C incorporates several unusual design concepts that set it apart.

The input stages of the PS100C use matched JFET's (junction field-effect transistors), and it has high-speed matched bipolar output transistors. The intermediate stages em-

ploy full complementary circuitry, and the amplifier is completely direct-coupled from input to output. Because the open-loop gain of the PS100C is relatively low, the amplifier uses only 12 dB of overall negative feedback, which minimizes slew-induced distortion. Despite the small amount of feedback, the amplifier's harmonic distortion remains low at any frequency or power output within its ratings.

No electronic current-limiting circuits are used to safeguard the output transistors. Speaker fuses, one for each channel, serve that purpose, and their location in the feedback loop effectively eliminates any

distortion that might otherwise result from variations in the fuses' resistance caused by temperature changes during high-power operation. The speakers are protected against the presence of a DC voltage offset in the output, which might damage the speakers or cause distortion, by an active servo circuit with a 1-second time constant. Even the lowest program frequencies are unaffected by this circuit. The power supply uses a specially wound high-current transformer with a separate 25-ampere bridge rectifier and 30,000 microfarads of filter capacitance for each channel.

The all-black PS Audio 100C is relatively large and heavy for its power rating. It weighs about 40 pounds. The 19-inch-wide front panel, slotted for rack mounting, is 5 $\frac{3}{4}$ inches high and $\frac{3}{8}$ inch thick, and the chassis extends 12 inches behind the panel (not including the 1 $\frac{1}{4}$ -inch-deep heat-sink fins that oc-

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For the name of your authorized Mitsubishi Home Theater Systems dealer, call (800) 556-1234 ext. 145. In California, (800) 441-2345 ext. 145. Cabinet colors and finishes may vary. Dolby and Dolby Surround are trademarks of Dolby Laboratories Licensing Corp. Diamond Vision II is a registered trademark of Mitsubishi Electric Corporation. *125 watts/channel, min. RMS, both channels driven into 8 OHMS from 20Hz - 20kHz with no more than 0.05% THD. © 1983 Mitsubishi Electric Sales America, Inc.

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copy most of the rear apron). There are an input phono jack and a pair of multiway binding posts for each of the channels.

The amplifier has no external fuses; the two speaker fuses and a power-line fuse are located inside its case. Other than the nameplate, the front panel contains only a rocker-type power switch and a small red LED power-indicator light. Price: \$1,195. PS Audio, Dept. SR, 4145 Santa Fe Rd., #2, San Luis Obispo, CA 93401.

Lab Tests

Although the PS100C's heat-sink fins became quite hot during the 1-hour preconditioning period, the rest of the amplifier remained comfortable to the touch. In normal operation the amplifier stayed cool and the heat-sink fins became only slightly warm.

The outputs clipped at 134.5 watts when the amplifier was driving 8-ohm loads at 1,000 Hz. Into 4 ohms, the output at clipping was 209 watts. The 2-ohm clipping power level could not be measured since the speaker fuse blew before clipping occurred. In dynamic power tests, the output was 120 watts into 8 ohms, 220 watts into 4 ohms, and 272 watts into 2 ohms.

The PS100C's slew factor exceeded 25, its output rolling off smoothly as the frequency was raised to our limit of 500 kHz. The amplifier was stable with reactive simulated speaker loads. Its low-level frequency response was perfectly flat from 5 to 20,000 Hz, reaching -3 dB at 100 kHz. An input of 125 millivolts was required for a reference output of 1 watt, and the A-weighted noise level was -90.5 dB referred to 1 watt.

Driving 8-ohm loads at 1,000 Hz, the amplifier's total harmonic distortion was under 0.02 percent from 1 to 50 watts, reaching 0.058 percent at the rated 120 watts. Into 4 ohms, the distortion was typically 0.03 to 0.05 percent up to 50 watts, rising to 0.1 percent at 150 watts and 0.14 percent at 200 watts. Into 8 ohms, the distortion at rated power was under 0.06 percent from 20 to 3,000 Hz, rising to just under 0.2 percent at 20,000 Hz. At half power and one-tenth power, the distortion readings were lower, less than 0.025 percent and 0.016 percent, respectively, up to 3,000 Hz and rising to 0.125 and 0.1 percent at 20,000 Hz.

Comments

The PS Audio 100C more than lived up to our expectations. Al-

though its power ratings are not as high as those of some amplifiers we have used, it can easily drive virtually any home speaker system to very high levels. In the process, it is not likely to generate audible levels of any of the multitude of forms of

Although the PS Audio 100C resembles a number of other basic power amplifiers externally, it incorporates several unusual design concepts that set it apart.

distortion that have been postulated or detected in the output of amplifiers.

The PS100C impressed us not so much by its sheer power as by its total silence. Of course, the absence of a cooling fan contributes to that silence, yet the coolness of the amplifier's exterior was striking in comparison with most similarly rated amplifiers. But there was also not a trace of vibration or buzz from the power transformer, to say nothing of the extremely low residual noise in the amplifier's outputs. In fact, the only external evidence that the amplifier was in use was the tiny red power light on its panel. Strangely enough, the only small criticism we could level at the PS100C concerned the power indicator. It is recessed into a narrow groove extending the full width of the panel and can be seen only when viewed from directly in front. From most parts of the room it was completely invisible, and it is only too easy to forget that the amplifier is running.

In our listening tests, the PS100C sounded essentially like most other high-power amplifiers we have used, which is to say that it had no sound character of its own. Our concept of a good amplifier is one that delivers all the power you will ever need, plus a healthy reserve, with total reliability and with absolutely no added noise, distortion, or other unpleasantness under any operating conditions. By those criteria, the PS Audio 100C is a superb amplifier.

Circle 144 on reader service card

FEATURES

- Dual mono amplifier rated for 120 watts per channel into 8 ohms, 200 watts into 4 ohms
- High-speed matched bipolar output transistors
- Matched JFET input transistors
- Complementary-symmetry configuration
- Direct coupled from input to output
- Only 12 dB of overall negative feedback
- Heavy-duty, high-current power transformer
- Separate power-supply rectifiers and filters for each channel
- Speaker fuses in feedback loop
- DC offset protection by servo with 1-second time constant

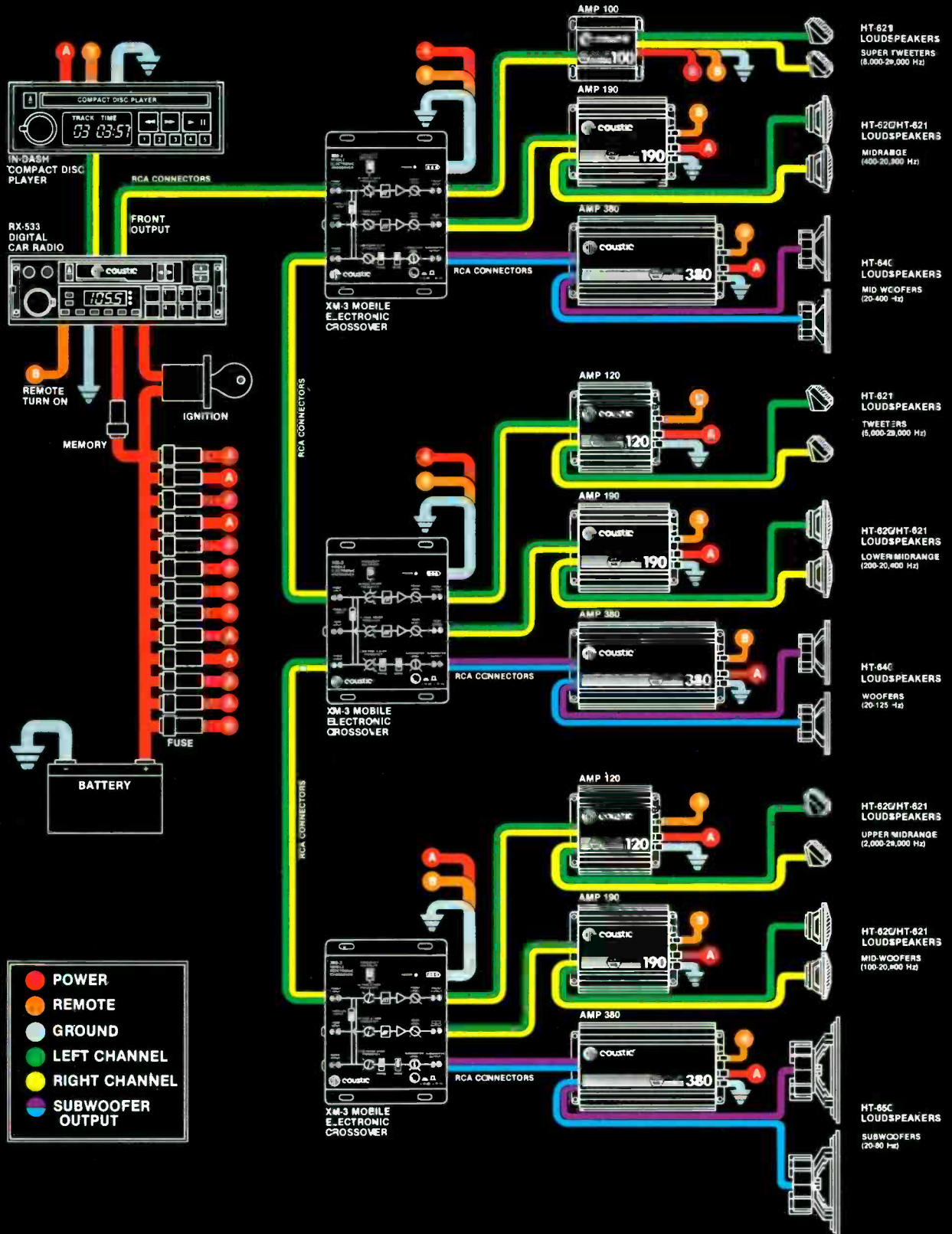
LABORATORY MEASUREMENTS

- 1,000-Hz continuous power output at clipping:** 134.5 watts into 8 ohms, 209 watts into 4 ohms
- Clipping headroom** (relative to rated output): 0.5 dB into 8 ohms, 0.12 dB into 4 ohms
- Dynamic power output:** 120 watts into 8 ohms, 220 watts into 4 ohms, 272 watts into 2 ohms
- Dynamic headroom:** 0 dB into 8 ohms, 0.42 dB into 4 ohms
- Harmonic distortion** (at 1,000 Hz): 8 ohms, 0.0175% at 1 watt, 0.058% at 120 watts; 4 ohms, 0.033% at 1 watt, 0.14% at 200 watts
- Sensitivity** (for a 1-watt output): 125 mV
- A-weighted noise** (referred to a 1-watt output): -90.5 dB
- Frequency response:** ± 0 dB from 5 to 20,000 Hz; -3 dB at 100,000 Hz

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JOOK LEUNG

NEC PLD-910 SURROUND SOUND PROCESSOR

Julian Hirsch, Hirsch-Houck Laboratories

THE NEC PLD-910 Surround Sound Processor is designed to create a listening-room sound field containing the multiple delayed signal components associated with a concert hall, stadium, or almost any other live-music environment. It also contains a Dolby Pro Logic Surround decoder for performance similar to that of the professional Dolby Stereo systems used in movie theaters. When used to decode the soundtracks of Dolby-encoded videocassettes or videodiscs, this feature enables the home viewer to enjoy spatial qualities and directional impact experi-

enced by moviegoers in the theater.

The PLD-910 can be connected between the system's preamplifier output and main-amplifier input or into a tape-monitoring loop. The normal stereo speakers, with the TV screen midway between them, are driven by the main amplifier. The PLD-910 supplies processed surround channels to a second, external stereo amplifier for a pair of surround speakers, which can be located at the rear of the room, along its sides, or even in front, facing either toward or away from the listeners. For best results in Dolby Surround operation, the PLD-910

can also supply a mono center-channel output (the sum of the left- and right-front channels), through a separate mono power amplifier, for another front speaker located close to the screen. A second mono output is provided to drive a powered subwoofer.

The Dolby Pro Logic Surround decoder contains active "steering" circuits to enhance left/right directionality; the separation can range from 26 to 40 dB between the left, center, and right speakers. The center channel serves to locate dialogue at the screen position without interfering with the other directional qualities of the system. The left- and right-front speaker volume is automatically reduced when a center-channel output dominates the program. After decoding, the surround signals are passed through a time-delay circuit (nominally 20 milliseconds) before they are sent to the

Deceptive Engineering

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You'll probably notice our 50-watt RX-533 offers obvious features such as Digital AM/FM cassette/radio with Dolby® B & C noise reduction, 24-preset stations, preset scan, tape program search, separate bass & treble tone controls, etc., and of course, it's **removable!**

But you'll probably overlook the not-so-visible but specially engineered features such as FM optimizer II circuitry designed for superior FM reception and built-in Automatic Radio Monitor for filling the void with music while you are fidgeting with your tape. Special cassette features such as "Auto Azimuth Correction System" rotates the tape head 180 degrees whenever tape direction changes to keep perfect azimuth alignment, Keyoff Pinch Roller Release minimizes wear and tear of tape pinch roller and DC servo motor accurately controls tape movement thus minimizing wow and flutter.

Plus pre-amp outputs and CD/AUX input capability designed for flexible system expansion, two-tone illuminated control panel guarantees easy viewing and identification and replaceable Lithium back-up battery helps protect and store information in the microprocessor.

Though not in plain view, these state-of-the-art engineering innovations are obviously what you have come to expect from a company with over 11 years of manufacturing experience.

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amplifier for the rear or side surround speakers.

The PLD-910 also has the other features required of a full-scale Dolby Pro Logic Surround decoder, including a center-channel mode con-

The NEC PLD-910 supplies signals for a pair of rear, side, or front surround speakers and for a center dialogue channel.

trol that can roll off its output below 100 Hz when a small center speaker is used, channeling the low frequencies in phase to the left and right speakers. If a larger center speaker is used, it can be driven by a full-bandwidth mono signal. And if no center-channel speaker is available, the full-spectrum signal can be supplied in phase to the left and right speakers, creating a phantom center channel.

A test signal, using random noise peaking at about 500 Hz, is provided for automatically balancing the levels in the system. The signal is applied in an automatically repeating sequence to the left, right, center, and surround channels, remaining in each channel for 5 seconds. After the first two cycles, the test sequence is repeated ten more times, but for only 2 seconds in each position.

Optimal operation of any Dolby Surround system requires a suitably encoded signal, which is normally found only in Dolby-processed videotapes or videodiscs, but the PLD-910 also has a "Creation" mode that uses its time-delay circuits to en-

hance nonencoded stereo programs. The delays are adjustable separately for each channel between 1 and 94 milliseconds in steps of 0.1 millisecond. In Dolby Surround operation, the adjustment range is reduced to 15 to 30 milliseconds. Advanced digital delay circuits provide full high-fidelity performance for the surround channels, each of which uses 16-bit analog-to-digital (A/D) and digital-to-analog (D/A) converters and quadruple-oversampling digital filters. Analog filters are used at the input and output of each delay channel to restrict its operation to the audio range and remove sampling artifacts (noise). The PLD-910 also has a straight stereo mode for playing music with no special effects.

Although most of the PLD-910's front-panel controls are duplicated on its wireless remote control, certain functions are accessible only from the remote. Most of the front-panel controls are pushbuttons, but small knobs are used to adjust the input level and output balance (the balance is critical for proper operation of the Dolby Pro Logic Surround system) and for mixing the two surround channels, in or out of phase, to any desired degree from zero to complete summation. An ECHO knob varies the amount of recirculated delayed signal energy, which produces the effect of a large space and ultimately can be heard as an echo.

Although it lacks the knob-operated functions, the wireless remote control offers considerably more flexibility in operating the PLD-910. It can adjust the delay time independently for each channel or for both simultaneously. The volume can be adjusted separately for

the main speakers, the center speaker, and the surround speakers, or for all simultaneously. In addition, there are independent left/right balance adjustments for each speaker pair.

One of the most important functions of the remote unit is to memorize all pertinent control adjustments for later recall. The memories are in the main unit, but the storage and readout processes are controlled only from the remote. Presets for up to five different acoustic environments can be stored in this way. The stored data includes each channel's volume level and delay time, center and surround-sound modes, and status of the center switch, the echo switch, the delay switch, and the two channel-blending switches. Whether or not the PLD-910 is in a preset mode, it automatically remembers all of its

It was possible to obtain an impressive sense of space in our small room without any obvious indication that it was derived artificially.

operating conditions when it is switched off and returns to them the next time it is turned on.

An important feature of the PLD-910 is its information display, a window occupying about half its panel area. The left half displays the operating mode, the delay times set for the left and right channels in the Dolby and Creation modes, and the preset memory number (when applicable). During the automatic Dolby balancing sequence with the internally generated test signal, the channel being tested is also identified in the display. The right half of the window contains scales showing the volume setting of each channel, and its momentary level, over a calibrated range of 0 to -60 dB.

The NEC PLD-910, which is finished in black, measures 17 inches wide, 13 $\frac{3}{8}$ inches deep, and 3 $\frac{1}{8}$ inches high. It weighs about 17 $\frac{1}{2}$ pounds. Price: \$949. NEC, Dept. SR, 1255 Michael Dr., Wood Dale, IL 60191.

FEATURES

- Dolby Pro Logic Surround decoder with adaptive matrix circuit
- Dual independent digital delay circuits using 16-bit linear successive A/D and D/A converters with digital filtering
- Time delay adjustable from 1 to 94 milliseconds (15 to 30 ms in Dolby Surround mode)
- Electronic volume control
- "Creation" surround mode with five programmable presets
- Full-function remote control
- Built-in test-tone generator
- Gold-plated terminals
- Separate power supplies and isolated circuit boards for analog and digital sections
- "Stereo" mode for unmodified two-channel output

Prism Effect

What has prism effect, a refractive phenomenon, to do with audio equipment?

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crossover points for the front and rear outputs and a low-pass (32-400 Hz variable) crossover point for the sub-woofer output, Woofer/Enclosure Equalization engineer for optimizing bass response, Phase Inverter allowing the sub-woofer output to be shifted 180 degrees out-of-phase to compensate for in-vehicle acoustical anomalies and Frequency Multiplier Switch which, by multiplying crossover points for the front channel, transforms the XM-3 from a **BI-AMP SYSTEM** to a **TRI-AMP SYSTEM**, etc., all contributed to create the **PRISM EFFECT** and make the XM-3 the most versatile electronic crossover ever manufactured for automotive use.

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Lab Tests

We tested only the normal stereo and the Creation modes of the NEC PLD-910; the Dolby Pro Logic system can be evaluated only subjectively using video surround-sound facilities. The outputs of the PLD-910 were tested with an EIA load of 10,000 ohms and 1,000 pF. The volume control was set for unity gain through the main and surround outputs. The 1,000-Hz output level at clipping was 5.8 volts. Distortion varied somewhat with frequency and was about 0.003 percent at 1,000 Hz for the main output at levels up to 1 volt, increasing smoothly to 0.0145 percent at 5 volts. Readings were considerably lower at 20 Hz, but at 20,000 Hz the distortion ranged from 0.011 percent at 0.1 volt to 0.048 percent at 1 volt and 0.28 percent at 5 volts.

In the Creation mode, the surround-channel outputs had distortion levels several times greater than those of the main channels, apparently because of their extensive digital delay processing. The readings were still quite negligible, however, measuring 0.036 percent at 1 volt output with a 1,000-Hz signal, only slightly less at 20 Hz, and 0.058 percent at 20,000 Hz.

The echo feature added a series of delayed signals, each following the preceding one by the initial delay interval, with successively smaller amplitudes. At the maximum set-

ting of the echo control, up to nine echoes of a short tone-burst signal could be seen on an oscilloscope, and at the minimum setting only the initial delay was visible.

The A-weighted output noise, referred to a 0.5-volt level, was a very low -98.5 dB at the main (front) outputs in the stereo mode and -90 dB in the Dolby Surround mode. The delay circuits added measurable noise to the surround channels in both the Dolby and Creation modes, with readings of -67 dB.

The front-channel frequency response was flat within ± 0.15 dB from 20 to 20,000 Hz. The surround-channel response was equally good, whether the delay circuits were on or off and whatever the delay setting. In its WIDE, or full-range, setting, the center-channel frequency response was ruler-flat from 80 to 20,000 Hz, dropping to -1 dB at 40 Hz and -3.5 dB at 20 Hz. In the NORMAL setting, the response was flat from 200 to 20,000 Hz, falling to -3 dB at 110 Hz, -15 dB at 50 Hz, and -33.5 dB at 20 Hz.

Comments

You cannot expect simply to connect a product like the NEC PLD-910 to a music system, turn it on, and obtain satisfactory results. Many interdependent adjustments are required before you'll be content with the sound, and the functions of many of the controls are not ob-

vious. A careful study of the instruction manual is a must, as is a period of hands-on practice.

Our test sample was a preproduction unit for which a final instruction manual was not available. Fortunately, NEC supplied a preliminary draft of the English-language manual as well as some explanatory material that aided us in the initial installation and setup. Since we had used surround-sound processors before, we connected the PLD-910 to our music system and gave it a quick checkout. The initial results were disappointing.

We then spent a few hours with the manual to learn exactly what every control did and how to use the unit correctly. Then we bench-tested the processor and finally reinstalled it properly in our system. The difference from our first experience was dramatic.

With sufficient patience, it was possible to obtain an impressive sense of space in our small room without any obvious indication that it was derived artificially. As with other such devices, the secret of success is to keep the volume of the surround speakers low—if you can hear them as distinct sound sources, they are too loud! Once the correct parameters for a particular kind of acoustic space have been established, storing them in the PLD-910's memory takes only a second or two. If you decide to modify them later, it is just as simple to replace the original information with revised hall parameters.

Even though some ambience-enhancement devices offer a larger number of memorized environments, most users will probably find the five presets of the PLD-910 to be sufficient. Experimenting with the infinite possibilities offered by this device is almost as much fun as listening to music through it. Although it is not inexpensive, a sophisticated signal-enhancing accessory such as the NEC PLD-910 is one of the most useful additions you can make to your system, assuming that your basic components provide a sufficient level of performance. And it should do at least as much for your video enjoyment as it does for your listening pleasure.

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Remote Possibilities



With the **remote** control of the Dragon II Mobile Security System, the **possibilities** are tremendous.

With the simple touch of a button, the Dragon II will, by remote control...

- Lock/Unlock your doors
- Continuously monitor your hood, trunk, doors and windows against tampering
- Release your trunk or activate another Dragon Security System in a second car
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But just touch the car and the Dragon II will...

- Activate a very loud siren
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- Instigate an unpleasant sounding siren inside the Passenger Compartment
- Bypass the Starter Relay to prevent unauthorized starting of your car

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Cooustic...a sound and secure investment.

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- Multi-Sensor System
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- Remote Panic Alarm
- Valet Parking Override
- External Antenna Connector
- Automatic Door Lock/Unlock Interface*
- Courtesy Light Interface*
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- Trunk Release Interface*

Dragon I Features:

- Remote Control Transmitter
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- Valet Parking Override
- External Antenna Connector

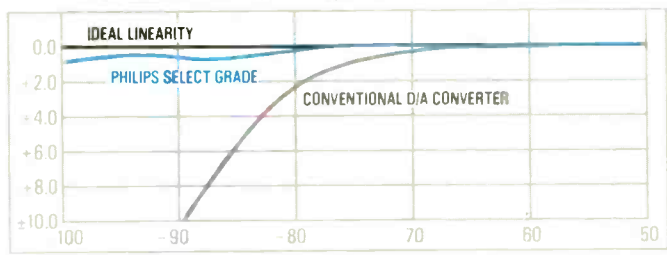


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*Optional relay(s) required.
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Deviation from ideal linearity (dB) vs. recorded level (dB).



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PHILIPS

HOW TO

BUY A CD PLAYER

● **A systematic approach to examining the options** ●



ONE of the toughest decisions in audio is choosing a compact disc player. On one hand, the decision is a difficult one because of the diversity of today's players: Single-disc players, portables, and changers all offer a variety of features. And inside them is a wide range of optical and electronic designs: You can choose between a one-beam laser and a three-beam laser, different degrees of oversampling, different kinds of digital-to-analog (D/A) converters—all can influence performance. Construction methods may also play a role: The transport suspension, chassis material, and circuit-component selection all make a difference.

Yet, on the other hand, if measured specifications are taken as the primary guide, most CD players offer high-quality reproduction. Frequency response, channel separation, harmonic and intermodulation distortion, signal-to-noise ratio, and dynamic range are all significantly better than in most analog devices. Even in the listening room, where the most critical evaluation device of all, the ear, is employed, audible differences are usually limited.

This diversity of the means, and similarity of the ends, often results in confusion on the part of the consumer. If all players sound great, should we shop on the basis of features? But if a \$200 player provides the same features as an \$8,000 player, is it reasonable to assume that they sound equally great? What role does construction quality play? Does it influence sound quality or long-term reliability? And what about design? Surely the radically diverse approaches different designers take must account for some meaningful differences. Or do they?

Play with the Buttons

The three hundred or so home CD players on the market are most easily distinguished by their features. In general, the number of features is proportional to price. Also in general, you get what you pay for. An inexpensive player with a multitude of features probably has cost-cutting circuitry inside. Thus, at any given price point, features must be weighed against potential sonic performance as well as longevity. In short, you have to decide which features are important to you, and then pay only for those.

Although features are mainly a matter of taste, a generic list of features, ranked by priority, might include transport controls, display(s), track programming, remote control, direct track access, repeat functions, a headphone jack with its own volume con-

trol, a digital output, favorite track selection, random-order playback, and index programming. Styling, of course, should be placed on the list according to its importance to you. While every player needs some kind of transport controls and display, the rest are entirely optional. Whether you need them depends on how you intend to use the player.

Careful scrutiny can uncover subtleties even in simple features that may not otherwise become apparent until after your check has cleared. For instance, one player may have a repeat button that just replays a whole disc indefinitely, but another may have controls for disc repeat, program repeat, track repeat, and repeat between any two user-selected points. One remote control may provide only the basic transport operations while another allows programming as well. To keep the cost down, many remote controls omit the most important feature a remote could have—a volume control.

The differences in other features may not be so obvious. For example, only a few CD players have a compression circuit to reduce the dynamic range of recordings. You may not want that feature for home listening, but it may be indispensable if you tape your CD's for car playback. Then there's favorite track selection, which allows you to enter a playback sequence for a disc into the player's memory; the sequence is automatically recalled every time that disc is loaded. Do you think you'll want that feature? You may not know until you've tried it a few times. That brings us to some important advice about deciding on features: Spend some time in the showroom playing with all the buttons. You'll soon learn what your money should be spent on and where it can be saved.

While you're at it, consider the player's ergonomics, or human engineering. Small buttons and displays, hard-to-read lettering, an illogical front-panel layout, slow response to user commands, and other lapses in design can often lead to major irritation in the long term. Awkward or confusing controls end up not being used.

For what it's worth, many audiophiles (and audio journalists) are front-panel minimalists with regard to features. They prefer their components to have clean and uncluttered lines. The best of both worlds may be a clean front panel and a lot of functions on the remote controller.

Finally, choose your features with an eye toward the future. If you're considering a new preamplifier, consider digital outputs on your CD player, both coaxial and optical. The further the digital signal path is extended through the reproduction system the better. The CD family is growing rapidly, so if you're interested in CD-3 three-inch discs,

The Philips LHH-1000, available in January 1989 (list price \$4,000), comes with a versatile outboard D/A converter—see cover photo.



Luxman has omitted all D/A conversion circuitry in its D-113D (\$550) to achieve "digital perfection" when the player is optically coupled to a compatible amplifier containing a D/A converter.

Sony's CDP-707ESD has an eight-times-oversampling digital filter, dual 18-bit D/A converters, and separate power supplies for the digital and analog sections. Its Custom File feature allows a user to program and store special data for up to 226 separate discs. Price: \$1,800.



The Vector Research VCD-650CX (\$599) is the first CD player to combine a six-disc magazine changer with an autoreverse cassette deck for synchro-dubbing. The tape automatically pauses, while the next selected disc or track is being accessed.



P

ioneer's \$1,300 PD-91 player stands on large insulating feet to cancel external vibration. It uses an eight-times-oversampling filter and 18-bit D/A converters. Four separate power supplies minimize noise and interference. A digital fader is also included.



A

two-speed search dial on the Technics SL-P990 lets users spin forward or backward to any desired cue point on a disc. Four converters are used to prevent distortion, and digital peak-level meters show signal output in real time. Price: \$825.



CD-V videodiscs, CD-G graphics discs, or any other CD incarnation, make sure the player you buy can accommodate them.

Do a Little Homework

After you've visited the showroom and determined what you need in the way of features, collect a pile of literature and head home for some homework. Technical questions demand nitty-gritty consideration of the details of design and construction. The approach chosen by the designers, and their success in implementing it, will determine both the player's reliability and its fidelity. Important? You bet. What good is a full-featured player that sounds bad or lives in the repair shop?

First, consider the player's construction. Is the chassis made of plastic or metal? Often, simple weight is an indication of robustness. Examine the overall quality of workmanship. Buttons, displays, fasteners, and finish all give clues to the care put into the product.

Although manufacturers have shed considerable quantities of ink on whether one- or three-beam laser pickups are better, in reality either can achieve excellent results. Three beams are certainly not inherently better than one; it's possible that the simpler one-beam design may even be preferable.

Determine if the player has separate power supplies for the analog and digital circuits. The two types of circuits are incompatible in that noise and interference from one may cause distortion or error in the other. Separate power supplies help keep them apart. Similarly, look for electrical isolation between these sections, with fiber-optic connections, as well as mechanical isolation of the disc drive from the circuit boards.

Consider how filtering is accomplished. Today, most players use digital filters implemented with an interpolating, or oversampling, design. Such filters are preferable to "brick-wall" (sharp-cutoff) analog filters, but even most oversampling digital filters require a modest analog filter as well. The degree of oversampling—two, four, or eight times, or more—determines where ultrasonic frequency components will appear. The higher the oversampling rate, the higher the frequency of the ultrasonic components, hence the less the reliance on analog filter-

ing to get rid of them. Some players omit the analog filters entirely. In general, the higher the degree of oversampling, the better the quality—not from an inherent superiority, but because manufacturers are currently reserving their higher oversampling rates for their better players.

Look for dual digital-to-analog converters. A single converter can be multiplexed between the left and right channels, but minute timing differences can lead to interchannel phase errors. In general, a dual-converter design indicates that the manufacturer was willing to spend a little more for an improvement that may be overlooked by most shoppers—a good sign.

Determine the digital "word" length of the D/A converters, that is, the number of "bits" of digital information they can handle at one time. Most players now use 16-bit converters, but premium players may have 18-bit converters. Other manufacturers seek to improve the performance of 16-bit converters by configuring them in circuits that switch 18 bits through the converter. In general, 18-bit and quasi-18-bit converters perform better than 14- or 16-bit converters and indicate another degree of concern on the part of the manufacturers.

Finally, compare specifications. Look for a frequency-response deviation of less than 0.3 dB, total harmonic distortion (THD) plus noise of 0.0025 percent or less at 1,000 Hz and 0 dB, channel separation greater than 90 dB at 1,000 Hz, a signal-to-noise ratio (S/N) greater than 100 dB, and near-perfect phase linearity. The specs of all CD players are pretty good, but those of excellent players stand out.

Back to the Showroom

If you follow a systematic evaluation of features and design criteria, you should be able to narrow your selection down to a half-dozen players or less. Don't try to consider more than that when you go back to the store.

First, take a good look at each of your final candidates to evaluate them for qualities that are not reflected in the specifications. Do the disc drive and drawer operate swiftly and smoothly, without a lot of mechanical racket? Is the impact immunity good? Hit the player a few times, on the top and the sides, to ascertain the pickup's ability to

CD CHANGERS

BACK in the glory days of the LP, there was a real stigma attached to any record player able to load more than one record at a time. And with reason. The mechanical assembly required to change discs contributed to disc wear and affected the rotational accuracy of the player itself. In time, record changers were relegated to second-class systems. Purists used only single-play turntables.

The compact disc is changing all that. Because the CD changer mechanism can be separated from the disc transport, there is no technical penalty attached to a changer design. Of course, at any given price point, the cost of including a changer mechanism must be subtracted from other aspects of a player's design. In other words, compared with a \$500 single-disc player, a \$500 CD changer must be lacking somewhere. But if you factor the added cost of the changer mechanism into your budget, a changer can offer the experience of unsurpassed audio fidelity over an extended, uninterrupted period of time. If you've been a diehard turntable advocate all these years, you may have forgotten the joy of extended play. Indeed, discovery of that pleasure is resulting in a steady increase in the market share occupied by CD changers. Party-throwers, opera buffs, the incurably lazy, and many others have thrown off the old stigma and have embraced changers.

Changers come in a variety of guises. A few manufacturers offer players with separate drawers for single- or multiple-disc play. One or several discs are loaded into the appropriate tray and played in numerical or programmed sequence. These players truly combine single-play architecture with the option of multiple-play. At the other end of the scale are jukebox-type players in which discs are loaded directly into a caddy whose capacity may rival the size of your entire CD collection.

Most changers fall into one of two types: magazine and carousel. In magazine-type changers, discs are loaded into a holder magazine, which is then inserted into an oversized slot in the player's front panel. Inside, a mechanism resembling an elevator rides up and down, withdrawing the selected disc and placing it onto the disc transport (in some designs, the disc drive itself rides on the elevator). Magazines can hold from five to twelve discs, for up to 15 hours of music.

In addition, with some models the

disc magazines are compatible with car changers, so that a loaded magazine can be listened to both at home and on the road. (Check to make sure the compatibility is fully two-way; some car changer magazines may work in home players, but not the reverse.) Some magazine players also double as single-play machines with a single-disc drawer that can be inserted in place of the magazine. On the debit side, magazine changers sometimes take 10 seconds or more to switch from one disc to another. In addition, some people find disc magazines annoying to load and unload. To avoid that problem, discs can simply be stored in magazines instead of their original jewel boxes or sleeves, though in that case the cumulative cost of magazines may become considerable—and where do you store the liner notes?

Carousel players offer a simple alternative to magazines: An oversized drawer opens to expose a rotating platter. Up to five discs are put in one at a time until the platter is full. The platter rotates past the disc transport until the selected disc is reached. From a user standpoint, a carousel is as convenient to load and unload as a single-play machine, and most carousels are faster than magazine changers in switching from disc to disc. In addition, the platter mechanism is inherently simpler than a magazine changer's, leading to lower cost and fewer potential repairs. On the minus side, a carousel player usually allows fewer discs to be loaded at one time than a magazine type.

Most changers take advantage of holding multiple discs by providing enhanced programming features. Check to make sure that a programmed sequence can skip from disc to disc. Likewise, make sure a random-selection feature will choose tracks from all of the loaded discs, not just one at a time. In addition, some changers incorporate expanded memories able to retain programming information for many magazines. For example, a changer with favorite track selection may be able to memorize track sequences for up to eight six-disc magazines, with a limit of eighty tracks.

Changer capacity ranges from five-drawer models to five-disc carousels to five-, six-, ten-, and twelve-disc magazines. The ultimate is a 240-disc jukebox that can be interfaced with a personal computer acting as a controller. With that many discs on line, selection software is probably a necessity.

stay on track. Good pickups, properly isolated, are amazingly resilient to external shock.

How well does the player track damaged or dirty CD's? Discs aren't indestructible, and even with the most scrupulous care they can accumulate scratches over time. A good player should be able to play through a damaged disc. In lieu of destroying a CD from your collection, you might fashion your own test disc by laying a few narrow (about 1/16 inch) strips of tape radially, like spokes in a wheel, on the data side of a disc. A good player can play through half a dozen strips or more. Also try putting a few juicy fingerprints on the disc. As with the tape strips, a good player should be able to negotiate these without audible problems.

Some players are sensitive to vibrations, either from internal sources such as their own disc drives or from external sources such as loudspeakers. Checking for an external vibration problem is fun indeed. A problem may occur at loud listening levels, but the sound-pressure level may also mask the resulting distortion in the player. To make sure about it, turn up the volume and listen through closed-ear headphones. With some players you'll hear a deterioration of sound quality as the disc vibrates and the pickup's servomotors are unable to respond, or do respond but tax the power supplies, resulting in distortion in other audio stages.

The bottom line, of course, is sound quality, pure and simple, evaluated under normal listening conditions. Find yourself a comfortable chair and settle in—this is going to take some time. Select the highest-quality reproduction system available; the quality of the players, not the rest of the system, should be the limiting factor. Compare only two players at a time, since any more would be too confusing. Also, be aware that what you hear, or think you hear, may be heavily influenced by your knowledge of factors such as construction quality, the manufacturer's reputation, specifications, and price. In short, all the criteria that narrowed your selection are now counterproductive for comparing the players' sonics.

There are two schools of thought regarding this particular problem. According to one, these aspects should be allowed to influence your subjective impression because in re-

ality you will never be divorced from them anyway. Buy what makes you happy. The other view is that these aspects should have no bearing on sonic evaluation. To compare the sound of two players, cover them up and switch between them without knowing which is which. Just be forewarned that the mind plays funny tricks on the car. In one test, subjects evaluated two pairs of loudspeakers that were identical except that one pair's cabinets were stained a dark mahogany. The subjects agreed that the darker speakers had much tighter bass response. Why? No one knows.

In any case, be absolutely certain that the volume levels of the two players under test are equal; even a fraction of a decibel's difference will bias your judgment, most likely in favor of the louder player. Put copies of the same disc in both players, synchronize them as closely as you can, and switch between the two players. Listen for realistic depth, stable localization, high-volume stability, and full ambience with "air" around the music. Listen for naturally warm sound, tight bass response, smooth treble response, and low background noise. Listen closely to the fadeouts of tracks; many players exhibit extreme non-linearity at very low levels.

What? Both players, and all the others as well, sound the same to you? Consider yourself lucky. People who *do* hear differences are usually forced to take a second job (like writing magazine articles) to support the expensive habit of seeking audio perfection. Still, if you're daring, you'll soon hear some differences. Relax. Don't be discouraged. Take your time. Switch to headphones. There *are* differences even between high-quality players, but they can be quite subtle. Try different discs. Some factors are extremely difficult to hear with many types of music programs. You might want to try a test disc for more critical evaluation. In time, chances are that you'll begin to favor a certain player. In that case you've picked a compact disc player according to the most important criterion of all—sonics.

Then you'll notice another interesting aspect of stereo equipment selection: The one you want is invariably the most expensive. For tips on getting a good home-equity loan, please consult your financial advisor. □



A unique switchable circuit in Yamaha's CDX-910U (\$699) removes all analog filtering from the output. A Tape Edit feature permits automatic or manual selection of CD tracks to fit perfectly onto a cassette.



Adcum uses the same proprietary Class A high-speed linear amplifiers in its \$600 GCD-575 CD player as in its high-end G.F.P. 555 preamplifier. The player's frequency response is rated as 5 to 20,000 Hz ± 0.5 db. It plays CD3's without an adapter and includes a remote control.

The Denon DCD-500F uses a d.a. superlinear converter, four power supplies, a quadruple-oversampling digital filter, and an LF-OFC analog filter. Features include twenty-track programming and digital outputs. Price, \$675.



Designed to keep the music flowing, the NAD 5170 CD changer (\$748) has a six-disc magazine as well as a single-disc drawer that allows for continuous play while a magazine is being reloaded. Its remote unit includes a volume control.



RICCARDO MUTI

*"The secret of being a
good conductor is to be yourself."*

by Herbert Kupferberg

THE Philadelphia Orchestra has a talent for catching conductors on the rise. Both Leopold Stokowski and Eugene Ormandy were young men still making their careers when they arrived in Philadelphia, Stokowski from the Cincinnati Symphony, Ormandy from the Minneapolis Symphony. Riccardo Muti isn't much different.

True, the young Italian maestro, who was only thirty-one when he first came to guest-conduct the orchestra, had acquired a growing European reputation, but he was a virtual unknown to Americans when he made his debut on the podium of Philadelphia's Academy of Music in 1972.

Today, sixteen years after that first appearance and eight seasons after taking over from Ormandy as music director, Muti, now one of the world's major conductors, has refashioned the Philadelphia Orchestra in his own image, bringing it a new breadth of repertoire, a flexibility of sound, and a firmness of direction—all enhancing its already formidable reputation.

"I well remember the day in Florence in 1970 when Mr. Ormandy heard me conduct at a rehearsal at the Teatro Comunale," Muti told me recently. "I was directing the Maggio Musicale; he was going to conduct his own orchestra later in the hall and came for an acoustical check. I didn't even know he was there. He came up to me afterwards, said some nice words, and invited me to conduct in Philadelphia.

"From my first meeting with the orchestra there was a very good musical feeling between us. Mr. Ormandy

kept inviting me back for a longer period each year. Then in 1977 I became principal guest conductor and in 1980 music director. So it has been a long process, not a traumatic succession. And I think I can say that ever since I came here the love and respect between me and the orchestra has become deeper."

Although by now his trim figure, his shock of jet-black hair, and his aquiline profile have become readily familiar to American audiences, Muti remains very much an Italian maestro. In addition to his four months a year in Philadelphia, he has three basic European centers of action—Vienna, Berlin, and Milan, where he was named music director of La Scala in 1986. His extraordinary versatility is reflected in the range of his recordings, both symphonic and operatic. This month Angel/EMI is releasing a six-CD set of the complete Beethoven symphonies with the Philadelphia, to be followed by Scriabin's Third Symphony and Tchaikovsky's *Romeo and Juliet*. Angel is also releasing new Muti recordings of Schubert's Symphonies Nos. 4 and 6 with the Vienna Philharmonic and Bruckner's Sixth with the Berlin Philharmonic. "We have plans for him for years ahead," says an Angel executive.

This fall Muti is also launching an ambitious recording schedule with Philips, starting with a complete, six-hour-long performance of Rossini's *William Tell*, which he will record live at La Scala on opening night in December. Philips also plans a cycle of the four Brahms symphonies and the *Alto Rhapsody* as well as several Richard Strauss works with the Berlin Philharmonic.



Like Stokowski and Ormandy before him, Muti is rapidly becoming one of the most extensively recorded of modern conductors.

Muti said he started his musical career with no idea of where it would take him. The son of a physician in Naples, he first studied the violin, later switching to the piano. He was nineteen and a student at the Naples Conservatory when the event occurred that was to set him on his course. In a commencement address Muti gave last year at the University of Pennsylvania, he described it this way:

"One day they needed a replacement for the conductor of the student orchestra, and they asked me. Before that day I had never thought to become a conductor—I didn't even know how to start. But my teachers said, 'Do this: Something will happen.' And I tried it, and something did happen. And from the moment I began to work in this way, I knew that I had found my calling."

MUTI continued his studies at the Verdi Conservatory in Milan and in 1967 won the top prize in the Guido Cantelli Competition for young conductors. While still in his twenties he began to occupy major posts, becoming director of the Maggio Musicale and principal conductor of the New Philharmonia of London. And he was always working to develop his art. He likes to quote a remark made to him by the late conductor Vittorio Gui, one of his mentors. Nearing his ninetieth birthday Gui said, "What a pity to be so near death just when I am learning how to conduct."

"He meant," Muti explained, "that conducting isn't a matter of technique, of beating time, but of getting the best from the souls of the musicians before you. Certainly when I came to Philadelphia, I knew that I had received in my hands a great orchestra from Ormandy, just as Ormandy had from Stokowski. I don't believe you can accomplish anything by suddenly changing all the rules.

"So I have tried to keep the great qualities while adding the experience of my own culture and of myself. You can't put an orchestra into a deep-freeze. I have tried to keep that famous 'Philadelphia sound' when it is appropriate, but to seek a more versatile and different style when necessary. For instance, to play Mozart with the old sound was a mistake—Mozart must sound like silk. Some of the change in sound has come through changes in repertoire. Today I think the orchestra is doing more Mozart, Haydn, and Baroque music than in the past, and also more contemporary music. Playing concert versions of operas, as we do, also helps make a change.

"For myself, I feel lucky to be jumping from Philadelphia to Berlin, Vienna, and La Scala. I feel I can bring the experience of each to the others. But I want to keep the Philadelphia unique both in personality and in character."

Watching Muti at a Philadelphia rehearsal this summer, I quickly observed his skill at modulating the orchestra's sound to fit the music being played. In Tchaikovsky's *Pathétique* Symphony the violas and cellos

poured forth the luxuriant, deep string sound that has always been the Philadelphia's hallmark. But in shaping the orchestra's accompaniment for several Mozart arias, Muti exhorted the violins to play with more lightness and incisiveness. And he set forth Rossini's *Semiramide* Overture with what can only be described as Toscaninian speed and sparkle.

Whenever he wanted a stylistic or tonal change made, he explained his reasons to the musicians, so that the rehearsal was punctuated frequently with the word "because." The session started and finished on time, and the players seemed to respect both his technique and efficiency. "He's a musician and a gentleman," said one cellist. "What else can you ask?"

Muti believes that both Toscanini and Wilhelm Furtwängler—usually regarded as representing diametrically opposed interpretive approaches—have "in different ways" influenced his own musical thinking. "But," he added, "no real artist can imitate. What can you do to imitate? You can learn from others, but you cannot copy. The secret of being a good conductor is to be yourself."

One Toscanini trait that Muti makes no attempt to emulate is conducting from memory. A score is always open on the lectern before him, and he uses it.

"When I started conducting, I did everything from memory," he confessed. "It was very fashionable. But then, when I had a complex score, I got nervous. I kept thinking beforehand about the complications, I became tense, I began to force my memory. Then I realized that what people expect is a good performance, not a show to see how much memory a conductor has. It's all right to be tense because you're giving a concert, but not because of memorization. I think that is unfair both to the musicians and the public."

Muti said he had also somewhat revised his approach to recording: "I didn't much like it at first. I was concerned about precision, about exactness, not about the music. In the recording studio you must be relaxed. I find I do this by imagining that there is a real audience there. Otherwise it would become dry and cold. You must perform for people, not for microphones. It took me some time to learn this, and even now I prefer to record with a live audience, as with the *William Tell* we will do at La Scala."



ALTHOUGH Muti likes CD's, he spoke nostalgically of recordings from earlier eras. "Some of those old recordings made in the 1950's I still find great," he said. And as far as he is concerned, the greatest *Don Giovanni* on records is the first one ever made, that by Fritz Busch and the Glyndebourne Festival Opera in 1936: "For dramatic tension, none has matched it."

Muti sees nothing surprising in his ability to move between music of differing styles and nationalities. "I really think it's a sign that music has no barriers," he said. "There is an Italian influence in much German music. Of course, you must know the environment in which a work was written. But someone like Mitropoulos [who was born in Greece] was a great conductor of Italian music. I would say, though, that a conductor who can't speak Italian can't do Verdi properly—the words of the drama are so important."

Muti makes his home in Italy, in the lovely town of Ravenna near the Adriatic Sea, where he spends as much time as he can with his wife, the former Cristina Mazzavillani, whom he met when she was a voice stu-

dent at the Milan Conservatory, and their three children. To his surprise he has found the pressures of spending at least one-third of each year in Philadelphia—where his commitment now runs through the 1992-1993 season—less than he had anticipated.

"People had told me that in America there would be a lot of parties, meetings, social events. But I must say that in Philadelphia everybody has tried to make my life as easy as possible. I do not have to spend much time fulfilling social commitments. They seem to know I'm not too much of a social person. I find that I can study more in Philadelphia than elsewhere!"

MUTI is very much involved in the affairs of the orchestra, beyond conducting its concerts. He has the final say in auditioning new members and in selecting the new music that it plays. In the latter task he has the assistance of American composer Richard Wernick, who screens the hundreds of scores submitted every year and selects thirty or forty in varying styles for Muti's consideration.

Asked whether he follows the same technique in working with orchestral musicians in Philadelphia as in Europe, Muti replied, "I suppose every orchestra reflects the qualities and defects of a nation. But I've reached the point of thinking that a good musician is a good musician anywhere. The differences become apparent in bad musicians only. I use the same system everywhere: simply, to try to make music."

Now forty-seven, Muti feels a particular affinity for the young people he has met in the United States. He is particularly impressed by the upbeat quality and enthusiasm of organizations like the Westminster Choir, which he has frequently conducted. His commencement address at the University of Pennsylvania brought him dozens of letters from students. "That wouldn't happen in Europe," he says. "We Europeans are too old. We've lost the courage to be natural and express our feelings. The young Americans have the future in their eyes."

As for advice to youngsters who aspire to conducting, Muti said: "Study composition deeply—harmony, counterpoint, orchestration. When you have the secrets of how to write music, you will have the secrets of how a score is built. That is the first step to conducting."

Muti's English has grown fluent during his years in Philadelphia. He speaks with a light accent, pausing occasionally to seek the exact word he wants. Although he takes great pride in his achievements, he is not overwhelmed with a sense of self-importance and can even show flashes of self-deprecatory wit. When a card on his dressing-room door at the Mann Music Center in Philadelphia's Fairmount Park misspelled his name as "Ricardo Muti" last summer, he did not demand that it be replaced but merely had the missing "c" penciled in. When he rehearses an accompaniment to an operatic aria and the singer isn't present, he supplies the missing vocal part in a voice that shows the benefits of his Italian *soffeggio* training.

Listening to him sing two Mozart arias this way, I reminded him that Toscanini had always done the same. "But you have a better voice than he did," I added.

"Ah, yes," he said with a smile. "But he was a better conductor." □

Herbert Kupferberg is the author of Those Fabulous Philadelphians and A Book of Classical Music Lists, which is being issued in paperback in October by Penguin.



THE DIGITAL CONNECTION

New digital components use optical isolation to eliminate distortion.

by
Ian G. Masters

EVER since buying sound equipment as separate components became commonplace, the problem of how to get the signal from one part of the system to another has been—or should have been—a major concern. Audio manufacturers go to considerable lengths to make each component behave itself, but there is little they can do to insure that the overall system will remain free of signal degradation. And yet, the division of a stereo system into separate units is really only a matter of convenience; it remains a *system*, and its various parts must work well together. A significant factor in *how* well they work together is the way they are connected to each other.

Wherever it is placed in an audio system, any wire is subject to a number of ills, but within any particular component—a preamplifier, say—the designer can prevent most problems by careful placement of leads, by shielding the chassis, and by exact matching between stages. In any event, since internal leads are mostly measured in inches they are relatively impervious to most of the problems that can plague cables of greater length. Once the signal leaves a component, however, it may be carried by wires several feet long and will terminate in an unknown impedance, a situation that is only exacerbated as the signal snakes its way from tuner to preamp to equalizer to power amplifier to speakers.

Impedance Juggling

The potential signal degradation in all of these steps is very great, but audio designers have minimized the problems in a number of ways. For instance, the ideal way to connect two audio components to achieve the maximum transfer of power is to make sure the output impedance of the first one exactly matches the input impedance of the one it feeds. This is standard practice in professional installations, where a 600-ohm impedance is universal. There is no such consistency in consumer audio, however, so the risk of mismatches is high. Mismatched impedances

can cause gross distortion, so home audio equipment usually avoids the problem by means of a technical compromise: Output stages generally have a low internal impedance while input impedances are many times higher.

This compromise arrangement is much less efficient than closely matched impedances in terms of power, necessitating somewhat higher amounts of amplification along the way to achieve the same output, but it has a number of advantages. For one thing, as far as distortion is concerned, audio equipment is very tolerant of upward mismatches, so this technique gives some assurance that a signal will pass through a whole system with its waveform intact. Also, because of the greater amplification in the output stages, the signal in a cable has a better chance of rising above 60-Hz hum. Our houses are loaded with electromagnetic fields that are easily picked up by wires carrying low-level audio signals. Much of this interference is eliminated by the use of shielded cables; still, the higher the signal level is in relation to possible noise, the better. Shielding also goes some way toward protecting the system from radio-frequency interference (RFI), although extreme cases often require more elaborate measures.

Potentially, however, the greatest problems caused by hook-up wires have to do with the fact that they are *never* simply inert conductors. All wires have some built-in resistance, and all behave to some extent as capacitors, especially the coaxial sort of wire often used in home audio equipment. Using heavier-gauge wire and high-conductivity terminal connectors can reduce resistance significantly, but there will always be some. By the same token, although low-capacitance cable is often used, particularly in the very sensitive link between a phono cartridge and a preamplifier, there is still a residual capacitance in the patch cord.

Again, the conventional upward impedance mismatch deals with these cable characteristics very neatly. By itself, the wire's own resistance



Sony's TA-E77ESD preamplifier has built-in dual digital-to-analog converters. It includes two coaxial digital inputs for CD players and a coaxial digital input and output for a DAT deck.



Yamaha's CDX-1110U CD player has both coaxial and optical digital outputs that are selected by a rear-panel switch.



The Yamaha CX-1000U preamplifier has nine coaxial and six optical inputs and outputs for a CD player, two DAT decks, two CDV players, and a digital accessory device such as an outboard D/A converter.



Denon's DCD-3300 CD player offers one optical and two coaxial digital outputs.



The conversion circuits in Denon's PMA-1520 integrated amplifier use full 16-bit, quadruple-oversampling digital filtering, and the rear panel has both coaxial and optical digital inputs and outputs. A striking feature is the front-panel LED readout for the digital sampling rate of the selected source: 32, 44.1, or 48 kHz.

would have negligible effect, but combined with the inherent capacitance it forms a low-pass filter capable of rolling off the high frequencies of the audio signal. There is nothing that can prevent a rolloff from happening at *some* frequency, but by making the combined resistance of the wire and the input stage it feeds high enough in relation to the output circuitry, the point at which the rolloff occurs is moved safely out of the audible frequency range.

The amount by which the input impedance must exceed the impedance of the output stage is not critical as long as the difference is great enough, which is why we can plug virtually any piece of audio equipment into any other with reasonable assurance that both will perform optimally. The reduced gain at each stage is a small price to pay for this level of compatibility.

Digital Factors

The coming of digital audio has injected some new factors into all of this, however. For one thing, many owners of compact disc players are unwilling even to entertain the *thought* that their cables might affect the pristine digital signal, so the use of high-tech interconnects is increasing. For the same reason, many of the newer CD players are fitted with gold-plated output jacks for better conductivity, and such jacks are showing up more and more on amplifiers and receivers in the middle price range as well.

In addition, several amplifier manufacturers now include a bypass function that routes the signal from the compact disc input directly to the power-amplification stage, on the theory that the fewer electronic components there are in the signal path, the less the chance for degradation. In some cases the only preamplifier function that remains operative is the level control; in others, a separate level control is provided for use with "CD-direct" signals. In either case, things like tone controls and input switching are not allowed to interfere with the signal from the CD player, although users do have the option of routing the signal conventionally on those occasions when additional processing is required.

Such techniques may offer some sonic benefits, although the audible improvements are likely to be subtle at best. But they would apply

equally to *any* signal source and don't really address potential problems that are unique to digital audio. For instance, retrieving the digital information from a CD and transforming it into an analog signal that the rest of the system can work with takes several steps, some of them in the digital mode. The disc is read by reflecting a low-level laser beam off its surface and into a photoelectric cell. The laser beam pulsates as it is disrupted by deformations in the disc's surface, and the photocell turns these optical variations into a similarly pulsating electrical signal: the "bit stream" that will eventually be converted into an audio signal. Before that happens, however, the player's error-correction circuitry must determine if any information is missing and, if so, attempt to replace it. Only after that process is complete is the signal fed to a digital-to-analog (D/A) converter.

FROM the photoelectric cell to the D/A converter, the information is all digital; after conversion it is analog. Unfortunately, housing both digital and analog circuits in the same chassis can cause problems because the digital signal is in the radio-frequency range. And because the bit stream consists of pulses—square waves—it is rich in harmonics, also found in the radio-frequency part of the spectrum.

Analog audio is prey to RFI from external sources at the best of times; the situation is much worse if the radio frequencies are generated within the same component as the analog. Radio-frequency interference can be carried by the chassis itself, through common power-supply components, or through the air, and even the series of filters in a D/A converter may not get rid of it, as it can still creep in *after* the filter stages. Add the electrical noise caused by the various servo systems and display devices, and a CD player's interior becomes a sort of interference "soup" that can seriously degrade the audio signal the unit produces. Many of the same problems can occur in digital audio tape decks as well.

Division of Labor

One solution increasingly employed by audio manufacturers is to separate the digital and analog functions, housing the former in the CD player or DAT deck and the latter in



an amplifier or outboard converter. The retrieval of information from the disc or tape, the conversion of the optical or magnetic bit stream to an electrical one, and the error detection and correction are performed in the player or deck; the resulting digital signal is fed by coaxial cable to the external D/A converter. Most of the high-end CD players now provide a digital output for this purpose, and the number of amplifiers with built-in D/A conversion is growing too. Several companies, including Britain's Arcam (A&R Cambridge), Philips, Sony, Sansui, and a few others, now offer free-standing digital-to-analog converters that can be used with any amplifier.

The advantage of separating the analog and digital functions is that the generators of electromechanical noise, as well as most of the interference-producing RF circuits, are in the player or tape deck, with their own chassis and power supply. The digital signal processed there is unaffected by the RF and electromechanical noise, and the analog section is far enough away (and separately shielded) that it remains unaffected by the digital noise products. Only the first section of the D/A converter, the digital filter, is anywhere near the analog circuits.

Another advantage of using an outboard digital-to-analog converter is that you can upgrade your system without replacing the digital source components. You can also mix and match elements in the same way you would select other components.

There *are* drawbacks to all this, however. For one thing, most of the compact disc players that offer digital outputs also have built-in D/A converters, so taking the separate route usually means paying for two converters. (One exception is the Luxman D-113D CD player, which provides *only* a digital output; and, of course, there are several two-piece players that have separate digital and analog stages.) Also, the raw output of the error-correction cir-

cuitry is a pair of *parallel* 8-bit streams rather than the 16-bit *serial* signal most D/A converters are designed to work with, so the serial signal must be reconstituted before it is fed to the digital output jack. Generally, the fewer such operations the better, although digital signals are much harder in this respect than analog ones.

Optical Coupling

The main problem with the separation of the digital and analog portions of a digital source component has to do with interconnecting the two parts. The cable used to transmit the bit stream from a CD player to an amplifier or outboard converter is subject to the same problems as ordinary analog patch cords, but some of the effects can be much greater. The digital signal will ignore things like AC hum and RFI, to be sure, but it can be seriously degraded by cable capacitance. While it has been possible to raise the frequency at which capacitance matters to well above 20 kHz, the top of the audio spectrum, a digital bit stream has a frequency considerably in excess of 1 MHz, so any tendency of the wire to attenuate high frequencies may affect it seriously.

THE solution to this problem is to make the connection optically. By using the signal fed to the player's coaxial digital output to drive a fast-acting light source as well, and then providing the external D/A converter with a photoelectric device to turn an optical signal back into electricity, the player and the converter can be linked by a fiber-optic cable that is unaffected by any of the problems associated with coaxial wiring. A number of CD players now offer optical outputs, as do several DAT recorders, and there is an increasing roster of amplifiers with optical inputs. Also important is that there is now an accepted EIAJ standard for optical connectors for digital audio, so obtaining the right cable should present no difficulties.

The response of audio designers to problems created by new technology has been swift and imaginative. For now, fiber-optic connections may be restricted to the most ambitious hi-fi components, but, as in the past, such techniques will no doubt soon filter down to a level where the majority of us can benefit from them. □

TWO DAT PORTABLES



PREVIEWS OF THE SONY TCD-D10 AND TECHNICS SV-MD1 DIGITAL AUDIO TAPE RECORDERS

BY CRAIG STARK, HIRSCH-HOUCK LABORATORIES

EVEN though home digital audio tape (DAT) decks have not yet entered the American market, battery-powered portable DAT recorders have become one of today's hottest audio topics. In a way, history is repeating itself: Two decades ago it was European backpackers who literally carried the cassette recorder beyond its intended use for office dictation and turned it into a source of music. There's also a difference, however. While the high-frequency response of the early cassette portables was far less elevated than the Alps, our tests of two portable DAT decks, the Sony TCD-D10 and the Technics SV-MD1, show that their performance is comparable to mainstream home digital equipment.

The Similarities

Both units are astonishingly small—larger than a Walkman, but smaller (and not much heavier) than a notebook. Both come with removable carrying cases and shoulder straps. Both load from the top, saving space compared with the usual CD-style slide-out drawer, and use the standard $2\frac{7}{8} \times 2\frac{1}{16} \times \frac{3}{8}$ -inch DAT cassettes, which permit contin-

uous recording or playback for up to 2 hours.

Both decks have microphone inputs with switchable 20-dB pads, to accommodate very high-output mikes, and switchable limiters as well. Both have the usual line-in and line-out jacks, separate (but concentric) left- and right-channel record-level controls, and playback-level controls for the headphone jacks but not for the line outputs. Both record at the standard high-quality DAT sampling rate of 48 kHz and can play back prerecorded tapes using that rate, the optional lower-quality DAT rate of 32 kHz, and the standard CD sampling rate of 44.1 kHz, but neither can be set to *record* at the CD rate.

Both decks can operate for 2 to 2½ hours on a single charge of their built-in, removable nickel-cadmium batteries. For longer remote sessions, the battery packs can be replaced in the field with spares, and the Sony deck offers an optional heavier-duty battery pack. In addition, both units can be powered (with an adaptor cable) from a car's cigarette lighter. For home operation, both can use AC power from a regular wall socket through their battery chargers (an external unit





for the Technics deck, internal for the Sony).

The Technics SV-MD1 measures $8\frac{7}{8} \times 5\frac{3}{8} \times 1\frac{3}{8}$ inches and weighs $3\frac{1}{4}$ pounds. The Sony TCD-D10 is slightly larger, measuring $10 \times 7\frac{1}{2} \times 2\frac{1}{8}$ inches and weighing 3 pounds, 15 ounces. Neither machine is yet available for sale in the U.S., and suggested retail prices have not been set here, but the decks are in stores in Japan.

The Differences

The Sony TCD-D10 has four direct-drive motors and a full-size (30-millimeter-diameter) head cylinder with the conventional 90-degree tape wrap. The Technics SV-MD1 uses a two-motor transport with a 15-mm-diameter head drum, which requires a 180-degree tape wrap to record or read standard-length tracks. In normal operation we could detect no difference in tape handling between the machines, and the Technics design surely saves on battery-power consumption and weight. On the other hand, the need to hold the tape a full 180 degrees around the drum in the Technics deck may be why the Sony's high-speed search function is more rapid, one hundred times normal speed rather than Technics' sixty times. Further, the Sony has high-speed audible cue-and-review facilities that the Technics lacks.

THE Technics unit uses a liquid-crystal display (LCD) to show signal levels at sixteen points per channel from -50 to 0 dB. In AC operation the display is continuously backlit, which makes it very easy to read. To conserve power during battery operation, the backlighting is turned on only as needed, for 20-second intervals. The LCD tape counter is of the conventional four-digit style, and its units are not correlated with record/playback time. Although START index mark-

ers are automatically recorded in the subcode field when a recording begins, they cannot be added manually to a previously recorded tape.

The Sony deck uses seven LED's per channel (green for levels of -20 dB and below, red from -15 to 0 dB) to cover the same range. It has a 10-second back-lighting button for its LCD counter, which is still hard to read but shows elapsed or remaining time on the tape or the time of day. The time of day when a recording is made can be recorded in a subcode field along with manual index markings in addition to those automatically added at the start of a recording.

Technics does not supply a microphone with the SV-MD1, but the Sony TCD-D10 includes an excellent stereo electret-capacitor microphone, the ECM 959DT, with a pistol-grip handle that contains the pause, record/index, play, and stop buttons needed to control the recorder. An additional HOLD switch is provided to prevent accidentally triggering an operation while moving the microphone on the end of its $3\frac{1}{2}$ -foot cable. The microphone runs from a standard 1.5-volt AA battery and has a switchable 90- or 120-degree cardioid pattern.

The Sony TCD-D10 also contains a built-in monitor loudspeaker, which, though hardly of hi-fi quality, is very useful in field operation. On the other hand, the Technics SV-MD1 provides a direct digital output for use with a second digital recorder or a (future) digital editing facility.

Lab Tests

The playback frequency response for both machines, measured with a Sony TY-7551 DAT test cassette, was unexceptionable, being within ± 0.5 dB from 20 to 20,000 Hz. We were able to test the record-playback response of the Technics SV-MD1 at the same 0-dB test level (all

16 bits on) as we have used with home DAT decks. If anything, its response was even flatter!

The Sony manual, however, recommended setting the controls of the TCD-D10 so that "when the audio signal is at its highest levels, the -15 or -10 dB points illuminate." Investigating this, we found that the deck incorporated a built-in treble-boost circuit in its record section. Thus, while full, undistorted output could be attained at the 0-dB maximum point at 1,000 Hz, by the time the test signal reached 20,000 Hz the deck's output was driven into severe clipping. (Both the Technics and the Sony decks follow correct design procedure in that excessive signal levels produce hard clipping in the *analog* stages, making digital clipping impossible.) By using a -10 -dB signal level we were able to keep the deck from overloading and measured the very creditable frequency response of $+0.6$, -1.1 dB from 20 to 20,000 Hz.

THE EIAJ (Electronic Industries Association of Japan) specifies the use of a sharp-cutoff filter for frequencies above 20,000 Hz when making signal-to-noise (S/N) measurements on digital components. Such a filter has the effect of eliminating the "noise" component created by any residual digital sampling products above the audio range. But while this procedure makes for better-looking S/N numbers, it is our view that filtering out any such noise—which in a normal hook-up would flow through the audio system—should be the responsibility of the component manufacturer. Moreover, our test equipment is not currently configured to support the EIAJ measurement method. Thus, while the S/N's shown in the box do not match the manufacturers' specifications, the differences appear to lie principally in measurement methods. (It should



also be noted that all of our listed response and S/N measurements were of the left channel only. Where we checked the right channel also, the differences between the two were insignificant.)

Comments

There is currently a dearth of prerecorded DAT cassettes with the kind of selections—classical music recorded to sound as close as possible to what you would hear in a concert hall—with which we normally judge the playback sound fidelity of a component. On the other hand, the amount of degradation involved in dubbing CD's—despite the obvious additional digital-to-analog-to-digital conversions necessary—is so slight with good CD equipment that we consider it negligible. Both machines made audibly flawless copies of CD's, and their signal-to-noise ratios, judged subjectively, were equal to those of the home DAT decks that gave us better-looking numbers (presumably because of more built-in filtering). I confess that, at least on the material I tried, I could not hear any improvement wrought by the Technics deck's sixty-four-times oversampling circuitry, which is surely a technical tour de force. On the other hand, with longer exposure its advantages might have become evident.

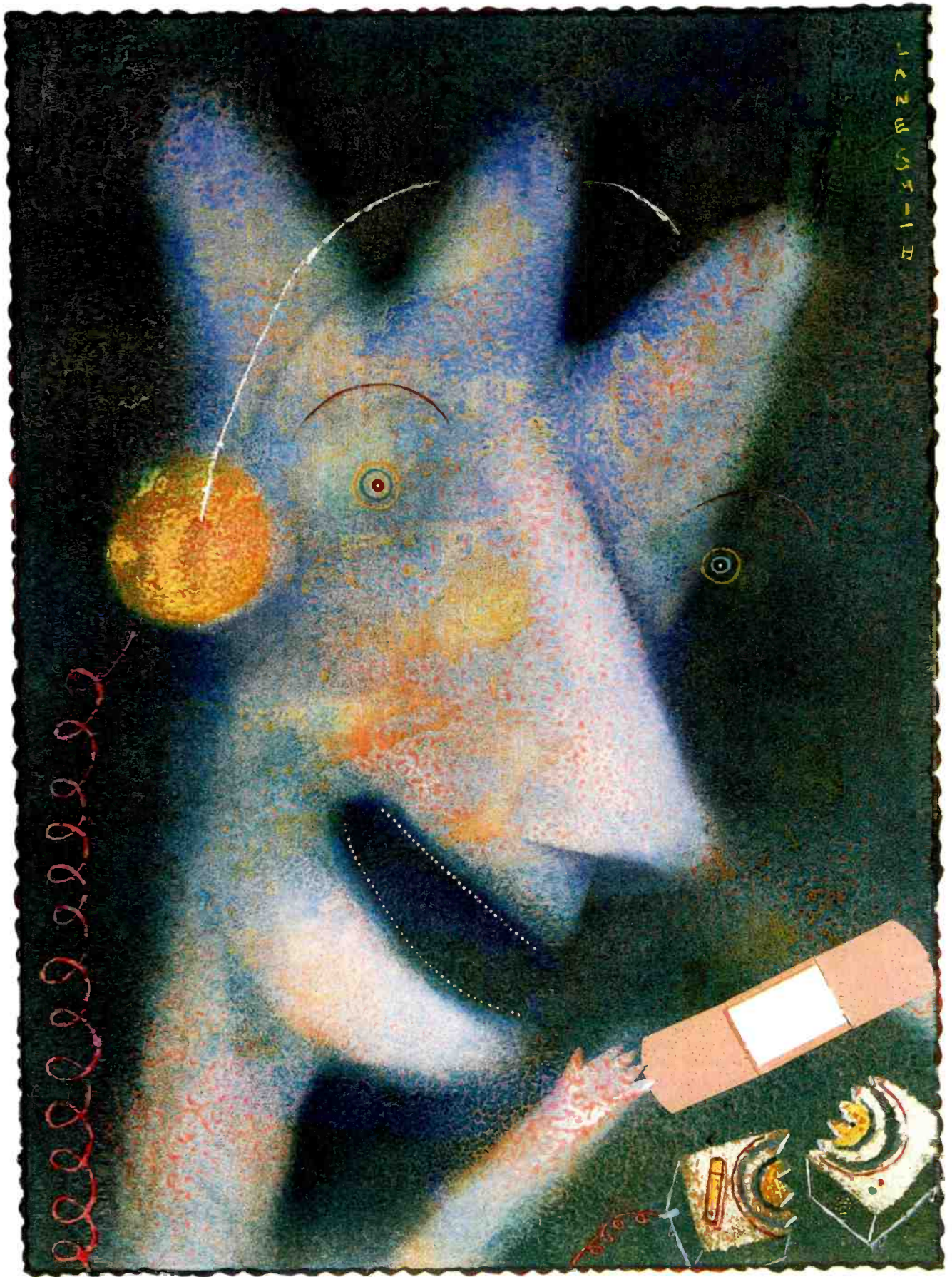
Considered as portables, both machines are outstanding. I would give the edge, in this respect, to the Sony, whose every detail simply cries out, "Take me with you!" For home use, while neither machine is quite as convenient as a full-sized unit, I would give the nod to the Technics, whose operation I found slightly easier and whose display was vastly more readable. Even in this first generation of DAT portables, however, neither deck was a loser, and anybody who gets one will undoubtedly be the envy of everybody who sees and hears it. □

LABORATORY MEASUREMENTS

	SONY TCD-D10	TECHNICS SV-MD1
Fast-forward/rewind times		
R-120	46 seconds	123 seconds
R-90	47 seconds	95 seconds
Speed error	not measurable	not measurable
Wow-and-flutter	not measurable	not measurable
Line input for indicated 0 dB	0.30 volt	0.50 volt
Line output at indicated 0 dB	2.07 volts	1.27 volts

	SONY TCD-D10	TECHNICS SV-MD1
PLAYBACK PERFORMANCE (Sony TY-7551 test tape)		
Frequency response, dB		
1,000 Hz	0.0	0.0
20 Hz	-0.2	-0.2
100 Hz	0.1	-0.2
10,000 Hz	-0.1	-0.2
20,000 Hz	-0.5	+0.4
Signal-to-noise ratios, dB		
Unweighted	85.5	82.8
A-weighted	96.7	89.5
CCIR-weighted	96.4	87.9
Crosstalk, dB (left, right)		
1,000 Hz	-73.1, -74.2	-72.1, -71.6
10,000 Hz	-63.6, -63.6	-54.6, -55.0
-60-dB level	-60.05, -59.15	-59.6, -59.9

	SONY TCD-D10	TECHNICS SV-MD1
RECORD-PLAYBACK PERFORMANCE		
Frequency response, dB		
1,000 Hz	0.0	0.0
20 Hz	-0.4	-0.4
50 Hz	-0.3	-0.2
100 Hz	-0.3	-0.1
200 Hz	-0.3	0.0
500 Hz	-0.2	0.0
2,000 Hz	+0.3	0.0
5,000 Hz	+0.6	-0.2
10,000 Hz	+0.1	-0.3
12,000 Hz	-0.3	-0.2
15,000 Hz	-0.5	-0.1
18,000 Hz	-0.8	+0.2
20,000 Hz	-1.1	+0.1
Signal-to-noise ratios, dB		
Unweighted	76.3	75.2
A-weighted	81.7	84.5
CCIR-weighted	80.1	83.2
Total harmonic distortion at 1,000 Hz	0.028%	0.014%



GUARANTEED For The Future

IF you're planning to buy a new stereo system or component in the near future, there's something you should know: The salesman you buy it from is, in all likelihood, going to try to sell you an extended-warranty contract along with the equipment. And we're not talking soft-sell here. Expect to hear horror stories about turntables that stopped turning and receivers that stopped receiving.

An extended warranty can pay for itself ten times over—if the coverage is there when you need it.

You'll also learn more than you ever wanted to know about the skyrocketing cost of repairs on integrated circuits. You may even be treated to a recitation of the consumer electronics version of Murphy's Law, which says that anything that *can* go wrong *will* go wrong—and it will happen the day after the manufacturer's warranty has elapsed.

What the salesman will likely fail to mention is that Murphy's Law occasionally applies to the extended-warranty program itself. In fact, some warranty programs are far more prone to breakdown than the equipment they cover. More than a few consumers have paid for extended-warranty contracts at the time of purchase only to discover that the coverage wasn't there when they needed it.

That does not mean that the extended-warranty contract is the audio dealer's equivalent of snake oil. On the contrary, a good warranty

contract can be an extremely worthwhile investment, particularly when expensive equipment is involved. It can pay for itself ten times over if a repair should become necessary—and, if not, it can provide peace of mind that is, of itself, worth the price. The problem is that you can buy a bad warranty contract, which is about as useless as snake oil and much more troublesome. And, unfortunately, distinguishing between good and bad extended-warranty programs is no simple matter.

Extended service protection on electronic equipment is nothing new—Sears, Roebuck was selling service contracts to its customers two decades ago. But the business has caught fire in the last few years. As audio and video equipment became more sophisticated and more costly to repair (service on a CD player, for example, can cost nearly as much as buying a new one), consumers began to look for a safety net. A whole industry sprang up to meet that need.

Today there are dozens of companies that specialize in administering warranty programs for electronics stores around the country. In a three-party program, the consumer pays the retailer for the contract; the retailer takes his cut and then passes the rest on to the warranty company, which is responsible for providing the repair service. Many dealers, however, choose to run their own programs, which means that they keep all of the money and are responsible for providing service.

Regardless of whether they use an in-house or a third-party warranty

BY WARREN BERGER

program, retailers have been pushing warranty contracts lately as if their livelihoods depended on it. In some cases, it does. Extended warranty is currently viewed as an oasis in the profit-starved audio/video retail desert. These days a dealer is lucky if he clears 30 percent profit on equipment sales, but the money generated from a warranty-contract sale often goes straight to the bottom line. Even if a third-party warranty company is involved, the retailer will generally clear 50 percent. With that in mind, many dealers are offering their salespeople extra incentives to sell service contracts.

Most of the extended-warranty programs operate in a similar fashion. The consumer decides he wants protection that goes beyond the one or two years provided in the manufacturer's warranty, so he pays a modest percentage of the cost of the equipment—usually about 10 percent—to the retailer. In return, the consumer receives a written guarantee that repair costs will be covered for one to three years, or perhaps more, beyond the expiration date of the manufacturer's warranty.

ALMOST all warranty programs cover both parts and labor, and the costs of most programs are comparable. What distinguishes good from bad is, in a word, backing. A good warranty program must be backed by an insurer that has plenty of capital to cover service expenses as well as access to a solid network of service facilities. Without sufficient backing, a warranty contract is just a piece of paper.

Consumers in Florida learned that lesson the hard way a few years back. A local electronics retail chain by the name of Kennedy & Cohen aggressively sold extended-warranty contracts to its customers throughout the early 1970's, then abruptly went out of business. Customers were left with worthless contracts.

The Kennedy & Cohen incident was, evidently, the tip of the iceberg. A few years later, a rash of small warranty companies began selling extended-service contracts through retailers. But a number of these companies declared bankruptcy as soon as the repair claims began to flood in. The situation created problems for everyone involved. When customers had trouble getting equipment fixed, they naturally blamed the retailers who sold them

the contracts; if the dealers wanted to protect their reputations, they paid for the repairs out of their own pockets. Retailers who were burned cast suspicious eyes on all warranty companies, including the reputable ones. Even the manufacturers occasionally suffered in reputation simply because their products were involved.

Attempts are now under way to straighten out the extended-warranty morass. Recently the National Association of Retail Dealers of America helped organize a coalition of top warranty companies; the group will probably attempt to bring some regulation to the business. A number of states, meanwhile, are considering legislation designed to safeguard consumers against rickety warranty programs.

While these reforms are being made, however, there are a number of ways you can determine for yourself what's reliable and what isn't. First of all, before analyzing extended-warranty programs, it's important that you know exactly what you're getting with your manufacturer's warranty, which represents, in effect, your rights as the purchaser of a particular product.

Manufacturers' warranties on electronic equipment generally cover parts and labor for one to two years, on speakers usually three to five years. Sometimes an extended manufacturer's warranty is available. A few brands offer an extra year or two of warranty coverage for an additional fee, and, provided you're dealing with a major manufacturer, this may be the best kind of protection to have. Chances are, though, that the brand you buy will offer only the basic coverage period, so you'll have to turn to the retailer for extended protection.

Are some manufacturers' warranties more reliable than others? On the surface, most seem fairly equal. The real difference comes in the actual servicing. Some manufacturers have more and better service facilities than others and can provide a quicker turnaround. Steve Girod, marketing manager at Yamaha, advises consumers to ask the retailer for an opinion on this. "Specialty dealers know which manufacturers do a good job on service and which don't," Girod says. "They may not volunteer the information, but if you ask, they'll tell you."

If a dealer tries to sell you equipment without the manufacturer's

U.S. warranty, look out. It's probably a "gray-market" product, which means that it has been imported or is being sold through unauthorized channels. The retailer may offer to back up a gray-market product with his own extended warranty, but that can be risky. "Chances are, such a product was designed to be sold and serviced overseas," Girod points out. "When it comes time to repair it, how will that dealer get the service information and the parts needed to make the repair?"



ONCE you've established the extent of your coverage under the manufacturer's warranty, you can begin to evaluate the extended-warranty program offered by the dealer. There are a number of questions you can and should ask about the program, but the first one should be this: Who's backing the warranty?

If the dealer's program is administered by a third-party warranty company, that company should be fully insured. "That's the key issue," according to Allen Cohen, vice president of Component Guard, a New York-based warranty firm. "You need to know that there's a legitimate insurance company standing behind the warranty, not just an administrator."

The leading warranty companies—such as Component Guard, Warrantech, Video Aid, and American Warranty Group—are all backed by insurance companies, so if one of them were to go out of business, all of its warranties would be protected. These warranty companies will, if asked, present proof of insurance to the consumer. You may be able to see that proof of insurance right at the store, or you may have to contact the warranty company yourself. Remember, companies that are insured are usually happy to show off their proof of insurance. If you have trouble getting answers, or if you find out that the warranty company backing a contract is not insured, don't buy the contract.

On the other hand, if the warranty program is self-administered by the retailer—meaning that there's no warranty company involved—there's probably no insurance company behind it. That isn't necessarily cause for alarm, however. While an uninsured warranty company should be viewed as very risky,

A scenic landscape featuring a golden field in the foreground, a large, dark, gnarled tree on the right, and two people on horseback and one person on foot in the distance under a clear blue sky.

Marlboro Lights

The spirit of Marlboro
in a low tar cigarette.



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

10 mg "tar," 0.7 mg nicotine av.
per cigarette, FTC Report Feb '95

THE NEW CONCORD CX70.



IT OUTPERFORMS OTHER CAR STEREOs EVEN BEFORE YOU TURN IT ON.

As the long acknowledged leader in high fidelity performance for the ear, it seems only fitting that Concord should also be the best at satisfying the need of the discriminating eye and hand as well.

Presenting the new Concord CX 70. One of seven CX series units, designed to deliver not just an unsurpassed audio experience, but a superb visual and tactile one. Designed with an unparalleled array of high performance audio features, high tech design, and high performance handling.

HIGH PERFORMANCE VIA HIGH TECHNOLOGY.

Consider the CX series tuners. Their microprocessor controlled circuits seek out and lock onto FM and AM signals that lesser systems miss altogether. Working in conjunction with Concord's FNR™ FM noise reduction circuitry these advanced tuners provide astounding reception.

Consider next the Concord tape section. Many audiophiles feel it to be the best automobile unit in existence. Stereo Review called the performance of a Concord unit "uncommon even among home cassette decks." This is not hyperbole at work, but high performance. Credit

for such performance in the CX series units goes to our Dual Azimuth Matched Phase™ Tape Head. In addition, our servo controlled tape

With Concord's low distortion preamp level fader and preamp outputs adding even more power is easy. You can configure and control a

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because it may fold its tent at any time, an established retailer is more likely to stick around.

The key word here is *established*. Don't buy an in-house extended-warranty contract from a store that's just opened, and don't buy one if you've heard rumors about the chain's being in trouble. If you're thinking of buying a contract from a high-volume, discount-price superstore, be wary: Some of these dealers have been using the money from warranty sales to cut their own prices instead of putting aside a reserve to pay for warranty repairs. This practice may catch up with them, and their customers, in the near future.

Your best bet is probably to buy your system and a contract from the leading established specialty audio dealer in your town, regardless of whether that dealer uses an in-house or a third-party warranty program. With such a dealer, you almost can't miss. A retailer doesn't get to that position without having a solid, reliable, and service-oriented operation that it's reasonable to assume will be around for a while. And it's also reasonable to assume that such a dealer wouldn't get involved with an undercapitalized warranty program. (Even if you don't buy your equipment from a specialty audio dealer, it is worth asking one if you can purchase an extended warranty from him.)

If the specialty dealer has his own fix-it shop in the back of the store, so much the better. "The ideal situation is to have a warranty program that enables you to take the product back to the specialty dealer for repairs," says Mike Zazanis, president of the Professional Audio Retailers Association. "The dealer has more of an obligation to fix it right because he sold it to you."

ZAZANIS notes that there are other advantages to having repair work done at the specialty store. "The retailer can put pressure on the manufacturer to supply the necessary parts quickly," he says. "If I have to, I'll call up the president of a hi-fi company to get something. That would never happen at an independent service station."

If the contract requires that you go outside the store for warranty repair service, find out as much as you can about the service locations

that will be doing the work. Are they authorized to do work on the particular type of equipment you're buying? Are they conveniently located? Do they offer quick turnaround?

Robert Heiblim, senior vice president at Denon, points out that some warranty companies sign up with service centers that are less than the best. "It all depends on how committed the warranty company is to good service," he says. "The fly-by-night guys use poor service stations and don't pay their bills all that quickly. As a result, the consumer ends up waiting months to get something fixed."

Once you've established that an extended-warranty program is solidly backed and well serviced, you can begin to look at some of its individual features. Retailer Zazanis advises consumers to look for a program that allows them to take their equipment in for regular check-ups. "That way," he says, "you may be able to get a problem taken care of before the equipment actually breaks down."

Component Guard takes this maintenance approach a step further with its top-of-the-line warranty program. The company guarantees that an audio component covered by its program will continue to perform according to the original specs for up to five years. The program costs a little more than the average extended warranty, but if you're the type of audiophile who worries about what you might not be hearing, it makes sense.

Other features to look for: Is there a deductible? Is there a limit to the number of times you can take a product in for repair? Is the contract renewable?

A final word: Don't let a high-pressure salesman push you into signing up for a warranty program without getting the facts. "There's always the danger that the salesman will gloss over the warranty program because he wants to make the sale," says Jerry Katcher, a vice president at Warrantech Corp. "The way to get around that is to ask him to mail you written information that includes everything you need to know about who the administrator is, who the insurer is, and what your rights are under the contract. You should be able to review that information on your own, and you should have the right to cancel the contract at that point if you're not happy." □

GETTING SERVICE



*M*OST of us have at one time or another experienced that sinking feeling: You drop in a tape or disc, push play, and nothing happens.

First of all, of course, you do a little troubleshooting to find out which component is at fault—and that it's not a matter of incompatibility between components or an incorrect hook-up. What's your next move? If you just bought the misbehaving equipment, call the dealer. You may still be covered under the retailer's return policy (these policies run for a week to thirty days after purchase), in which case you can exchange the lemon for a new component without further ado.

If you're not covered by the dealer, you may be able to turn to the manufacturer. Equipment that is less than a year old should be eligible for either full or partial coverage of repairs by the maker. To find out more, call the manufacturer's toll-free number (the dealer can provide it if you don't have it on your warranty card). From there you'll be referred to the nearest authorized service station, which will fix the equipment and bill the manufacturer (you'll need to supply proof of purchase to show that it's still under warranty coverage).

If your equipment is more than a year old and you have extended-warranty coverage, you should have some form of documentation that lists the phone number of the warranty company backing your product; one company, Component Guard, offers a credit-card-style warranty in place of paper documentation. Like the manufacturer, the warranty company will refer you to one of its authorized service stations, where you'll be asked to present the warranty contract or card. The warranty company will pay the service station for repairs, although you may be billed for a one-time deductible by the warranty company. The amount you will have to pay will depend on what is stipulated in your extended-warranty contract. That's another reason it's a good idea to check into the details of that contract before you buy it. Once your stereo equipment fails, you won't be in the mood for any more surprises.

"If I Had It To Do All Of This Is Ho

"The technology for a new generation of loudspeaker systems was already here," says Henry Kloss. I was just the first one to put it together right."

"Right," in this case, meaning a stereo system that allows the integration of speakers into a room in a way that's never before been possible.

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Ensemble combines two bass units, two mid- to high-frequency units and something you won't find in any hi-fi store on earth.

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The result is a system that gives you perfectly balanced energy throughout the full ten octaves of music. And one which, at the same time, can be virtually invisible in your living room.

The first speaker system that doesn't cheat you out of either bass or space.

The fundamental octaves that so much of music is built on...

The almost sub-audible but palpable sounds generated by the big pipes of the organ, the bottom of the acoustic or electric bass, the low notes of the synth...

The frequencies completely ignored in the so-called "mini-speakers" now in vogue...

Ensemble provides them. With two dedicated, acoustic-suspension loudspeakers whose jobs are solely to reproduce the bottom two octaves of musical significance.

It is by design, not afterthought, that Ensemble comes with two, not one, bass units.

Because the human ear can't easily localize bass sound below about 150 Hz,

there is no need in a home music system for the bass to emanate from the same source as the higher frequencies. (And many acoustical reasons why it shouldn't.)

So to take advantage of this basic but vastly overlooked fact, the bass units are built small enough to be placed where they'll produce the best sound, without visually overpowering your room.

They are a compact 12" x 21" x 4.5". Yet they generate the low-frequency energy that would ordinarily require either a pair of very large conventional loudspeakers, or adding on a massive "subwoofer." Moreover, using two separate easily placed bass units dramatically reduces the creation of standing waves—the bane of pure hi-fi reproduction.

Without detriment to the sound, Ensemble's bass units can be placed beneath the couch, on top of the bookshelf, or under the potted plant.

And the result is a happy coincidence: Where the units sound the best is likely where they'll look the best. Even if that means not being able to see them at all.

There is a wager you can make, if you don't mind taking money from house guests.

Place Ensemble's satellites where they're visible. Then hide one of the bass units under the sofa, and put the other on the floor with a plant on it. When your friends arrive, bet them to point out where the bass is coming from. They'll point to the satellites. Every time.

As for the other 8 octaves of music.

The rest of the sound spectrum, from a nominal crossover of 140 Hz, is reproduced by a stereo pair of two-way satellite units. Each incorporates a low-frequency driver, crossing over at 2,700 Hz to a direct-radiator tweeter that goes beyond audibility.

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Finished in scratch-proof, gunmetal grey Nextel, they will look good for a lifetime.



What Henry Kloss tells his friends:

Every time I came out with a new speaker at AR, KLH, or Advent, my friends would ask me, "Henry, is it worth the extra money for me to trade up?" And every time I would answer, "No, what you've already got is still good enough!"

But today, with the introduction of Ensemble, I tell them, "Perhaps now is the time to give your old speakers to the children!"

Overcoming the fear of paying too little.

This is more difficult than it may sound. Because the Ensemble System sells for an introductory price of only \$499.

And it can be jarring to accept the notion that a product actually outperforms others costing several times more. But think back on Henry Kloss' track record with AR, KLH, and Advent, the best selling high-performance speakers of their decades... Our commercial success will come not from excessive prices

...ver Again... And I Do... ...w I'd Do It."

Henry Kloss. Member of the Audio Hall of Fame. The creator of Acoustic Research in the 1950's, KLH in the 1960's, and Advent in the 1970's—the dominant speakers of their decades—now brings you Ensemble: the best-sounding speaker system of this era.



on a small number of sales, but from selling a lot of systems to a lot of people. You, perhaps, among them.

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We welcome you.

In fact, the easiest way to buy Ensemble is to call us with your credit card in hand, and speak with someone who will be happy to walk you through, talk you through, everything you might ever want to know about the system. From why or why not to buy Ensemble, to questions about installation, room

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SYSTEMS

Built-in sonic realism makes recordings come alive.

by Mark Lazarus

FOR eighteen years Leonard Gibbs, owner of International HiFi in Charleston, South Carolina, has engineered his own live recordings of choral, orchestral, and jazz music. Until recently, however, he felt the tapes lacked authenticity when he played them back. To solve this problem, he dreamed up the perfect listening environment: a system of high-end components, a room large enough to reproduce even the lowest notes, a front-imaging/side-fill sound stage, and the creature comforts of leather chairs and plush carpeting. That dream is now a reality.

It took about seven months and thousands of dollars to complete the room. Designed to contain a 25-foot-wide sound stage, the 1,000-square-foot rectangular structure has a concrete slab floor and a 10-foot-high ceiling with 10 inches of fiber-glass insulation. The walls are 12 inches thick and have six layers of insulation. Special touches include segments of pipe through the concrete for running speaker cable and an alternating glass and masonry brick wall behind the main speakers.

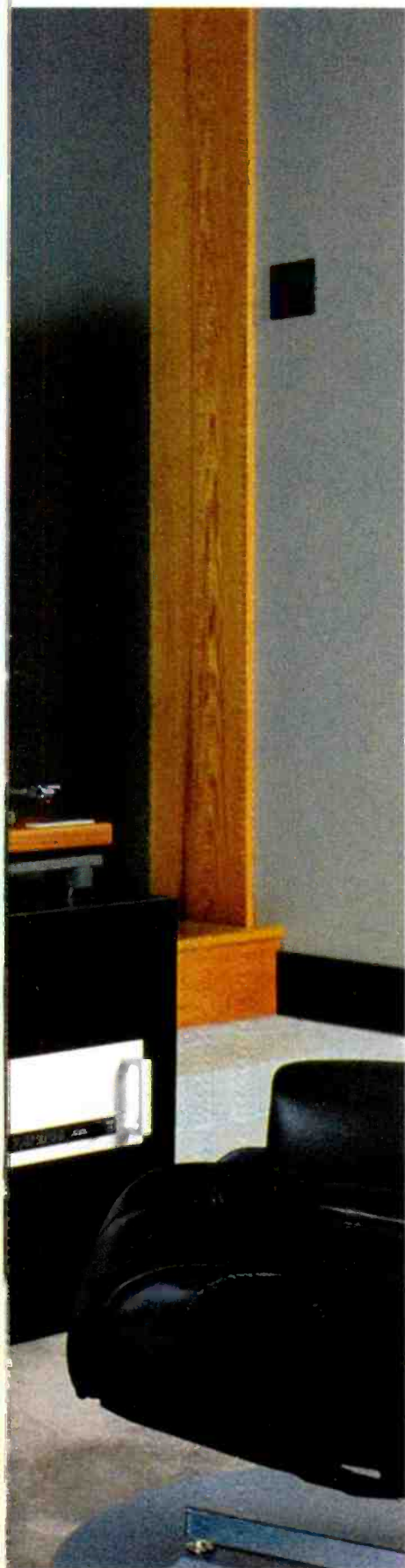
The system itself can play LP's and CD's as well as the open-reel tapes Mr. Gibbs makes himself. The turntable is a Dual CS5000 modified with StraightWire interconnects and fitted with a

Grace F90 Ruby Super cartridge. For CD's, Gibbs has a one-of-a-kind, hand-built American Audio F1 player—a radically modified Magnavox CDB650. The Pioneer Model 2022 open-reel deck has dbx noise reduction.

The heart of the speaker array is a trio of Dahlquist DQ-20's set up across the room from the listening area. Underneath each of them is a Dahlquist DP-1 subwoofer, and installed in the walls are eight Boston Acoustics Model 705's, 5¼-inch full-range automotive speakers. The idea behind the speaker selection and placement was a left and right mixed sound stage with mono-composite blending for an accurate, live feel and excellent imaging almost anywhere in the room.

Dahlquist DQLP-1 and DQ-1W outboard crossovers send the appropriate signals to the left and right main speakers and subwoofers, mono signals to the center pair, and ambience signals to the wall speakers. The preamplifier is a Perreux SM2, and an Acoustic Research MGC-1E powers the ambience speakers. The main speakers and subwoofers get their juice from three Perreux PMF2150B power amplifiers.

Leonard Gibbs's collection of recorded music finally has the kind of place he thinks it deserves to be heard in. □





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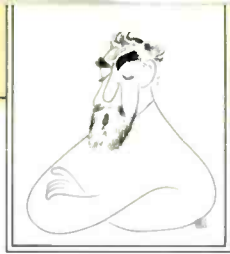
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PHILIPS

Classics



HIRSCHFELD'S MUSICIANS

AL HIRSCHFELD, who celebrated his eighty-fifth birthday last summer, can look back with considerable satisfaction on the sixty-odd years he's been serving as the Boswell of the performing arts. He's not a diarist, of course, but a caricaturist with a sharp eye and a sure hand, reflecting in his elegant drawings a thoroughly engaging wit. His subjects over these years have included actors, dancers, and musicians—most of them known the world over.

The Hirschfeld drawing below was commissioned by the Smithsonian Institution for a seven-record collection of "American Popular Song." Gathered clockwise around Fred Astaire at the keyboard are Tony Bennett, Ella Fitzgerald, Bing Crosby, Frank Sinatra, Nat "King" Cole, Lena Horne, and Judy Garland.





Giants of American jazz: from the top, Benny Goodman, Gene Krupa, Teddy Wilson, Lionel Hampton, and Duke Ellington



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HIRSCHELD'S



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HIRSCHFELD 3

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- **Baby, I'm Yours** Barbara Lewis
- **Heart Full of Soul** The Yardbirds
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Tambourine Man and The Temptations' velvet smooth *My Girl* to Sonny and Cher's first No. 1 hit, *I Got You Babe* and The Lovin' Spoonful's *Do You Believe in Magic?* Plus your favorite hits by The Four Tops, The Righteous Brothers, Sam the Sham and the Pharaohs, The Miracles, The Beach Boys, The Kinks, The Supremes, Wilson Pickett, The Yardbirds, The McCoys, Barbara Lewis and more!

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BEST RECORDINGS OF THE MONTH

Stereo Review's critics choose the outstanding current releases

STEVE WINWOOD'S "ROLL WITH IT"

NO matter what magic he may have worked with Traffic, Blind Faith, and, in later years, in his solo recordings, Steve Winwood will forever be remembered for his searing, urgent vocal pleadings in *Gimme Some Lovin'*, his classic bluesy hit with the Spencer Davis Group, recorded in 1966 when he was not yet out of his teens. The performance—raw, itchy, and capable of raising prickly heat—has been both a garland around his head and a millstone around his neck. Every time Winwood opens his mouth, Sixties devotees hope another *Gimme Some Lovin'* will somehow find its way out.

Let's get to it—there is no *Gimme Some Lovin'* in Winwood's new album, "Roll with It." Like its predecessors, "Arc of a Diver" from 1980 and "Back in the High Life" six years later, the new effort mixes soft rock, r-&-b knock-offs, dance numbers, and contemplative ballads. Most of them go on too long, turning atmospheric and transparent as the grooves wear down. But they illuminate the spirit of the man who has matured from the shouting frenzy of the boy.

"Roll with It" opens with the title tune, a reworking of Junior Walker's *Shotgun* right down to the horn arrangement and the way the singer shapes his words. Energetic and kicking, it sets the lyrical theme of the album—sometimes life demands that you simply sit back and relax—and soon gives way to a slower pace more befitting that message. It is a loving record: Winwood wrote *One More Morning* ("Just to have this day and life starting all over . . .") for his mother and *Shining Song* for his own innocent offspring ("Baby's eyes—feel them

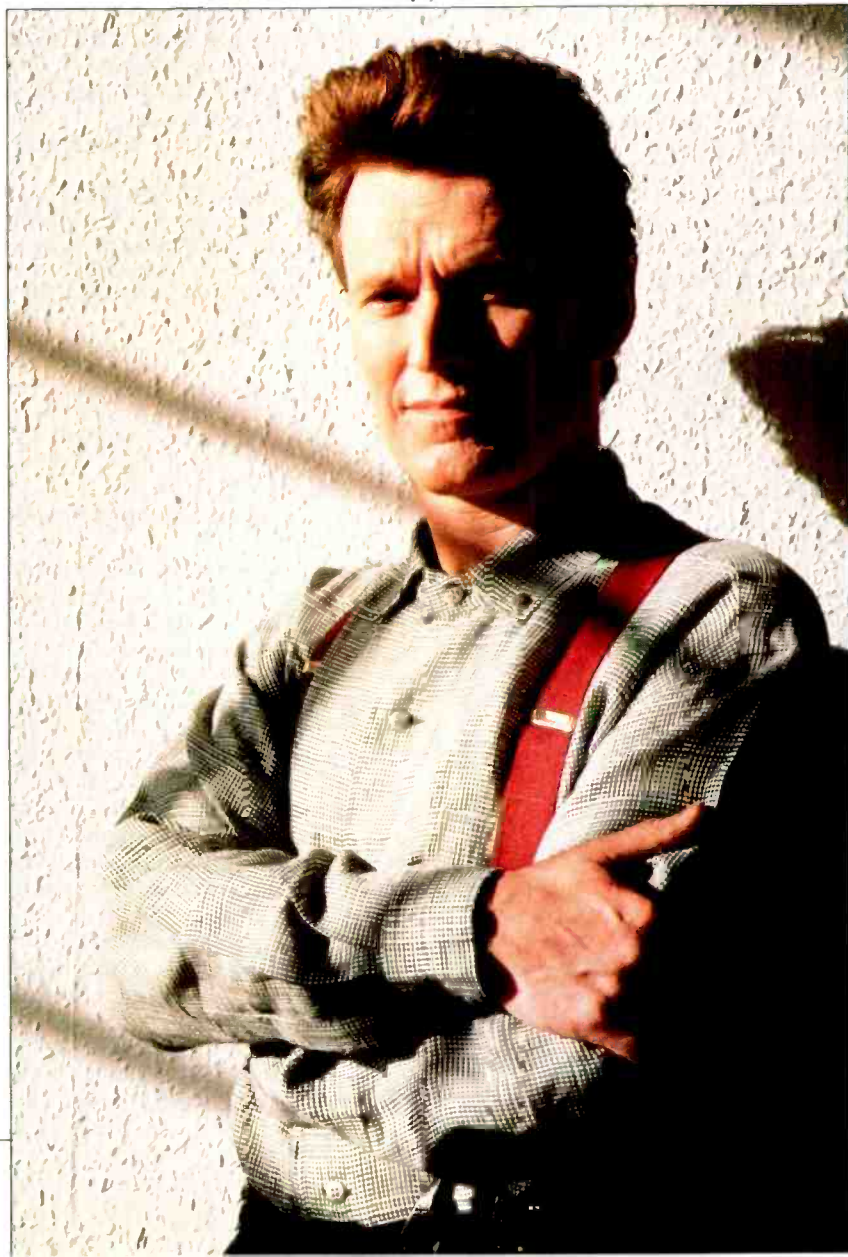
looking at me/Realize what I would have her see"). If the album stresses spiritual stock-taking, Winwood also knows that "Life's a dance," as he intones in *Put On Your Dancing Shoes*, and he stretches matters to include the purer physical pleasures in *Hearts on Fire*, the only other live-wire soul song, nicely punched up by the Memphis Horns.

Winwood's record has made it to No. 1 on the charts despite a common critical appraisal that it finds him playing safe, that the performances and the material—all of which he co-wrote with Will Jennings or old Traffic-mate Jim Capaldi—are devoid of his old fire and

brilliance. Perhaps the fire is merely redirected. "Roll with It" is the product of a man who has gotten past the crude demands of his Spencer Davis youth, a man who is now more concerned with giving love than receiving it. *Alanna Nash*

STEVE WINWOOD: *Roll with It*. Steve Winwood (vocals, Fairlight programming and keyboards, organ, guitars, piano, drums); vocal and instrumental accompaniment. *Roll with It; Holding On; The Morning Side; Put On Your Dancing Shoes; Don't You Know What the Night Can Do?; Hearts on Fire; One More Morning; Shining Song*. VIRGIN ● 90946-1. © 90946-4, © 90946-2 (44 min).

Steve Winwood: simply sit back and relax



SUPERB SIBELIUS FROM KENNEDY AND RATTLE

SIMON RATTLE'S new recording of the Sibelius Fifth Symphony completes his Sibelius cycle with the City of Birmingham Symphony Orchestra (though not all the discs are yet available in the U.S.). The CD-only release is especially attractive because the symphony is coupled with a uniquely lovely performance of the Sibelius Violin Concerto in which soloist Nigel Kennedy displays the same intense musicality and prowess as in his now-famous recording of the Elgar concerto.

There is a rhapsodic, youthful ardor to Kennedy's reading of the extended first movement that takes the listener into the inner world of Sibelius at the time he conceived the work, when he himself was a young violinist and would-be virtuoso. The slow movement gets a full romantic treatment, but with-

Nigel Kennedy: youthful ardor

out the slightest descent into bathos, and the so-called "polonaise for polar bears" finale comes off with a rare degree of effortlessness and flow. The orchestral collaboration complements the soloist perfectly.

The very first time Rattle ventured into the Sibelius repertoire on records was in 1982 with the Philharmonia Orchestra, in a coupling of the Fifth Symphony and the tone poem *Nightride and Sunrise*. His new version of the symphony strikes me as more idiosyncratic in some respects. While there's a very fast "scherzo" section in the opening movement and a rushed coda, great attention is given to details in the development section. On the whole I prefer a more poised treatment of this symphony, but even though there are at least half a dozen distinguished recordings of the Sibelius concerto, do not pass up this one by Nigel Kennedy.

David Hall

SIBELIUS: *Violin Concerto in D Minor, Op. 47; Symphony No. 5, in E-flat Major, Op. 82.* Nigel Kennedy (violin); City of Birmingham Symphony Orchestra, Simon Rattle cond. ANGEL © CDC-49717 (62 min).

AL B. SURE! HAS SOUL AND IMAGINATION

THE name Al B. Sure!, complete with exclamation point, suggests a rapper, but this nineteen-year-old newcomer just might be the one to fill the gap in the ranks of soul crooners left by the death of Marvin Gaye. In a stunning debut album with the odd title of "In Effect Mode," Sure demonstrates that he can both write and perform songs so melodically fresh and instantly appealing that they are bound to win him a huge cross section of listeners.

A star high-school athlete in Mount Vernon, New York, Sure turned down a college football scholarship to pursue a career in music, first performing with a rap group but soon moving out on his own. He was discovered in the Sony



Al B. Sure!: instant appeal

Innovators talent search for new black artists, and his sweetly romantic and sensual *Nite and Day*, the first single from the album, quickly became a hit. What is remarkable for a debut album is that so much of the other material is of the same high caliber.

Oooh This Love Is So is reminiscent of *All This Love*, which catapulted DeBarge to fame several years ago, but Sure affirms that he is no mere imitator by his distinctive use of falsetto. More evidence of his sturdy individualism is found in his unusual arrangement of *Killing Me Softly*, which is so closely linked with Roberta Flack that few others have dared to sing it. Sure recasts it with bold percussive accents that underscore the bittersweet lyrics while providing a dazzling contrast with his undulating vocal line. The effect is unforgettable.

"In Effect Mode" is evenly divided between ballads and funk, but it's clear that ballads are this singer's forte. There's an unusual musical sophistication underpinning the dance tracks as well, in part because of Sure's use of jazz-like rhythms. "In Effect Mode" shows a fine musical imagination at work. With such an auspicious debut, I don't think this young artist will have to rely on an exclamation point after his name to get people to



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BEST RECORDINGS OF THE MONTH

listen to him. His music will speak for itself.
Phyl Garland

AL B. SURE! *In Effect Mode*. Al B. Sure! (vocals, keyboards); instrumental accompaniment. *Nite and Day; Oooh This Love Is So; Killing Me Softly; Naturally Mine; Rescue Me; Off on Your Own (Girl); If I'm Not Your Lover; Just a Taste of Lovin'; Noche y dia* (on CD only). WARNER BROS. 25662-1, © 25662-4, © 25662-2 (38 min).

AX, KIM, AND MA: GLORIOUS DVOŘÁK TRIOS

SEVEN years ago the pianist Emanuel Ax, the violinist Young Uck Kim, and the cellist Yo-Yo Ma began performing together as a trio. Because of their busy individual schedules, they've been able to get together for performances only about once every eighteen months, and I assume they chose to wait until they had some real seasoning as a collective unit before undertaking any recordings. Their first one has now been issued by CBS. It pairs the two mature trios and the unique *Dumky* Trio in E Minor, and it gloriously confirms the wisdom of both their timing and their getting together in the first place. It offers surpassingly fine accounts of the two works by musicians who must love performing to-

Ax (center) with Kim (left) and Ma



gether as much as they obviously adore the music they're playing.

Both of those factors are unmistakably evident throughout. All of the marvelous tunes are set forth with great warmth and affection, but they are never overindulged; these players have too much innate refinement, and too sure a feeling for the frequently earthy quality of the music, for that. Everything unfolds with the most natural momentum, reflecting the spontaneity with which Dvořák received his inspiration and set it all down. Here we have three superb collaborators who really listen to each other, who respond to each other's responses and build upon them.

Kim's violin playing is a special joy for its sweetness and richness, its passionate commitment, and its tastefulness in rendering the expressive lines Dvořák wrote for the instrument. But all three participants are both elegant and impassioned, and indeed at their formidable best. Ax's playing has never shown greater radiance, nor Ma's more warmhearted animation; the interaction among the three is the sort of give and take that defines the chamber-music ideal and at the same time pushes up the extraordinary individual levels. Dvořák's trios have never been better served.

Ax has provided the annotation, and that too enhances the presentation. It is not just a casual "I've always loved this, I hope you do too," but an informative essay reflecting the affection, authority, and commitment that went into the selection of this repertoire and its performance. CBS, for its part, has come through with a sonic frame that could hardly be better, with a clarity, balance, and warmth ideally suited to this material and these performers.

This release is an Event, with a very big E. Let's hope we do not have to wait another seven years for the next one.
Richard Freed

DVOŘÁK: *Piano Trio No. 3, in F Minor, Op. 65; Piano Trio No. 4, in E Minor, Op. 90 ("Dumky")*. Emanuel Ax (piano); Young Uck Kim (violin); Yo-Yo Ma (cello). CBS ◉ M 44527 two LP's, © MT 44527 one cassette, © MK 44527 one CD (72 min).

NOW ON CD Compact Discs of previously released LP's

POPULAR

□ **RAY CHARLES:** *Genius + Soul = Jazz*. DUNHILL DZS-038. With arrangements by Quincy Jones and Ralph Burns, released on Impulse in 1961. *Greatest Country & Western Hits*. DZS-040. Digitally remixed from the original 1962-1965 ABC-Paramount masters.

□ **LEONARD COHEN:** *Death of a Ladies' Man*. COLUMBIA CK 44286. "Vaguely dark and threatening in tone" (March 1978).

□ **EARL HINES:** *Live at the Village Vanguard*. COLUMBIA CK 44197. Recorded in 1965 but previously unreleased.

□ **THE HUMAN LEAGUE:** *Reproduction*. VIRGIN 90881-2. *Travelogue*. 90880-2. From 1979-1980, previously released only in the U.K.

□ **PETER, PAUL & MARY.** WARNER BROS. 1449-2. The group's first album, from 1962, and the earliest catalog item on the label to be reissued on CD.

□ **CLAUDIA SCHMIDT:** *Big Earful*. RED HOUSE RHR CD19. Released on LP and tape in 1987 and voted album of the year by independent record distributors and manufacturers (CD includes a bonus track).

CLASSICAL

□ **BACH:** *Suites for Unaccompanied Cello*. Casals. ANGEL CDH-61028 and CDH-61029. Landmarks of recorded music dating from the mid-Thirties, transferred from 78's and digitally remastered.

□ **BEETHOVEN:** *Piano Trios Nos. 4 ("Ghost") and 6 ("Archduke")*. Engel/Horszowski, Végh, Casals. PHILIPS 420 855-2. "Informal performances by fine artists and good friends" (January 1964).

□ **BERNSTEIN:** *Chichester Psalms*. **POULENC:** *Gloria*. **STRAVINSKY:** *Symphony of Psalms*. Bernstein. CBS MK 44710. "Absolutely breathtaking control of the expressive medium" in the *Chichester Psalms* (Best of Month, January 1966).

□ **MAHLER:** *Symphony No. 3*. Horenstein. UNICORN-KANCHANA UKCD 2006/7. "Close to ideal" (September 1971).

□ **NIELSEN:** *Symphonies Nos. 3 and 5*. Bernstein. CBS MK 44708. "Brilliantly dramatic" (September 1965).

□ **ROSSINI:** *Le Comte Ory*. Sénéchal; Inghelbrecht. CHANT DU MONDE LDC 278 893-94 (two CD's). Recorded by Radio France in Paris in 1959.

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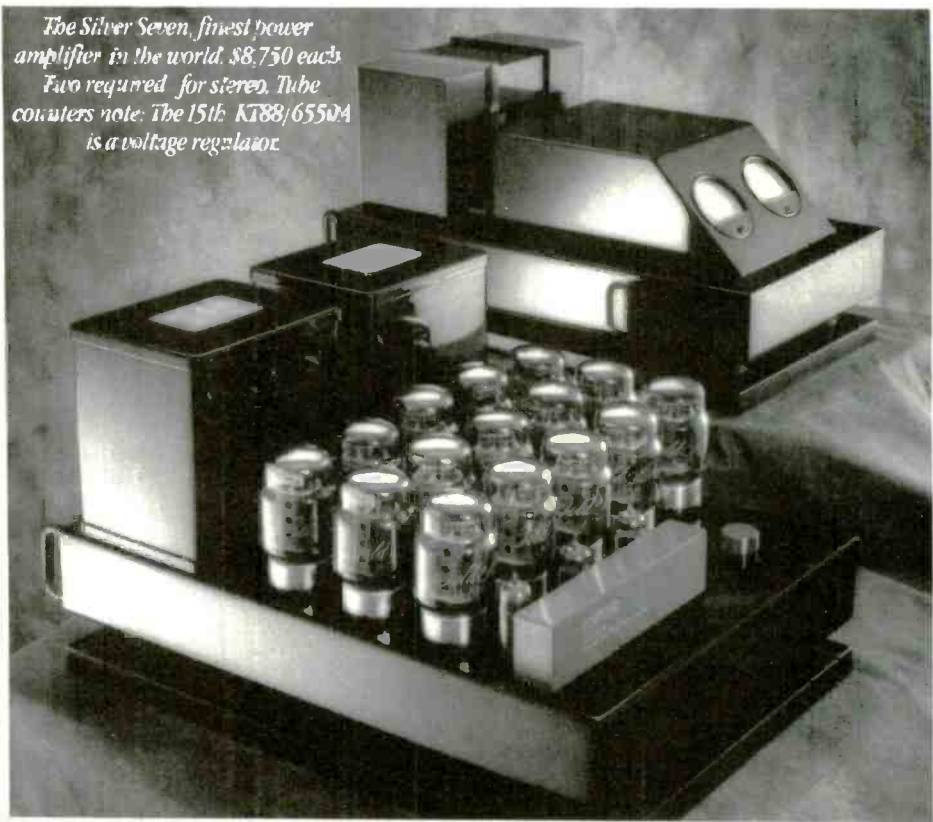
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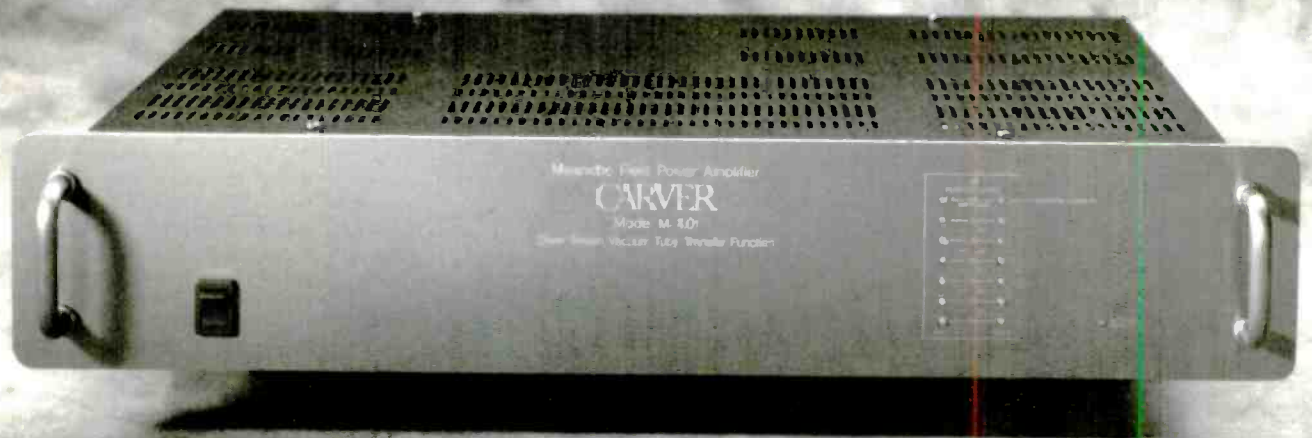
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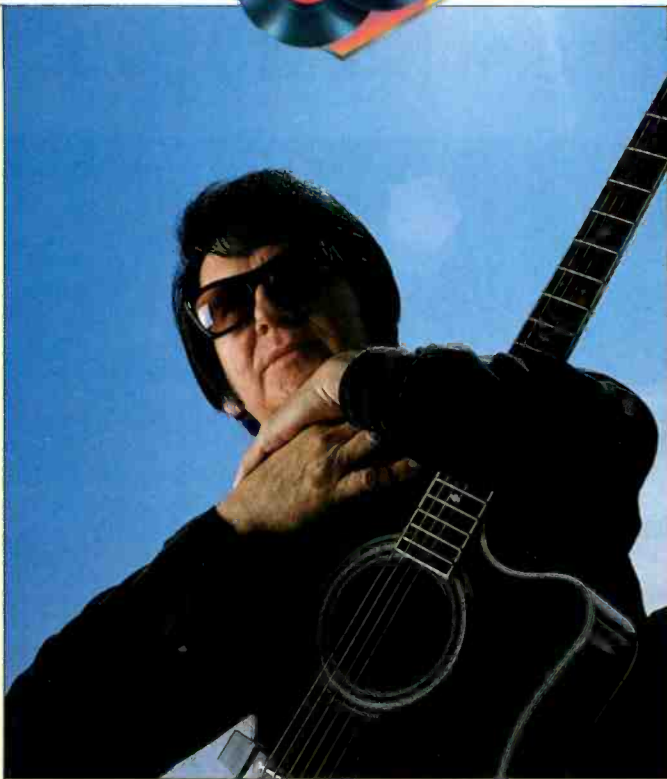
CIRCLE NO. 64 ON READER SERVICE CARD

P.O. Box 1237, Lynnwood, WA 98046



by Christie Barter
& Ron Givens

SOME people just have to perform. That certainly seems to be the case with **Chris Frantz and Tina Weymouth**. Known both as the husband-and-wife rhythm section for **Talking Heads** and as the separate group **Tom Tom Club**, Frantz and Weymouth have been working busily in various studios for more than a year—first with Talking Heads, then as producers of the latest **Ziggy Marley LP**, and most recently on the third **Tom Tom Club** record. All that has given them a fierce appetite to play



Orbison: crooning and growling

road with **Tom Tom Club** to celebrate their new **Fly/Sire** record, "Boom Boom Chi Boom Boom." They kicked off the tour with a two-week run at **CBGB's**, the New York City club where the Heads first became famous. □

Roy Orbison has been making a major comeback recently, and in October **Virgin** is releasing his first album of new material in nine years. A number of major

stars worked with Orbison on the set, among them **T Bone Burnett**, a top producer and solo artist, and **Jeff Lynne**, formerly leader of the **Electric Light Orchestra**, who oversaw the recording sessions, and **Bruce Springsteen**, **Bono**, **Elvis Costello**, and **J. D. Souther**, who wrote songs with Orbison for the record. Some of these collaborations stem from Orbison's very successful cable-TV special earlier this year, "Roy Orbison and Friends," which has become a best-seller on videocassette. The program helped to re-establish Orbison, who's just turned fifty, by showing that he can still croon, growl, and hit the high notes as well as ever. □

ago with the **Los Angeles Philharmonic** and has since conducted the orchestras of **St. Louis**, **Minnesota**, **Atlanta**, **Pittsburgh**, and **San Francisco**. He will lead the **East Berliners** on their first **United States** tour, a coast-to-coast swing through this country that begins in the **New York area** on **October 20** and winds up in the **Los Angeles area** on **November 2**, with several stops in between.

Flor's initial **RCA** release, reviewed in this issue, is a recording of **Mendelssohn's** music for **A Midsummer Night's Dream**. It will be followed by a coupling of **Martinu's** **Symphonies Nos. 5 and 6** (later this year) and then by a complete cycle of **Mendelssohn's** symphonies, overtures, and concertos. **Flor** will conduct **West Germany's Bamberg Symphony Orchestra** in the **Mendelssohn** works, with pianist **Sergei Edelmann** and violinist **Ugo Ughi** as the soloists in the concertos. □

ANN SUMMA



Weymouth and Frantz

in front of live audiences. Since **Talking Heads** was unable to schedule a tour of its own, **Frantz and Weymouth** recently decided to hit the

Bull: Jukebox School



Conductor Claus Peter Flor

STILL beefing up its artist roster, **RCA Victor Red Seal** recently added the young **East German** conductor **Claus Peter Flor**, who for four years has been the principal conductor and general music director of the **(East) Berlin Symphony Orchestra**. The thirty-five-year-old **Leipzig-born** conductor made his **American** debut three years

PICKER **Sandy Bull**, master of a variety of string instruments ranging from the **Turkish oud** and **East Indian sarod** to the **Fender Stratocaster**, has reappeared on the recently founded **ROM** label with an album called "Jukebox School of Music." He's

RCA VICTOR RED SEAL



LYNN GOLDSMITH/LGI

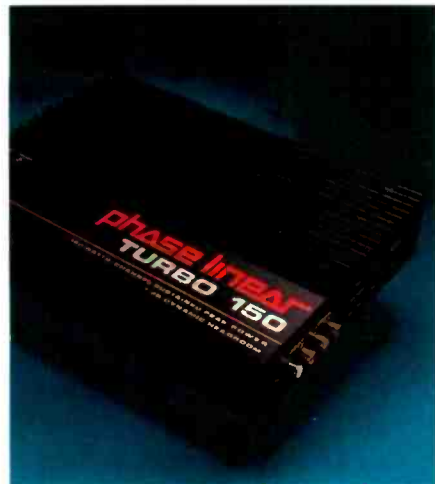
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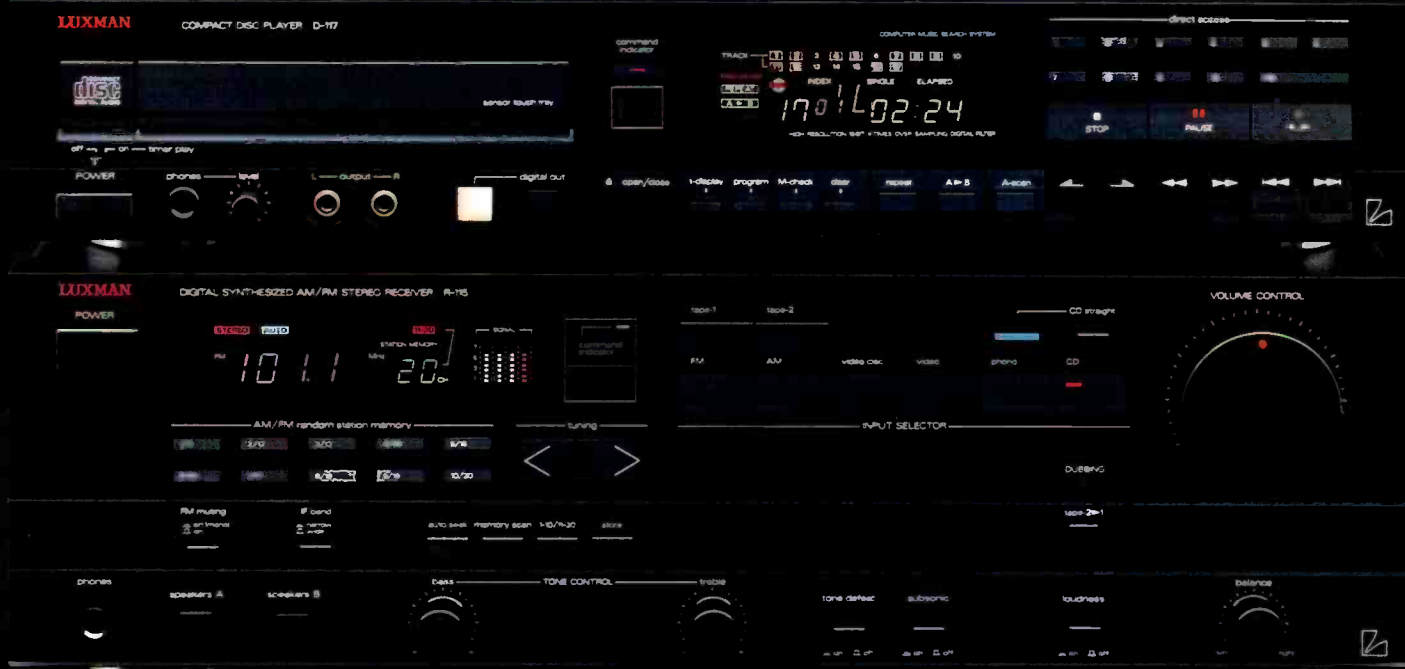
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joined on one track by jazz drummer **Billy Higgins**, but otherwise he's a one-man band playing his own arrangements of music spanning three centuries (Bach to Bonfã) and delivering a program that's nothing if not eclectic. But so is his new label. ROM is the brainchild of Keith Holzman, who previously headed Nonesuch Records.

Promising "something different," Holzman has not only sought out one-of-a-kind artists like Bull. He's come up with a healthy bunch of newcomers and a new twist on the compilation or sampler album with what he calls his "All Ears Review." There are three releases in the series so far, the latest featuring sixteen up-and-coming young American singer-songwriters. It's appropriately subtitled "Singing Out—Songwriters for the 90's." □

JANELLE BECKMAN/INPRESS

WE'VE heard the album "Tougher than Leather" by **Run-DMC**. Soon we'll be able to see the movie *Tougher than Leather* by Run-DMC. Scheduled for theatrical release sometime this fall, the first motion picture to star the rap group is about a young man who's wrongfully accused of being a drug dealer and murderer. When the police refuse to believe him, the members of Run-DMC act as detectives to help clear his name. Four of the songs from "Tougher

Cacavas: music for 007



INTELSOUND



Run-DMC: hanging tough

than Leather" will be heard during the movie. A *Tougher than Leather* soundtrack record featuring those songs and other music from the film will be released this fall as well. □

ANYONE who watches a composer credits at the movies or on television will recognize the name of **John Cacavas**, who has composed background music for *Hawaii Five-O*, *Kojak*, and two *Airport* films, '75 and '77. In his new Pro Arte album, "From London with Love," however, he serves as arranger and conductor—of music from the James Bond films. The roster of contributing composers is impressive, including such names as **Paul McCartney** (the theme music for *Live and Let Die*), **Marvin Hamlisch** (*Nobody Does It Better* from *The Spy Who Loved Me*), **Anthony Newley** (*Goldfinger*), and **Burt Bacharach** (*The Look of Love* from *Casino Royale*). The orchestra on the record is the London Symphony. □

NEWPORT CLASSIC, the CD-only label based in Providence, Rhode Island, and Shape Optimedia, of Bid-

deford, Maine, collaborated this summer to produce a compact disc, from live performance to shrink-wrapped package, within twenty-four hours. The artist was pianist **Michael Ponti**, playing at the Newport (Rhode Island) Music Festival on the evening of July 22. When the recital was over, Newport Classic's engineering team edited its tape digitally and hand delivered it to Shape's Biddeford plant. In something less than twelve hours, Shape manufactured five hundred CD's of Ponti's concert, a hundred of which were delivered to Newport and put on sale the next evening. Whew!

The Ponti CD will be distributed nationally in the near future. □

AMONG the many records currently entering the racks to compete for Christmas-gift dollars, none combines artists and repertoire more imaginatively than "Stay Awake," an A&M album featuring classic songs from Walt Disney movies performed by contemporary rock artists. **Suzanne Vega** sings the title tune, *Stay Awake*, from *Mary Poppins*. **Los Lobos** plays *I Wanna Be*

like You from *Dumbo*. *Some Day My Prince Will Come* from *Snow White* is done by **Sinéad O'Connor**. And the Jiminy Cricket hallmark, *When You Wish upon a Star*, includes vocals by **Ringo Starr** (get it?) and trumpet solos by **Herb Alpert**. This is the fourth concept album produced by Hal Willner; its predecessors have honored film composer Nino Rota, jazzman Thelonious Monk, and German theater-music innovator Kurt Weill. □

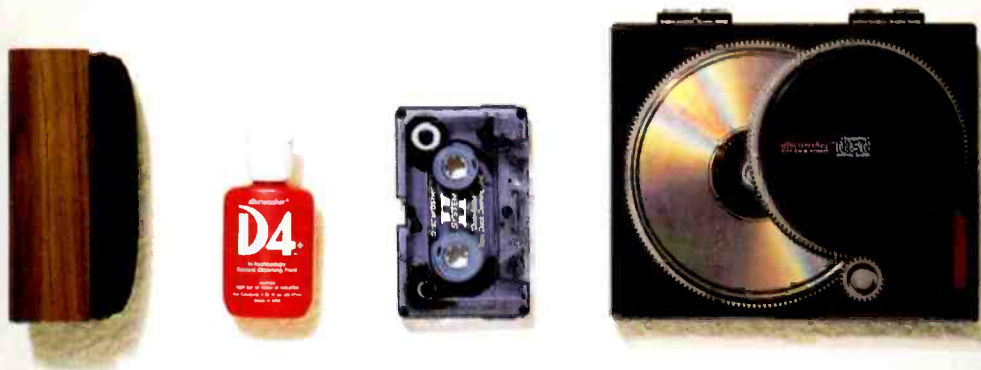
GRACENOTES. Blues immortal **Willie Dixon** has a new record, "Hidden Charms," on Bug/Capitol and a new autobiography, *I Am the Blues*, published by Quartet Books of London. . . . **Elvin Bishop**, who played guitar with the Paul Butterfield Blues Band before starting a successful solo career, has recorded, for Alligator, his first album in over ten years. . . . To coincide with the release of Warner Bros.' new **Charlie Parker** film, *Bird*, Verve has issued a ten-CD boxed set of everything Parker recorded for the label, including previously unreleased material. □

Vega: classic Disney



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CIRCLE NO. 10 ON READER SERVICE CARD

Discs and tapes reviewed by Chris Albertson, Phyl Garland, Ron Givens, Roy Hemming, Alanna Nash, Mark Peel, and Steve Simels

RUBÉN BLADES: *Nothing but the Truth.* Rubén Blades (vocals, acoustic guitar); Elvis Costello, Lou Reed (guitar); James Ingram (vocals); other musicians. *The Hit; I Can't Say; Hopes on Hold; The Miranda Syndrome; Letters to the Vatican; The Calm Before the Storm;* and five others. ELEKTRA 60754-1, © 60754-4, © 60754-2 (50 min).

Performance: *Well-meaning*
Recording: *Terrific*

"Nothing but the Truth" is Rubén Blades's first English-language album, and while the guy remains one of the coolest singer-songwriters in recent pop history, he's overreaching here. The musical range is admirable—from the Springsteen-esque bombast of *The Hit* to the moody *I Can't Say* (written by Sting) to the sardonic Fifties r-&-b of *Ollie's Doo Wop*—but Blades's English vocals often seem as awkward as the translations of his Spanish songs. It's an oil-and-water kind of problem. *The Letter*, for example, has rather moving lyrics addressed to a friend dying of AIDS, but they're set to a Latin-style tune that to gringo ears verges perilously on Las Vegas territory. The sentiment and the musical style would probably not have seemed at odds if Blades had sung the song in Spanish, but in English it seems unintentionally comical, inappropriate, and overblown. And so it goes for the entire record, despite nice supporting work by Elvis Costello and Lou Reed. In his native tongue Blades is a terrific singer, and it's nice that he's tackling issues like the war in Central America. But this album is basically a mess. S.S.

THE CLASH: *The Story of the Clash, Volume I.* The Clash (vocals and instrumentals). *The Magnificent Seven; Rock the Cashbah; This Is Radio Clash; Should I Stay or Should I Go; Straight to Hell; Armagideon Time; Clampdown; Train in Vain; The Guns of Brixton; I Fought the Law; Somebody Got Murdered; Lost in the Supermarket; Bankrobber;* and fifteen others. EPIC E2

EXPLANATION OF SYMBOLS:

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- Ⓢ = TAPE CASSETTE
- Ⓢ = COMPACT DISC (TIMINGS ARE TO NEAREST MINUTE)

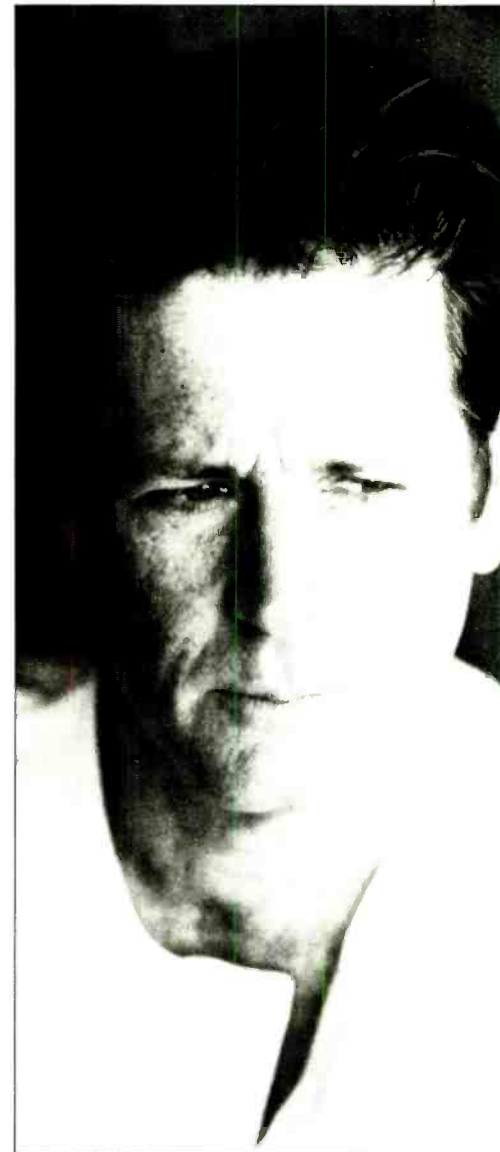
THE MEMORABLE BRIAN WILSON

YES, it's true. Brian Wilson's back. And your initial reaction to the first solo effort by the head Beach Boy—especially if you've ever fallen in love to the accompaniment of his forever fabulous "Pet Sounds" from 1966—is likely to be one of relief. After all the highly publicized psychological and physical problems, after all the personal tragedies and dashed expectations, the man who more or less invented summer and in the process created some of the most memorable American music of the last thirty years is clearly at work again with talent intact. Even if his early output means little to you, this is an inspirational return.

That said, "Brian Wilson" is still a fairly eccentric piece of work. It's being hyped as "Pet Sounds II," which is accurate up to a point since the arrangements and production touches are reminiscent of that indisputable masterpiece. But it is not the kind of record that's going to change your life. What it is is a collection of often melodically memorable songs, at once enormously sophisticated and curiously childlike, lacquered with a studio gloss that is in many ways the most personal stamp of its author. Despite a fairly large cast of supporting players, the record is as focused and Brianesque as you could imagine. The vocal work, nearly all of it by Wilson himself as overdubbed choir, is as stupendous as ever, and the only concession to the ravages of time is a slight deepening of his always wonderful falsetto.

As sheer sound, this stuff is hard to beat. Though the lyrics never aspire to much beyond pop platitudes, they're rather beside the point anyway, an impression reinforced by one of the record's most stunning tracks, the wordless vocal *One for the Boys*. As touching and seductive as the album is, though, you can't help thinking that Wilson could use a collaborator with a gift for the language. Granted, nobody has ever listened to a Brian Wilson song because the words were great. But in retrospect, his early surf and car songs were rather clever in their evocation of a suburban, teenage consumerist subculture, and even "Pet Sounds," whose lyrics were hardly poetry, was at least a unified sort of song cycle about romantic loss. The eleven songs on "Brian Wilson," on the other hand, could be about almost anything.

But enough grouching. When the music works, which is nearly all the time, it is gorgeous, and given the agony that preceded this record, it seems downright churlish to greet it with anything



but pleasure and gratitude. And that's exactly what I feel when I listen to it.

Steve Simels

BRIAN WILSON. Brian Wilson (vocals, piano, organ, keyboards, vibes, bells, percussion, sound effects); Andy Paley (guitars); Elliot Easton (guitar); Terence Trent D'Arby, Christopher Cross, others (background vocals); other musicians. *Love and Mercy; Walkin' the Line; Melt Away; Baby Let Your Hair Grow Long; Little Children; One for the Boys; There's So Many; Night Time; Let It Shine; Meet Me in My Dreams Tonight; Rio Grande.* SIRE/REPRISE 25669-1, © 25669-4, © 25669-2 (37 min).

KARLSON HINA/ISI/SIRE RECORDS

44035 two LP's, © E2T 44035 two cassettes, © E2K 44035 two CD's (100 min).

Performance: *Great, but...*
Recording: *Mostly good*

The first half of a two-volume, double-album, best-of series, "The Story of the Clash, Volume I," is, on one hand, a nice reminder that the Clash was a magnificent band, brimming over with passion, heart, and humor, raw-edged in all the right ways (plus, they made great guitar noises). On the other hand, it seems a fairly pointless repackaging. The Clash was not especially prolific, so why buy a two-volume distillation of their output when the original albums, which apart from "Sandinista" contain very little filler, are all still available? True, it's always nice to hear the likes of *London Calling* or *Police and Thieves*, but if you really want the story of the Clash, hear it unedited. S.S.

THE GEORGIA SATELLITES: *Open All Night*. The Georgia Satellites (vocals and instrumentals). *Open All Night; Cool Inside; Don't Pass Me By; Mon Cheri; Dunk 'n' Dine; Baby So Fine*; and five others. ELEKTRA 60793-1, © 60793-4, © 60793-2 (40 min).

Performance: *Generic*
Recording: *Okay*

There isn't that much difference between *Open All Night*, the first single from this second Georgia Satellites album, and *Keep Your Hands to Yourself*, the smash hit from their debut album. Both songs have a steady chunka-chunka-chunka rhythm, lazy low-life guitars, and sassy vocals, and they both take a free-and-easy view of the world. But something is missing this time around—maybe a little oomph, maybe a little attitude, maybe a little magic. Unfortunately, what's not there is es-

sential, the stuff that makes the difference between a good bar band and a great bar band. What's worse, you won't find that special ingredient elsewhere in the record either. "Open All Night" is quite competent. The original songs are suitably crunchy. The two covers, *Whole Lotta Shakin'* and *Don't Pass Me By*, indicate an interesting duality in the band's mindset: Jerry Lee Lewis and Ringo Starr. But this record just doesn't do any serious kicking, and it should have done that for starters. R.G.

LOUISE GOFFIN: *This Is the Place*. Louise Goffin (vocals, keyboards); vocal and instrumental accompaniment. *In the Mood; Banging on a Brand New Drum; Bridge of Sighs; Send a Message; Carnival*; and five others. WARNER BROS. 25692-1, © 25692-4, © 25692-2 (42 min).

Performance: *Not like mom*
Recording: *Very good*

As the daughter of songwriters extraordinaire Carole King and Gerry Goffin, Louise Goffin might be expected, like Julian Lennon, to produce music that preserves the time-honored, familiar strains but still positions itself in the realm of contemporary trends. Goffin, twenty-seven, who has lived for the last several years in England (where this album was recorded), in many ways fits the pattern. While her own music sometimes touches on the Clash (with vocal shadings of Rickie Lee Jones in *Bridge of Sighs* and *Send a Message*), she nonetheless acknowledges the work of her parents, although paying more attention to the Goffin/King dance hits of the Sixties than to her mother's sensitive-singer-songwriter career in the Seventies. *Banging on a Brand New Drum*, for example, incorporates elements of *The LocoMotion*, her parents' 1962 hit for Little Eva.

At its best, "This Is the Place" delivers evocative lyrics, a plaintive and expressive vocal style, and tight instrumental mood passages that catapult the listener into Goffin's romantic fantasies. In other words, when the record's playing, it's easy to get lost in it. But when it's not, the songs fade quickly—there's nothing to anchor them to memory. And that is where the younger Goffin differs from Mom and Dad. The Goffin/King team knew that a real song eventually comes down to lyrics and melody. Louise, for all her obvious musical maturity, still has something to learn. A.N.

IRON MAIDEN: *Seventh Son of a Seventh Son*. Iron Maiden (vocals and instrumentals). *Moonchild; Can I Play with Madness; The Evil That Men Do; Seventh Son of a Seventh Son; The Clairvoyant*; and three others. CAPITOL C1-90258, © C4-90258, © C2-90258 (44 min).

Performance: *Much too heavy*
Recording: *Okay*

Groups like Iron Maiden have given heavy metal a bad name with their pretentious lyrics, leaden rhythms, constipated vocals, and slight guitar talent. Only diehards or the perversely curious should bother with "Seventh Son of a Seventh Son"—and they listen at their own risk. R.G.

ELTON JOHN: *Reg Strikes Back*. Elton John (vocals, keyboards); vocal and instrumental accompaniment. *Town of Plenty; A Word in Spanish; Goodbye Marlon Brando; The Camera Never Lies; Since God Invented Girls*; and five others. MCA • MCA-6240, © MCAC-6240, © MCAD-6240 (42 min).

Performance: *Casual*
Recording: *Very good*

Elton John is over forty. He's had dozens of hit singles. He doesn't have to kick out the stops unless he wants to, and in "Reg Strikes Back," he clearly doesn't want to. This is an easy album, filled with nice music and sometimes obtuse lyrics. It's not his best, but it's far from his worst.

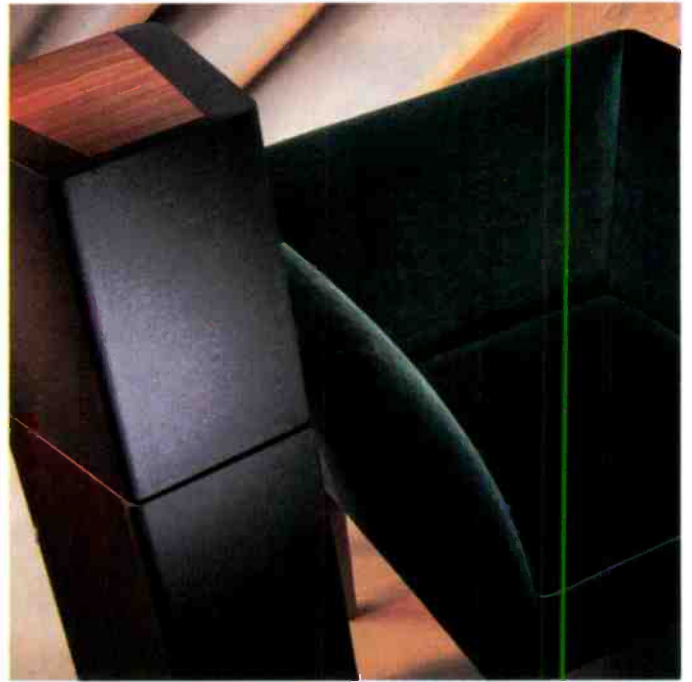
The slow tunes work better. *A Word in Spanish* is a wistful ballad about the impenetrability of love. The wonderfully specific detail in the lyrics of *Japanese Hands* is set in sharp relief by the quietly beautiful performance. *Since God Invented Girls*, an homage to Brian Wilson and the Beach Boys, is very sweet and benefits from harmony vocals by Beach Boys Carl Wilson and Bruce Johnston.

But Elton never really catches fire. He comes closest in *Goodbye Marlon Brando*, which rocks out a little to Bernie Taupin's tart, fed-up words: "Say goodbye to gridlock/Goodbye to Dolly's chest/Goodbye to the ozone layer/If there's any left." On the other uptempo numbers—especially *Town of Plenty*, 1

The Georgia Satellites: low-life guitars and sassy vocals



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THE RETURN OF PATTI SMITH



IT'S been nine years since we heard from Patti Smith, and in the interim both the world and rock-and-roll have changed a bit. Of course, one of the ways the music has changed—that women in rock are no longer a performing-poodle anomaly—can be directly attributed to Smith herself. Without the example of her great late-Seventies albums, everybody from Chrissie Hynde to the Bangles would be more or less unthinkable. In many ways, Patti Smith is the Mother of Them All.

The thing about her new "Dream of Life" album, however, is that it's quite obviously the work of someone who is also the mother of real children. In the near-decade that she has been out of the public eye, she's gotten married and quietly raised two kids with her husband, Fred "Sonic" Smith, former noise guitarist with the legendary MC5 and co-producer of "Dream of Life." That the record reflects the change in its creator's life style is in itself no big surprise. What does come as a shock is its resemblance, apparently as a consequence of that change, to John Lennon and Yoko Ono's "Double Fantasy," which was also recorded after a lengthy domestic hiatus. Like the Lennons' album, "Dream of Life" is a musically conservative celebration of home and family—more VH-1 than MTV, which is to say only marginally rock-and-roll—and basically kind of dull.

But that's *not* to say that it's without its moments. Smith herself sounds bet-

ter than ever, and in the few tracks that recall the fire-breathing stuff on her old records—particularly *Up There Down There*, with its great Detroit guitar bridge and wonderful beatnik rap—her singing is so assured and so gorgeously phrased that you'll find yourself grinning from ear to ear. But most of the material, particularly *The Jackson Song*, a children's lullaby weighted down with celestial harp and strings, and *Going Under*, in which Fred Smith's guitar noodling resembles George Benson's, reminds you that Patti Smith has always been as much a flake as a visionary poet, and that sometimes growing up just translates as growing old.

It is, I suppose, theoretically possible to make interesting rock-and-roll out of a bourgeois private life that might have been dreamed up by the writers of *thirtysomething* (the recent Lou Reed records come to mind), and though Smith hasn't pulled off the trick in "Dream of Life," she's hardly the first rocker to have attempted it without success. Maybe she'll get it right next time.

Steve Simels

PATTI SMITH: *Dream of Life*. Patti Smith (vocals); Fred "Sonic" Smith (guitar); other musicians. *People Have the Power*; *Going Under*; *Up There Down There*; *Paths That Cross*; *Dream of Life*; *Where Duty Calls*; *Looking for You (I Was)*; *The Jackson Song*. ARISTA AL-8453, © AC-8453, © ARCD-8453 (42 min).

Don't Wanna Go On with You Like That, and *The Camera Never Lies*—Elton seems to coast through the material with a modest amount of effort. It's all pleasant enough, but it won't make you forget his earlier, more urgent records. R.G.

JIMMY PAGE: *Outrider*. Jimmy Page (guitars); Robert Plant, John Miles, Chris Farlow (vocals); Jason Bonham (drums); other musicians. *Wasting My Time*; *Writes of Winter*; *The Only One*; *Emerald Eyes*; *Blues Anthem (If I Cannot Have Your Love . . .)*; and four others. GEFHEN GHS 24188, © M5G 24188, © 24188-2 (40 min).

Performance: *Uneven*

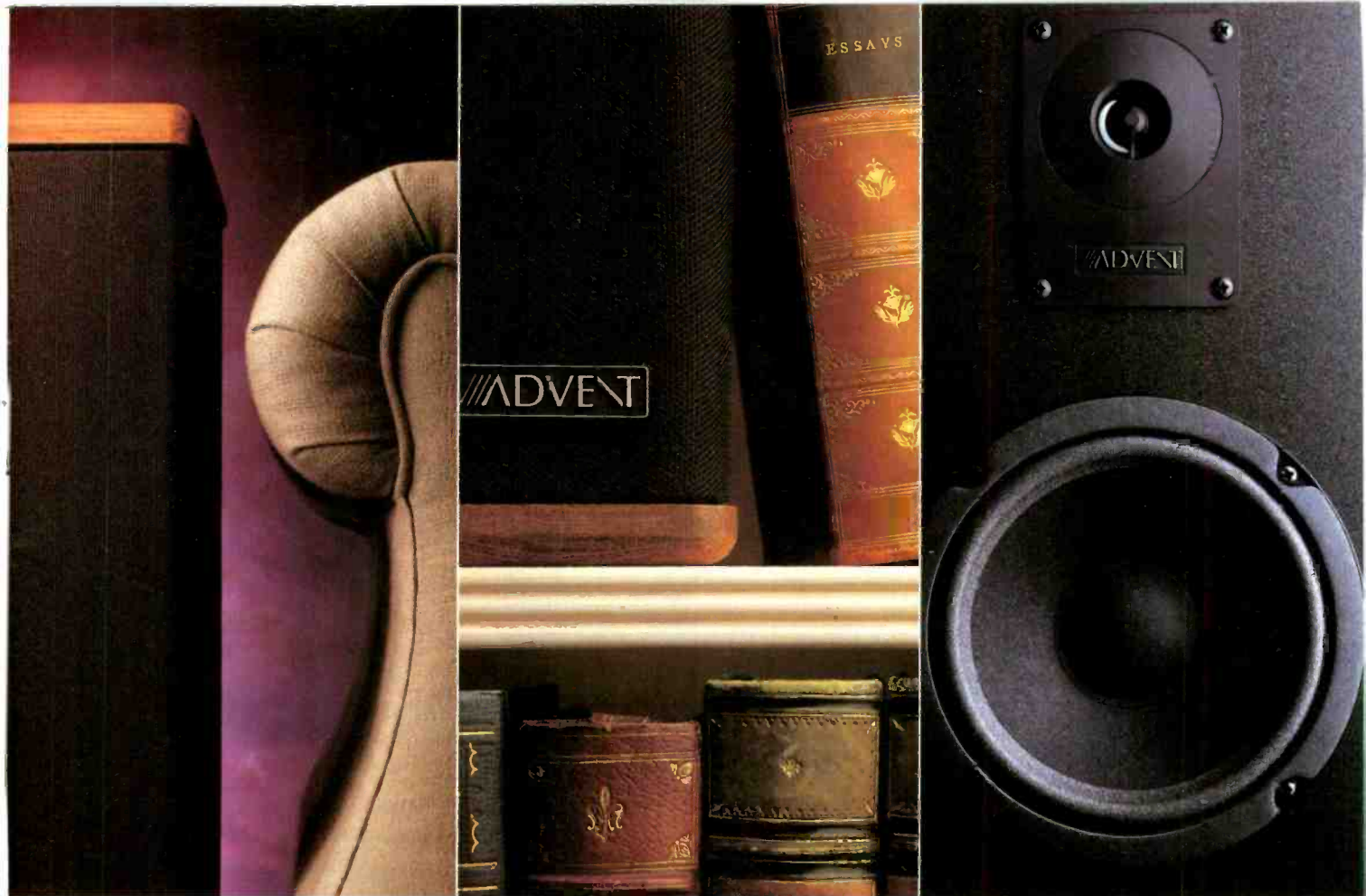
Recording: *Good*

Even a guitar hero cannot live by hot licks alone. Jimmy Page may have some of the best credentials in rock history, with the Yardbirds and Led Zeppelin, and he may have played one of the greatest solos of all time in *Stairway to Heaven*. But when it comes to producing an album on his own, "Outrider" proves that Page needs somebody to sing and somebody to help write the songs.

Page's pyrotechnical ability has not diminished. He still riffs with amazing fluidity and power, and he still has great imagination when it comes to building and decorating solos. Particularly in the more straightforward blues tunes co-written and sung by Chris Farlow, *Prison Blues* and *Blues Anthem*, Page ranges through the history of rock-and-roll all the way back to its roots in the Mississippi Delta.

But for the most part, "Outrider" soars and plummets depending on Page's collaborators. The two tunes co-written and sung by John Miles are unremarkable, somewhat pedestrian, semi-hard rock. The Farlow songs work a little better, perhaps because Page felt more relaxed within their tradition. Page doesn't lack for ideas in these songs, or in the album's three instrumentals. Accents, figures, countermelodies, improvisations, and more come spewing forth—enough for several albums. But Page's ideas don't add up to much except in *The Only One*, co-written and sung by Robert Plant. Unlike the rest of the album, where you have plenty of time to think about and admire Page's guitar mastery, this white-hot rave-up hits you in the solar plexus. It's a postmodern blues, and it fuses these former bandmates together again perfectly, while still sounding very much like the latest Plant has offered on his own. Let's hope these guys get together real soon for something more extended. R.G.

THE RAMONES: *RamonesMania*. The Ramones (vocals and instrumentals). *I Wanna Be Sedated*; *Teenage Lobotomy*; *Do You Remember Rock 'n' Roll Radio?*; *Gimme Gimme Shock*



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Treatment; Beat on the Brat; Sheena Is a Punk Rocker; I Wanna Live; Pinhead; Blitzkrieg Bop; Cretin Hop; Rockaway Beach; and nineteen others. SIRE 25709-1 two LP's, © 25709-4 one cassette, © 25709-2 one CD (76 min).

Performance: *Unique*
Recording: *Mostly good*

One thing that this intelligently assembled greatest-hits package proves beyond doubt is that the Ramones are the pre-eminent *idiots savants* of rock-

and-roll. Four unremarkable-seeming schlubs from Queens, whose collective musicianship is limited at best and whose lyrical celebrations of pinheads and glue freaks are probably closer to identification than homage, these guys have nonetheless made a lot of classic records, apparently by inspired accident. The cream of the jest is that for the first several years of their career, when they were being hailed by rock critics as the most important band of their day, they were widely assumed to

be a bunch of brilliantly ironic minimalists, smart guys playing dumb.

Fortunately, "RamonesMania" has most of the band's good stuff, with the bubble-gum-pop numbers wisely emphasized over the more extreme punk ditties that originally made their reputation. Just about everything you'd want to hear is included, from the ineffably catchy *Sheena Is a Punk Rocker* to the hilariously simple-minded stab at political protest, *Bonzo Goes to Bitburg*. Of course, none of it sounds as bracing as it did ten years ago when the band's breakneck tempos and three-chord songwriting provided a much-needed corrective to the progressive-rock pomposities that then dominated the airwaves. Nevertheless, given a choice between the Ramones' sublime idiocy and the calculated slickness of a contemporary act like, say, Whitesnake, there really isn't much of a contest. S.S.

SCRITTI POLITTI: *Provision*. Scritti Politti (vocals and instrumentals); vocal and instrumental accompaniment. *Boom! There She Was; Overnite; All That We Are; Bam Salute; Philosophy Now;* and four others (six others on CD). WARNER BROS. 25686-1, © 25686-4, © 25686-2 (53 min).

Performance: *Light*
Recording: *Very good*

What a tasty combination Scritti Politti offers: sweet, ethereal vocals and sharp, earthy rhythms. The songs in "Provision" float through your mind and sting your body into motion. Green Gartside's vocals are light and breathy. The synthesized bass and programmed drums do a subtle rhythmic tattoo. What else could a dancer want? Nothing, if that body in motion hasn't a thought in its brain. These spare arrangements represent the state of the art on the club scene. Too bad the lyrics and melodies don't measure up; this "Provision" is empty calories. R.G.

ROD STEWART: *Out of Order*. Rod Stewart (vocals); vocal and instrumental accompaniment. *Lost in You; The Wild Horse; Lethal Dose of Love; My Heart Can't Tell Me No; Dynamite; Try a Little Tenderness;* and four others. WARNER BROS. 25684-1, © 25684-4, © 25684-2 (46 min).

Performance: *Revitalized*
Recording: *Very good*

With his last two albums, Rod Stewart looked as if he might be down for the count. After two decades of rock-and-roll, two decades of serving as exquisite gossip-column fodder, Stewart seemed to have permanently replaced passion with prancing, strength with saccharine, and music with glassy-eyed posturing. If he cared about putting real muscle into his records, the results didn't show it. Now, however, the devilish fellow has sneaked up from behind with an album that kicks and steams from start to fin-

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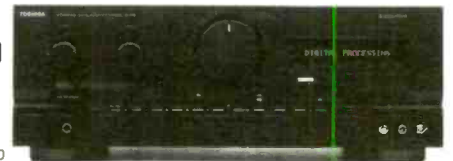
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ish, an album that suggests there's plenty of fire in the ol' Londoner yet.

"Out of Order" draws its real power from two sources—Stewart's evocative songwriting (he co-wrote seven of the ten cuts) and his renewed commitment to vocal immediacy. The two come together best in *The Wild Horse*, a gritty "autobiography" of sorts that traces Stewart's rough-and-tumble background in images that may be more spiritual than literal ("Born and raised in a motel in New Orleans") but nonetheless capture the essence of his early hobo/gypsy, working-class life. Here, as elsewhere, Andy Taylor's searing guitar solos transcend the average blues-rock fingering. Taylor and bass player Bernard Edwards serve as the perfect skeletal rhythm section for most of the cuts, as well as being Stewart's co-producers for the album.

There are occasional moments of backsliding, most apparent in the overly sentimental strings in *My Heart Can't Tell Me No* and the Boy Scout optimism of *Forever Young*. But it's Stewart's best album in years, and he turns in a performance that shimmers with emotion, dissolving all quarrel with the production or lyrics. It is a performance of saw-edged tenderness, at once seductive and brutally confrontive, the exuberant expression of a man who has found himself—and his music—once again. *A.N.*

ICHABOD STOWE: *The Legendary Ichabod Stowe*. Ichabod Stowe (vocals, guitar); Tony Conniff (bass); Irwin Finch (keyboards); Larry Saltzman (guitars); Frank Vilardi (drums); other musicians. *Ain't No One Gonna Stop the Rain; Nothing but Highway; Different Way of Thinking; Hiding Out at Home*; and five others. GADFLY G-102859 (\$10) postpaid from Gadfly Records, P.O. Box 4850, Weehawken, NJ 07087).

Performance: *Pretty cool*
Recording: *Good*

"The Legendary Ichabod Stowe" is an admirable (and surprising) piece of work, but even if it weren't its creator would rate points simply for being quixotic. After all, the album is an update of various folk-rock styles—a little Bob Dylan circa "Blonde on Blonde" and a dash of *Who'll Stop the Rain* Creedence, among others—that are not exactly boffo box office these days. Fortunately, while Stowe will remind you of lots of Sixties singer-songwriter types, he also seems aware that this is 1988, and when his lyrics verge on political protest they manifest a becoming ambiguity compared with those of his more black-and-white predecessors.

Stowe also has a good ear for the melodic hook (*Nothing but Highway*), a graceful way with the language, and, most impressive, obvious skill as a bandleader: Nobody here has a household name, but this sounds like a world-class ensemble anyway. Stowe may not

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be totally original, but he's very good at what he's doing. In short, this is an intriguing debut—and another welcome reminder that interesting music continues to be made outside the confines of the major record labels. S.S.

HENRY LEE SUMMER. Henry Lee Summer (vocals, guitar); instrumental accompaniment. *I Wish I Had a Girl; Hands on the Radio; Just Another Day; Still Bein' Seventeen; Lovin' Man;* and five others. CBS ASSOCIATED BFZ 40895, © BZT 40895, © ZK 40895 (38 min).

Performance: *Meat and potatoes*
Recording: *Good*

Notin' fancy about the way Henry Lee Summer makes music: He just straps on the guitar and takes it on down the middle of the road. Summer is a relaxed singer with a talent for writing pleasant, straight-ahead rock. When he comes up with an inspired melody, as in *I Wish I Had a Girl* or *Hands on the Radio*, his performances can be ingratiating, something like a laid-back REO Speedwagon. But Summer doesn't seem to have the oomph to put over his lesser compositions. The bluesy, harder-rocking *Wing Tip Shoes*, for example, sounds forced, and the repetitive *I'll Hurt for You*

doesn't make much of an impression. Overall, Summer hits the mark on six of the ten songs on this album—not great, but a promising percentage from a promising artist. R.G.

AL B. SURE! *In Effect Mode* (see Best of the Month, page 90)

TREAT HER RIGHT. Treat Her Right (vocals and instrumentals). *I Think She Likes Me; I Got a Gun; Everglades; Square; Trail of Tears; Jesus Everyday;* and five others. RCA 6884-1-R, © 6884-4-R, © 6884-2-R (39 min).

Performance: *Wow!*
Recording: *Atmospheric*

Treat Her Right is a neo-blues band with a difference. Unlike, say, the Nighthawks, the J. Geils Band, or even Robert Cray, the point here is not virtuosity. Rather, the emphasis is on mood—the stripped-down, spooky minimalism of old Muddy Waters or Howlin' Wolf records. These guys aren't purists, particularly—the two numbers not written by the band come by way of the old Kingston Trio and avant-jazzier James "Blood" Ulmer—but they've still got the sound and feel of Fifties Southside Chicago blues down better than any white guys since... well, per-

haps since the early Rolling Stones. Add in some impressive songwriting (such as the witty post-feminist *I Think She Likes Me* or the sharply observed satire of *Jesus Everyday*) and some truly fabulous harmonica work from leader Jim Fitting, and what you've got is one of the sleeper debut albums of the year. Highly recommended. S.S.

STEVE WARINER: *I Should Be with You.* Steve Wariner (vocals, guitars); vocal and instrumental accompaniment. *Runnin'; More Than Enough; All That Matters; Party of One; Baby I'm Yours;* and five others. MCA ● MCA-42130, © MCAC-42130, © MCAD-42130 (36 min).

Performance: *Too smooth*
Recording: *Nice*

With his warm baritone stretching toward tenor, his impeccable, tasteful guitar playing, and his expressive delivery, Steve Wariner is one of the consummate talents of country-pop, a young Glen Campbell without the "shucks y'all" mentality. Wariner takes great pride in having written or co-written six of the ten songs in "I Should Be with You," besides co-producing the album with Jimmy Bowen and handling most of the guitar work himself.

What Mozart Sounds Like On A



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He has certainly assembled a sterling batch of material, with contributions from Don Schlitz, Guy Clark, Jimmy Webb, Dave Loggins, and Randy Goodrum, and his famous session pickers have crafted a lovely, seamless backdrop. But having channeled so much energy into overseeing the project, Warner has turned out a record that never really catches fire vocally or emotionally. Even on the most energetic or soulful cuts he offers more precision than passion; there's a surprising lack of gusto. In short, this is for easy-listening radio and little more. *A.N.*

VANESSA WILLIAMS: *The Right Stuff*. Vanessa Williams (vocals): vocal and instrumental accompaniment. *The Right Stuff*; *Be a Man*; *Dreamin'*; (*He's Got*) *The Look*; *I'll Be the One*; and six others. WING/POLYGRAM 835 694-1, © 835 694-4, © 835 694-2 (50 min).

Performance: *Quite promising*
Recording: *Good*

You don't expect a Miss America to get funky, whether she has the ability to or not. But Vanessa Williams, as we all know, wasn't a typical Miss America. Her debut album, "The Right Stuff," seems to capture her on the cusp between a somewhat formal vocal style

and a freer way of singing. Even though her sweet voice seems comfortable in the backbeat-heavy dance tunes, she sounds more relaxed and expressive in the slower, less club-oriented selections. The cooled-down, romantic *Dreamin'*, for example, gives Williams more room to torch things up—and she lights quite a fire. Seven different people produced tracks for "The Right Stuff," which probably explains why it sounds inconsistent. Maybe a vocalist with a more developed personal style would have held it all together, but Williams is still a little too adaptable. *R.G.*

STEVE WINWOOD: *Roll with It* (see Best of the Month, page 89)

WOMACK & WOMACK: *Conscience*. Cecil and Linda Womack (vocals, guitars, keyboards); vocal and instrumental accompaniment. *Conscious of My Conscience*; *MPB (Missin' Persons Bureau)*; *Friends (So Called)*; *Teardrops*; and five others. ISLAND 90915-1, © 90915-4, © 90915-2 (42 min).

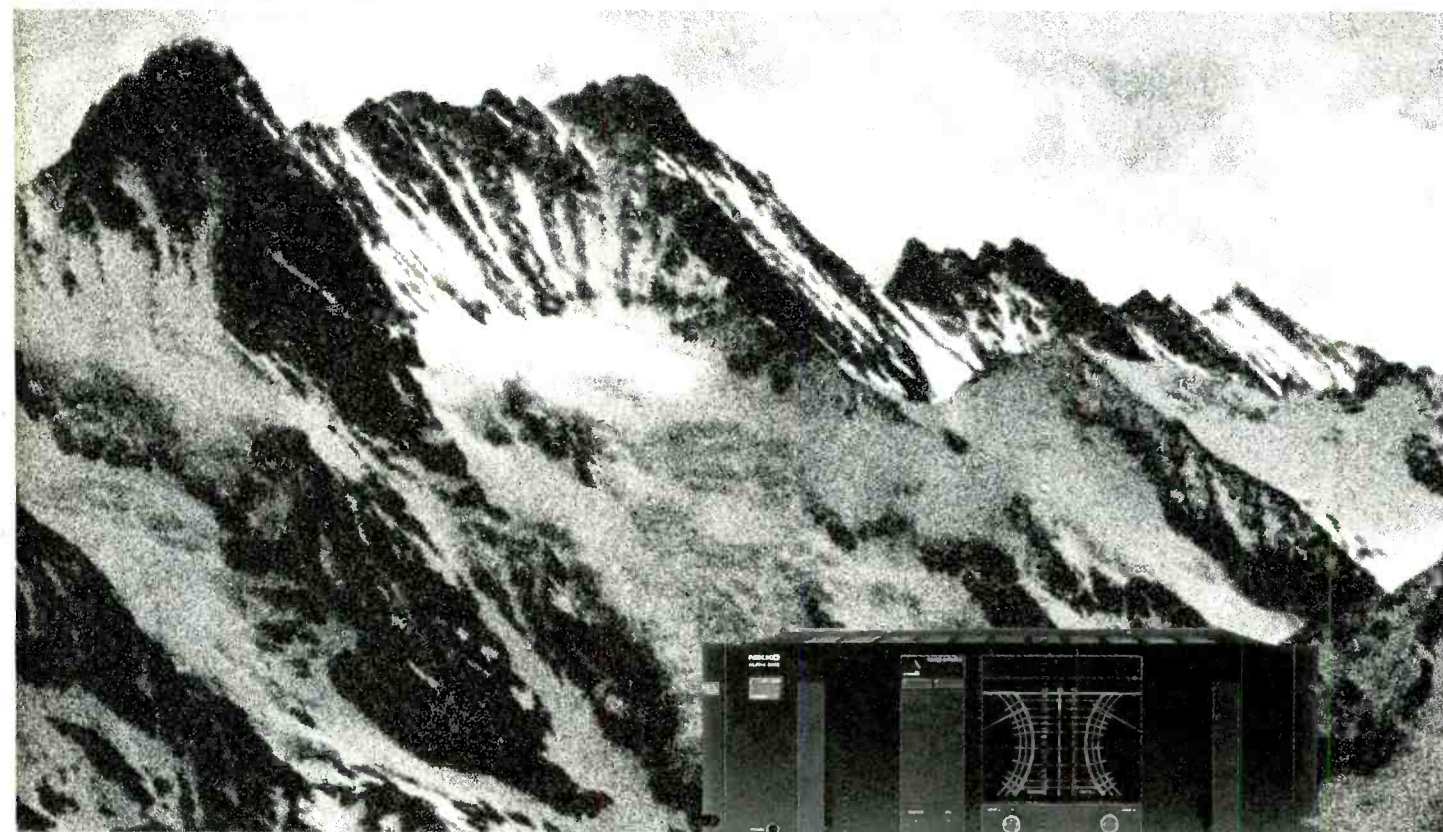
Performance: *Roots soul*
Recording: *Satisfactory*

A new book by Nelson George is titled *The Death of Rhythm and Blues*. While I respect Mr. George's stature as a writ-

er on black music, "Conscience," by the husband-and-wife team of Cecil and Linda Womack, shows that this classic form is not dead yet. The record's sound is totally different from the prevailing fare. There are no synthesizers, no amplified electronic effects, only the sound of a man and a woman singing their hearts out over backing by real blues guitars, a thumping bass, and acoustic drums. The instrumentation and the song-story poetry of the lyrics immediately convey a sense of folk reality, something that has all but disappeared from commercial black music.

The extraordinary quality of "Conscience" stems from the efforts by the Womacks to return to the source of their music. They were already successful as the composers of hits for the likes of Mick Jagger, Keith Richards, Wilson Pickett, and Teddy Pendergrass before revealing performing talents in their 1984 debut album, "Love Wars," which was notable for the sincerity of its expression and pure r-&-b feeling. Now they have gone further. These are songs not just about love but about all of life's verities. Genuine rhythm-and-blues, with its depth of feeling and exuberance of expression, might be hard to come by today, but it will not die as long as the Womacks are around. *P.G.*

A Nikko.



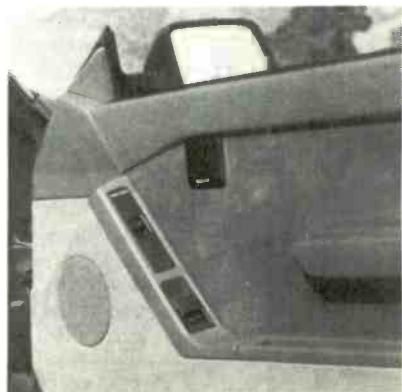
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Jim Hageman's 1988 Subaru XT Coupe looks hot with its arrest-me-red paint job and dark tinted windows. Jim wanted a stereo system just as hot as his car, however, the factory equipment didn't come close. Jim's music tastes include rock, jazz and R/B, and when he cranks up the volume, as he usually does, he wanted the music clean, and with deep, solid bass. This was no problem for Motor Stereo. Of course, they chose Boston Acoustics. For coverage in all four corners, they installed two Boston component systems: one in the front doors and one in the rear deck. And for the thunderous bass Jim required, Motor Stereo installed four Boston subwoofers in the trunk. The result? Says Jim: "It is a good, clean installation that turned out exactly like I wanted. And more."

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The prizes. Each month through December, we'll announce the winning Installation of the Month in *Stereo Review*. Each month's winner will receive our T830 tower design home loudspeakers. (\$500 suggested retail value.) What's more, the first 500 readers who submit qualified entries between now and October 5 will win a full year's subscription to *Car Stereo Review*. Free! (Newsstand value, \$23.70.)



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JAZZ

CHRIS CONNOR: *New Again*. Chris Connor (vocals); instrumental accompaniment. *Dearly Beloved; Love Locked Out; My Foolish Heart; Down in Brazil; Mad About the Boy;* and five others. CONTEMPORARY C-14038, © CC-14038, © CCD-14038-2 (43 min).

Performance: *Smooth*
Recording: *Very good*

When Chris Connor was a young, aspiring singer living in Kansas City, Missouri, she dreamed of having the Stan Kenton orchestra behind her. She finally made it, in 1952, after stints with the bands of Claude Thornhill and Jerry Wald. The stay with Kenton was brief, but it prepared her for the solo career that lay ahead. For more than thirty years, Connor has pursued that career; some of the years were lean ones, and there were times when it sounded as if her voice was giving out, but her aptly titled new album, "New Again," belies any such fears.

With arrangements and accompaniments led by pianists Michael Abene and Richard Rodney Bennett, Connor displays much of the old vitality and all of the sensitivity that marked her earlier successes. Her fans will not be disappointed with such numbers as Noël Coward's *Mad About the Boy*, which is taken at a fast clip, Laura Nyro's *I Never Meant to Hurt You*, and a couple of well-paced medleys, one of which is devoted to Fred Astaire hits. C.A.

DJAVAN: *Bird of Paradise*. Djavan (vocals, guitar); instrumental accompaniment. *Carnaval in Rio (Carnaval no Rio); Bird of Paradise; Apple (Maçã); Real; Madness (Doidece); Stephen's Kingdom;* and four others. COLUMBIA FC 44276. © FCT 44276.

Performance: *Brazilian soul*
Recording: *Excellent*

If there is a Brazilian artist who, more than any other, has succeeded in fusing the basic ingredients of his country's popular music with the textures and cadences of American pop-jazz, Djavan is that artist. His eclectic approach was evident when he made his U.S. debut at a New York jazz festival in 1984. Though he was all but unknown here, Djavan promptly stole the show, exhibiting real star potential. His first North American album, however, which followed in 1985, fell far short of expectations aroused by that portentous debut. There seemed to be too much pop and not enough Brazilian flavoring.

Fortunately, Djavan has found a near-perfect balance in his new set, "Bird of Paradise." His sweetly mellow tenor voice is exceptionally appealing, and the songs and production are crafted to suit it. The American pop

THE FUJITSU-CONCORD JAZZ FESTIVAL

THE 1987 Fujitsu-Concord Jazz Festival was the second of what has now been designated an annual event. It began in Osaka and toured through seven other cities before ending in Tokyo, where a four-volume set was recorded last November. The first volume features the Phil Woods Quintet, a boppish group recently signed by Concord. Woods is probably the finest, and purest, bop saxophonist on the scene today, and his current group thoroughly complements his own skill and taste. Tom Harrell's ethereal trumpet in *Dreamsville* is a highlight, but the quintet is at its best when it gets down to bop basics, as in Hal Galper's *Bop Stew* and Woods's *Yes, There Is a C.O.T.A.* Although the CD includes a bonus track, it runs less than a minute and a half.

Compact disc buyers fare better with "Dexterity," the second set, which features pianist George Shearing and a couple of vocals by Ernestine Anderson. The CD version contains three extra selections, adding up to more than twelve additional minutes of Shearing's lyrical, delicate improvisations. Happily, the Anderson vocals, in Harold Arlen's *As Long As I Live* and Percy Mayfield's *Please Send Me Someone to Love*, also appear on the vinyl and tape releases. Shearing's collaborations with such singers as Peggy Lee and Mel Tormé have been a joy, and I hope we can look forward to more Concord albums by this equally winning singer-pianist combination.

Over the years, Concord Jazz has assembled a stable of fine players—a repertory company, of sorts—the nucleus of which is the Concord All Stars. The third and fourth festival albums feature this group, which includes "newcomer" Red Holloway on alto sax in addition to such regulars as cornetist Warren Vaché, Scott Hamilton on tenor sax, and pianist Dave McKenna. Holloway, of course, is really senior to the others, but he has less tenure with the label. The All Stars play straight-ahead jazz that nicely straddles the fence between bop and swing; both records offer a pleasant blend of the devilishly swinging, the infectiously bouncing, and the seductively soothing. Everybody gets a chance to shine, and Ernestine Anderson adds extra light in Volume IV, "Ow!" There are CD bonuses in these volumes too, a rousing, nearly nine-minute *Singin' the Blues* in "Take 8" and seven inspired minutes of *Tenderly*, featuring Holloway on tenor this time, in "Ow!"

The four volumes of the Fujitsu-Concord Jazz Festival set are available individually, but I highly recommend all of them to anyone who likes uncluttered, tasteful jazz. Chris Albertson



Ernestine Anderson

PHIL WOODS QUINTET: *Fujitsu-Concord Jazz Festival, Volume I—Bop Stew*. Phil Woods (clarinet, alto saxophone); Tom Harrell (trumpet, flugelhorn); Hal Galper (piano); Steve Gilmore (bass); Bill Goodwin (drums). *Poor Butterfly; Yes, There Is a C.O.T.A.; Dreamsville; Huk2e; Bop Stew; How's Your Mama?* (on CD only). CONCORD ● CJ-345, © CJ-345-C, © CCD-4345 (49 min).

GEORGE SHEARING: *Fujitsu-Concord Jazz Festival, Volume II—Dexterity*. George Shearing (piano); Neil Swainson (bass); Ernestine Anderson (vocals). *Dexterity; You Must Believe in Spring; Sakura Sakura (Cherry Blossom Nova); Kojo No Tsuki* (on CD only); *I Won't Dance* (on CD only); *Long Ago and Far Away; Can't We Be Friends; As Long As I Live; Please Send Me Someone to Love; Duke Ellington Medley; Lullaby of Birdland* (on CD only). CONCORD ● CJ-346, © CJ-346-C, © CCD-4346 (59 min).

CONCORD ALL STARS: *Fujitsu-Concord Jazz Festival, Volume III—Take 8*. Concord All Stars (instrumentals). *Dynaflow; The Glory of Love; Too Late Now; Have You Met Miss Jones?; Singin' the Blues* (on CD only); *The Very Thought of You; Stella by Starlight; Who Can I Turn To (When Nobody Needs Me); Lover, Come Back to Me!* CONCORD ● CJ-347, © CJ-347-C, © CCD-4347 (52 min).

CONCORD ALL STARS: *Fujitsu-Concord Jazz Festival, Volume IV—Ow!* Concord All Stars (instrumentals); Ernestine Anderson (vocals). *Ow; Fungi Mama; Tenderly* (on CD only); *My Shining Hour; I'll Close My Eyes; Why Did I Choose You?; Blue Hodge; I Love Being Here with You; All Blues; Down Home Blues.* CONCORD ● CJ-348, © CJ-348-C, © CCD-4348 (53 min).

influence is most apparent in his use of familiar rhythms to propel his captivatingly melodic songs. The best are the title song, *Bird of Paradise*, followed closely by the pensive *Bouquet*, *Stephen's Kingdom* (a tribute to South African resistance), and the more overtly Brazilian *Apple (Maçã)*, which bounds along with great ebullience. With this album, Djavan proves that his type of fusion has real staying power. *P.G.*

KÖLN BIG BAND: *Update*. Köln Big Band (instrumentals). *Bluff; Sian; Rock 'n' Soul; Three for M.D.; Black Bottom Blues*; and four others (three others on DAT). DELTA © JLC 20 824, © 11 102 (63 min), DAT 88 102 (59 min).

Performance: *Dull precision*
Recording: *Very good*

The Köln Big Band is a seventeen-piece orchestra that plays its own unimagina-tive compositions and arrangements with German precision. The notes list Miles Davis, Jimi Hendrix, John Coltrane, and Donald Fagen as influences, but the band fails to muster up anything remotely resembling the creative excitement that established these artists. There are carfuls of good solo work, notably by trombonist Peter Feil and "guest trumpet player" Ingolf Burk-

hardt, but any moment of inspiration is rendered useless by the mechanical rhythm section. In "Update," the band sluggishly makes its way through an hour-long recording that seems twice as long. With a good rhythm section and more substantive charts, this band could come out smelling like—well, cologne. *C.A.*

RAMSEY LEWIS: *Classic Encounter*. Ramsey Lewis (piano); Bill Dickens (bass); Frank Donaldson (drums); Philharmonia Orchestra, James Mack cond. *With a Gentle Touch; After the Rain; The Earle of Salisbury Pavane; Spiritual; Colours; It Could Happen to You*; and four others (five others on CD). CBS FM 42661, ©FMT 42661, © MK 42661 (54 min).

Performance: *Opulent*
Recording: *Very good*

Although Ramsey Lewis is often described as a jazz pianist, he has always straddled the fence between jazz and pop. His latest album, "Classic Encounter," has a bland Peter Nero flavor with a touch of the *Warsaw Concerto* thrown in, but it's too innocuous to be offensive. Dwarfed by the titanic London-based Philharmonia Orchestra, Lewis does his best to hammer his way

into our ears, often succeeding, but this is mostly mood music that goes in one ear and out the other. *C.A.*

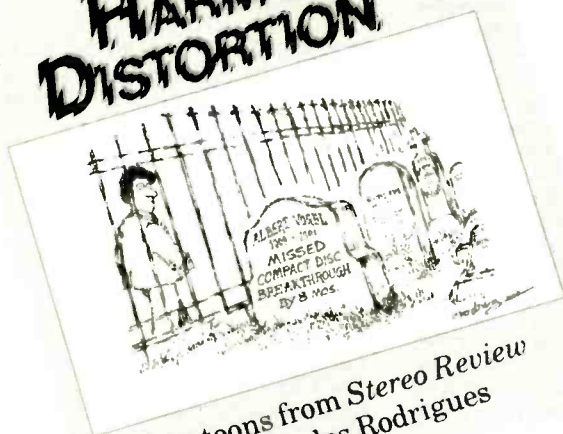
COURTNEY PINE: *Destiny's Song*. Courtney Pine (soprano and tenor saxophones); instrumental accompaniment. *In Pursuance; The Vision; Guardian of the Flame; Round Midnight; Sacrifice; A Raggamuffin's Tale*; and four others. ANTILLES/ISLAND © 90697-1, © 90697-4, © 90697-2 (54 min).

Performance: *Stunning*
Recording: *Excellent*

The latest album by British saxophonist Courtney Pine, who impressed me with his fresh, spirited playing when I first heard him two years ago, contains his finest recorded work to date. With the surging, robust quality of Sonny Rollins, Pine speaks tenor with a strong Coltrane accent, but he is no mere Trane clone. In "Destiny's Song" his instrument becomes a cornucopia of exuberant sounds, spilling forth with an energy that will set your ears aglow. John Coltrane's music was once described as "sheets of sound." Pine, too, pours out notes in torrents, with a brilliant creative force that comes from within himself. This is real jazz, not bland radio fare. *C.A.*

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Stereo Review
November, 1987

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Discs and tapes reviewed by Robert Ackart, Richard Freed, David Hall, Stoddard Lincoln, and Eric Salzman

BACH: Goldberg Variations (BWV 988). Ton Koopman (harpsichord). ERATO © ECD 75472 (62 min.)

Performance: *Brilliant*
Recording: *Atmospheric*

Though harpsichordist Ton Koopman is highly respected, he tends to tweak the noses of the more conservative members of early-instrument circles with his extroverted, ebullient style. This recording of the *Goldberg Variations* is a most vivid example. It has an arresting sense of color, makes generous use of ornaments, and employs tempos that are elastic and expressive. Temperamentally, it's the polar opposite of Kenneth Gilbert's *Harmonia Mundi* recording, which has many admirable qualities but is also more solemn, more rhetorical, and more limited in color.

Koopman's Bach is a creature of almost Romantic extremes, not just in terms of tempos, which tend toward the limits of fastness and slowness, but in the astonishing variety of nuances he finds in the variations. He puts his technical virtuosity to deeply musical uses. Each variation is imaginatively characterized, whether it's by his startling use of color in the parallel harmonies of the Variation No. 23, the high-spirited, march-like treatment given to No. 10, or the Chopinesque pathos he gives to the great Variation No. 25. Throughout, his generous use of repeats and his long-lined phrasing might not always be considered "correct" in strict historical-performance circles, but who cares? Koopman is emotionally responsive to the music in a more immediate way than any of his colleagues. His recording of Bach's *Goldberg Variations* is clearly the one we've been waiting for.

David Patrick Stearns

BOLCOM: Twelve New Etudes.
WOLPE: Battle Piece. Marc-André Hamelin (piano). NEW WORLD ● NW 354-1, © NW 354-2 (60 min).

Performance: *Superb*
Recording: *First-class*

This recording comes with a prominent credit for the Canadian pianist Marc-



BARRY DOUGLAS'S BEETHOVEN

IF Barry Douglas's first recording for RCA, of Tchaikovsky's First Piano Concerto, made some listeners wonder what all the fuss was about, his subsequent releases have been reassuring. It is possible that the Tchaikovsky just isn't his piece, but something he was obliged to record because he won the Tchaikovsky Competition with it in Moscow. His latest recording, of Beethoven's *Hammerklavier* Sonata, one of the largest-scaled of all of Beethoven's sonatas, is enormously satisfying—as much for what it isn't, perhaps, as for what it is.

This is a sane, sober, well-proportioned realization, free of any hint of eccentricity or mannerism but by no means without personality. Douglas seems content, however, to allow the personality to be Beethoven's rather than his own. This sort of straightforward approach rarely works to the detriment of any music, and it serves the *Hammerklavier* Sonata especially well. By never inflating the music or exaggerating its already heroic gestures, Douglas has the work splendidly in scale. He conveys its drama without an overlay of histrionics, and—helped by a recording that is exemplary in its realism, clarity, and judicious focus—he preserves its essentially pianistic character. (How often this music is allowed to sound, or made to sound, like a piano reduction of an orchestral score—as Felix Wein-

gartner's orchestral arrangement reminds us.)

Alfred Brendel, on Philips, brings more white heat to the sonata and Emil Gilels, on Deutsche Grammophon, more in the way of expansive introspection, while Peter Serkin, on Pro Arte, makes the most of the work's intimate qualities without ignoring its boldness. Douglas can hold his own with any of them. In his annotation he describes the opening movement as "imperious," and that is just the quality he projects—imperious, not monumental. In the slow movement he is even more expansive than Gilels—not merely slow but really probing—and the result is truly exalting. The final fugue shines with a Bach-like clarity that is anything but anticlimactic.

One might have thought that "anticlimactic" would apply to the filler piece, the little *Andante favori*, Beethoven's original slow movement for the *Waldstein* Sonata, but it is performed here with such unlabored grace that it seems the most fitting—and surely the most endearing—of encores after the huge sonata.

Richard Freed

BEETHOVEN: Piano Sonata No. 29, in B-flat Major, Op. 106 ("Hammerklavier"); Andante favori in F Major (WoO 57). Barry Douglas (piano). RCA ● 7720-1-RC9, © 7720-4-RC9, © 7720-2-RC (57 min).

EXPLANATION OF SYMBOLS:

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André Hamelin, who got to make it as part of his prize for winning the 1985 Carnegie Hall International American Music Competition for Pianists. Now there is an equally impressive added credential: William Bolcom won this year's Pulitzer Prize in music for these very etudes.

But that is still only half the story. Hamelin pairs the Bolcom etudes with the almost legendary *Battle Piece* of Stefan Wolpe, himself a near-legendary figure who crossed over several generations, continents, musical styles, and revolutions. Wolpe was born in Germany and wrote agit-prop music for the left in the 1930's, then immigrated to Israel, where he absorbed Eastern music, and then to New York where he spent the last decades of his life influencing a whole generation of American avant-gardists, himself being one of the first. *Battle Piece* was begun in 1942 and finished in 1947. When I heard David Tudor play it in the 1950's, it seemed to me the most far-out thing I had ever heard.

Battle Piece was conceived as Wolpe's contribution to the struggle against fascism, and as such, it continues the line of his agit-prop music of the 1930's as well as incorporating elements from other aspects of his checkered career: European international modernism, Eastern music, jazz. Above all, it anticipates the avant-garde revolutions of postwar American new music—New York new music in particular. It is an immensely powerful work, a psychic record of outer and inner struggle translated into some of the most challenging music ever written.

Wolpe was not interested in spit and polish; all his gestures are big, sincere, rough-hewn, deep, masterful, emotional. Bolcom's music is, in contrast, highly controlled and refined in expression. It is, nevertheless, almost as strong in feeling. Whereas Wolpe stood at the end of certain popular and Romantic traditions, which he was already transforming into something new, Bolcom's position is exactly the reverse. He is an heir to modernism and avant-gardism but crosses back over into the land of traditional and popular tonality.

Here, then, are two sets of studies or character pieces, one from the Forties at the threshold of the avant-garde, the other from the late Seventies and the Eighties, written at the end of an era and, perhaps, at the beginning of something else. Both are composed in short takes but add up to something big. Both are major works, and they are very well served here. Hamelin is a big talent with a natural feel for the dialogue, the difficulty, and the discourse of this music. The Bolcom etudes were intended for the late Paul Jacobs and were left unfinished for some years after his death. Performances by pianist John Musto encouraged Bolcom to complete the set, and the dedication now includes Musto and Hamelin as well as Jacobs. Hame-



Marc-André Hamelin: big talent

lin is a worthy successor to the other two, and the quality of his playing is matched by the excellence of the recording. E.S.

DVOŘÁK: Piano Trio No. 3, in F Minor, Op. 65; Piano Trio No 4, in E Minor, Op. 90 (see Best of the Month, page 92)

GILBERT AND SULLIVAN: *The Mikado* (excerpts). Richard Angas (bass), the Mikado; Bonaventura Bottone (tenor), Nanki-Poo; Eric Idle (baritone), Ko-Ko; Richard van Allen (baritone), Pooh-Bah; Mark Richardson (baritone), Pish-Tush; Lesley Garrett (soprano), Yum-Yum; Felicity Palmer (contralto), Katisha; others. English National Opera Chorus and Orchestra, Peter Robinson cond. MCA ● MCA-6215, © MCAC-6215, © MCAD-6215 (61 min).

Performance: *Sparkling*
Recording: *Good*

What a pleasure to hear Gilbert and Sullivan sung by properly trained singers! This recording of highlights from the English National Opera's production of *The Mikado* offers performances that take Sir Arthur Sullivan's music seriously (as it should be taken) as well as allowing us to savor W. S. Gilbert's delicious libretto. The only weak singer is Eric Idle, of Monty Python fame, who was undoubtedly brought in to lend his comic talents to the role of Ko-Ko, the Lord High Executioner. On stage he must be superb, but his virtually spoken portrayal here sticks out from the fine singing by the rest of the cast. It is also frustrating that the exquisite "See how the Fates their gifts allot" is omitted. But the recording is well worth having for its sparkling performance. S.L.

MENDELSSOHN: *A Midsummer Night's Dream: Overture, Op. 21; Inci-*

ental Music, Op. 61. Lucia Popp (soprano); Marjana Lipovšek (mezzo-soprano); Bamberg Symphony Chorus and Orchestra, Claus Peter Flor cond. RCA © 7764-4-RC9, © 7764-2-RC (47 min).

Performance: *A joy*
Recording: *Radiant*

Claus Peter Flor is a thirty-five-year-old East German who has conducted some American orchestras in the last few seasons and is touring here with his own (East) Berlin Symphony Orchestra this October. For his debut on RCA, however, he conducts the Bamberg Symphony, which proves to have been a good choice; the orchestra has never sounded better. It may not be quite the equal of the Vienna Philharmonic in André Previn's recording of this music for Philips, but Flor seems to have a special feeling for Mendelssohn, whose symphonies he has conducted in the U.S.

Flor also has better players and singers than those in Peter Maag's recent Denon recording of *A Midsummer Night's Dream* with the Tokyo Metropolitan Symphony Orchestra, and unlike Maag he includes the brief Funeral March for winds. As in Previn's recording, the vocal numbers are sung in the German texts to which Mendelssohn composed his music rather than the original English favored by Maag. Flor's recording contains a little less music than Previn's, but it actually includes all the material anyone would wish to hear—that is, everything but the patchy fragments and "melodramas."

Lucia Popp and Marjana Lipovšek are utter perfection in the delectable fairies' song, and everything is drawn to just the right scale in both the performance and the absolutely radiant recorded sound. In the intermezzo, Flor reverses the usual approach and does the second part faster than the first; like the opening movement of Handel's G Major Concerto Grosso (Op. 6, No. 1), the music works both ways. Since, indeed, everything works so well here, I don't think that overall there is a more appealing recording of this wonderful score now available. It needn't displace your current favorite, perhaps, but it definitely calls for consideration if you're shopping for this music. R.F.

NIELSEN: *Symphony No. 5, Op. 50. Maskerade: Overture, Act II Prelude, Dance of the Cockerels.* Swedish Radio Symphony Orchestra, Esa-Pekka Salonen cond. CBS ● M 44547, © MT 44547, © MK 44547 (52 min).

Performance: *Good, but ...*
Recording: *Good, but ...*

Esa-Pekka Salonen provided an exciting listening experience in his tautly dynamic CBS recording of Carl Nielsen's First Symphony, but he hasn't quite got the measure of the far more complex Fifth. The first of its two movements, with its satanic snare-drum obbligato,

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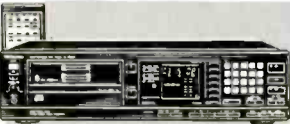
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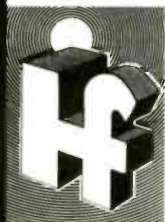
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calls for very careful adjustment of tempos to point up the contrast between the dramatic and lyrical elements, and I find Salonen losing the basic pulse of the music by dragging out the main lyrical episodes. The same problem troubles the life-asserting movement that follows. The demonic first fugue goes great guns, but the slow second fugue, based on augmentation of the main theme, bogs down. Then at the very close the hold on the final chord is absurdly exaggerated.

The orchestral excerpts from Nielsen's opera *Maskarade* make for pleasant listening in much the same manner as the familiar overture and dances from Smetana's *The Bartered Bride*, but the acoustic of Stockholm's Berwald Hall seems a bit frigid, and there are problems with the early pages of the march-like episode that gets the main body of the overture underway. The ostinato figure, for all its fascinating sinister quality, becomes overbearing in this recording. If you want to hear what the *Maskarade* Overture should sound like, listen to Myung-Whun Chung's performance on the Bis recording, which also contains the Nielsen Third. The music fairly blazes forth and has the benefit of a warmer and better focused acoustic. Chung's reading of the Fifth, also for Bis, is likewise tauter and more effectively recorded. *D.H.*

A. SCARLATTI: *Dixit Dominus* (see VIVALDI)

SCHUBERT: *Symphony No. 1, in D Major* (D. 82); *Symphony No. 4, in C Minor* (D. 417, "Tragic"); *Symphony No. 6, in C Major* (D. 589). *Rosamunde: Overture, Entr'acte, and Ballet Music* (D. 644 and 797). Berlin Philharmonic Orchestra, Daniel Barenboim cond. CBS © M2T 42489 two cassettes, © M2K 42489 two CD's (127 min).

Performance: *Mostly good*
Recording: *Mostly good*

This double album, of two cassettes or two compact discs, completes the Schubert symphony cycle by the Berlin Philharmonic under Daniel Barenboim. My reactions to the performances and recorded sound of the previous releases have been mixed, but both are better here, though the timpani in the First Symphony sounds rather tubby. Symphonies Nos. 4 and 6 were recorded with a different set of microphones and have cleaner sound. There are attractive bits of music making throughout, including the spirited finale of No. 1, the finely honed nuances in the slow movement and the splendidly urgent last movement of No. 4, and virtually all of the delectable "little" C Major. As a bonus we get the most familiar excerpts from the incidental music to *Rosamunde*: the overture, with a rather weighty slow introduction and easygoing allegro; the lovely B-flat entr'acte, done with tenderness and elegance; and

the G Major ballet music, played with all the repeats one could desire. *D.H.*

SCHUMANN: *Cello Concerto in A Minor, Op. 129*. Yo-Yo Ma (cello); Bavarian Radio Symphony Orchestra, Colin Davis cond. *Fantasiestücke, Op. 73; Adagio and Allegro, Op. 70; Fünf Stücke im Volkston, Op. 102*. Yo-Yo Ma (cello); Emanuel Ax (piano). CBS © M 42663, © MT 42663, © MK 42663 (66 min).

Performance: *Passionate*
Recording: *Good to excellent*

Virtually every big-name cellist in the business has taken a shot at recording the Schumann concerto, and very few have avoided the temptation to make it sound bigger than it is. Yo-Yo Ma succumbs to that temptation in a super-solo entry in this live recording, but it does not mar his reading as a whole. The slow movement has tenderness and heart, with a gorgeous cello tone, and his rendition of the final-movement cadenza is a tour de force. Colin Davis and the Bavarian Radio Symphony contribute fine support throughout. Even so, I still feel that by far the most attractive and beautifully proportioned recording of the concerto is the one on Erato by the relatively unknown cellist Frédéric Lodéon.

The balance of the CBS disc is taken up with minor but attractive character duets. Only the five *Stücke im Volkston* were composed specifically for the cello. The Adagio and Allegro was originally for horn and piano, and the *Fantasiestücke* were intended for clarinet. Ma's dynamics in the second of the three *Fantasiestücke* are a touch exaggerated, but he does a magnificently impassioned job with the last of the set. As in the slow movement of the concerto, he displays luxuriant tone in the Adagio of Op. 70, and he brings plenty of character to the *Stücke im Volkston*. (I have a special fondness for the first of these pieces, which evokes the more grotesque qualities of a fairy tale by the Brothers Grimm in an almost Mahlerian fashion.) Emanuel Ax's pianism is a major contribution to the success of the chamber pieces, all of which were superbly recorded at Jordan Hall in Cambridge, Massachusetts. *D.H.*

SIBELIUS: *Violin Concerto in D Minor, Op. 47; Symphony No. 5, in E-flat Major, Op. 82* (see *Best of the Month*, page 90)

STRAVINSKY: *The Soldier's Tale*. Ian McKellen, narrator; Sting, the Soldier; Vanessa Redgrave, the Devil; Members of the London Sinfonietta, Kent Nagano cond. PANGAEA © PAN 6233, © PANC 6233, © PAND 6233 (60 min).

Performance: *Mostly excellent*
Recording: *Excellent*

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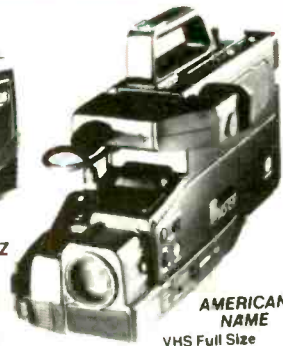
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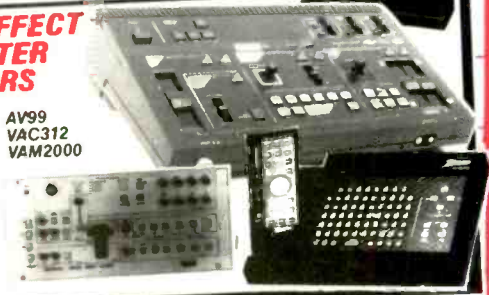
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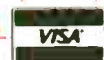


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THE LEGACY OF CLARA SCHUMANN

CLARA WIECK SCHUMANN was one of the outstanding pianists of the nineteenth century. She was also a composer, and there have been some extravagant claims on her behalf in that respect, suggesting that she was a creative genius to whom recognition was denied because of her having been in the shadow of her famous husband. Her status really does not need such dubious enhancement. A Pro Arte CD of three interesting works that are probably the strongest items in her small catalog—the Piano Concerto, the Piano Trio, and the Three Romances for Violin and Piano—is much more to the point in making whatever case is to be made for her. And it is made very well by the obviously committed pianist Veronica Jochum, by Joseph Silverstein, who doubles as violinist and as conductor of the Bamberg Symphony, and by Colin Carr, who is heard both in the Piano Trio and as the soloist in the slow movement of the Piano Concerto.

Pianist Veronica Jochum



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Clara Schumann may have been a superb all-round musician, but she was clearly not an important composer, as she herself apparently recognized in abandoning her creative efforts entirely at about the time Robert died, though she survived him by four decades. There is no earthly reason, however, to require that all music be "important" to be admired or enjoyed, or to possess value on its own terms, and there is a good deal to admire and enjoy in the new album. Certainly all three works show a high level of competency and unflinching taste, and they are well worth anyone's attention.

The Piano Concerto was begun when Clara was only fourteen years old; as her husband was to do in creating the famous concerto he composed for her, she composed the first movement as an independent work and added the two other movements a bit later. The Piano Trio, which she composed at the ripe age of twenty-seven, may be her masterpiece. It and the Three Romances would surely be welcome in our recital rooms, especially as handsomely played as they are on this disc. No composer could ask for more effective advocates. Although all three works have been recorded before, none has been done more persuasively, and it is especially gratifying to have all three in a single package. The recording itself is as handsome as the performances. Not much can be said for the annotation; the two contributors are at odds with each other on a point or two, and their comments have been very poorly edited. But this is still a valuable release, as well as a most enjoyable one.

Richard Freed

C. SCHUMANN: Piano Concerto in A Minor, Op. 7; Piano Trio in G Minor, Op. 17; Three Romances for Violin and Piano, Op. 22. Veronica Jochum (piano); Joseph Silverstein (violin); Colin Carr (cello); Bamberg Symphony Orchestra, Joseph Silverstein cond. PRO ARTE © CCD 395 (58 min).

movies; last summer he performed as narrator with the St. Augustine Choir and Musicians in *Yanomano*, a musical about the consequences of the vanishing rain forests in the Amazon Basin; and a bit earlier, with two associates from the record business, he formed a new label called Pangaea "to break down musical barriers." This English-language performance of *L'Histoire du soldat* is the one "classical" item in the initial release, and it is a knockout.

Stravinsky's music is performed brilliantly by violinist Nona Liddell and the six other instrumentalists under Kent Nagano's direction, and it has never been more vividly recorded. The spoken parts are mostly excellent, too.

Ian McKellen's narration is as pointed and effective as one would expect, and Sting himself does well with the Soldier's role in his rather understated but wholly convincing way. "Understated" would not be the word for Vanessa Redgrave's performance as the Devil, though. To be sure, this role calls for a good deal more than that of the Soldier in the way of characterization, but I found Redgrave too arch by at least half, making the part a sort of parody of the Witch in *Hansel and Gretel*, which distracts from the tale instead of enhancing it. But that is a personal reaction, and I can well imagine it may not be shared by everyone. The documentation is exemplary, offering a helpful

note on the differing editions of the score and the complete Flanders/Black English version of the Ramuz text as well as an illuminating note by Andrew Porter.

Igor Markevitch's unforgettable 1962 recording, with the French text spoken by Jean Cocteau, Peter Ustinov, and Jean-Marie Fertey, has been reissued on CD by Philips to compete with Charles Dutoit's less stellar cast but no less impressive performance on an Erato CD. But if you want the work spoken in English, this new Pangaea recording is definitely the one to go for. R.F.

VIVALDI: Gloria in D Major (RV 589). A. SCARLATTI: *Dixit Dominus*. Nancy Argenta, Ingrid Attrot (soprano); Catherine Denley (contralto); Ashley Stafford (alto); Stephen Varcoe (bass); the English Concert and Choir, Trevor Pinnock cond. ARCHIV © 423 386-2 (53 min).

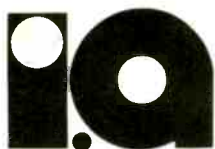
Performance: *Sparkling*
Recording: *Excellent*

After an excellent recording of Haydn's *Lord Nelson* Mass, Trevor Pinnock is back with a release whose superb performances are matched by the shrewdness of the programming. Neither Vivaldi nor Alessandro Scarlatti were feeling very contemplative in composing their respective works here, both of which celebrate the art and brilliance of music rather than any sacred mysteries. Also, the more thoughtful and exciting of the two pieces, Scarlatti's *Dixit Dominus*, in the least known of his four settings, is here recorded for the first time. I hope it will ride the coattails of the popular Vivaldi work to the sort of recognition it deserves. Listening to how the themes are developed between alternate soprano and alto solos in "*De torrente*," for example, you wonder why Alessandro Scarlatti is often considered the "boring" father of Domenico. Pinnock brings an authoritative clarity to the concisely written score and successfully projects its sense of spontaneity.

Pinnock's fine authentic-instrument forces score in the more familiar Vivaldi *Gloria* mainly because he has a genuine feeling for finding the center of gravity in any given phrase. The subtle inflections he imparts to the fugal subject of "*Propter magnam gloriam tuam*" make the entire sequence fall into place with added sparkle and definition. And while the delivery of his four soloists isn't always interesting, they are consistently musical and vocally attractive. David Patrick Stearns

WEILL: Rise and Fall of the City of Mahagonny. Anja Silja (soprano), Jenny Smith; Anny Schlemm (mezzo-soprano), Leokadja Begbick; Wolfgang Neumann (tenor), Jim Mahoney; Fredric Mayer (tenor), Jacob Schmidt; others. Pro Musica Vocal Ensemble, Cologne; Cologne Radio Orchestra, Jan Latham-König cond. CAPRICCIO © 751

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Performance: *Operatic*
Recording: *Favors voices*

The famous collaboration between Bertolt Brecht and Kurt Weill was one of the most celebrated and influential in musical theater, but it actually lasted only a few years. It began when Weill was commissioned to write a chamber opera for a modern-music festival in 1927. Instead of a conventional opera, he elected to set some Brecht poems about a mythical place called Mahagonny, a city of nets and snares built to satisfy man's crudest desires.

Brecht wrote these poems to play and sing himself, and he provided them with melodies. Weill threw out Brecht's tunes—except for the *Alabama Song*, in which he transformed Brecht's crude melody into a masterpiece—and set the poems into a through-composed, gritty, jazzy, chamber-orchestra score. Brecht staged it in a boxing ring, and the whole event was a sensation. This was the early version, without any real plot or characters, that is sometimes called the *Little Mahagonny* or the *Mahagonny Songspiel*.

The Threepenny Opera came a year later and made Brecht/Weill a household word. In the meantime, the authors had expanded *Mahagonny* into an evening-length stage piece incorporating the original songs into a full-scale opera and producing one of the great morality plays of any age. The new *Mahagonny* had its premiere in Leipzig in 1930.

For many years after World War II the fate of Brecht/Weill was in the hands of theater producers whose allegiance was to the writer, not the composer. Weill's widow, Lotte Lenya, was a theatrical rather than an operatic performer, and Weill himself had to rewrite and rearrange much material to take into account her musical and vocal limitations. Largely through Lenya's efforts, *Mahagonny* was recorded in the mid-1950's with Lenya in the role of Jenny.

The result was a performance tradition that, however effective theatrically, trashed the musical integrity of the work. Now, however, a reverse trend has set in. The English critic and musicologist David Drew has edited the complete score to reflect Weill's original ideas as well as the variations in the different productions of the period, and this new recording from West German radio gives us the work essentially as Kurt Weill wrote it.

The recording has all the virtues and some of the defects one might expect in moving Weill from the theater to the opera house, but its big asset is the Jenny of Anja Silja. Silja is a major dramatic actress and also a fine opera singer, and she knows how to create music theater through the part as Weill originally wrote it. The secondary characters are,

by and large, very well cast, with character singers who are equally adept at the music-theater equation. Unfortunately, the other leads—Wolfgang Neumann, as the Parsifal-like lumberjack who is executed because he can't pay his bar bill, and Anny Schlemm, as the local madam—are good examples of why Brecht was uneasy about having opera singers in his work. Both singers have the kind of vocal wimble-wobble that gives a bad name to opera. Nor does conductor Jan Latham-König impress me with his feeling for this music. Like many classical musicians, he doesn't have what pop musicians call "good time." In my opinion, Weill's European music needs a feeling for European rubato as well as an ability to switch over to a strong pop, pulse feeling; alas, it almost never gets both here.

Perhaps the biggest problem is the mix. Instead of the usual European orchestra-dominated recording, the orchestra is in the background with the voices way out front. As a result, a huge amount of detail—some of it far more essential than the word "detail" would suggest—is lost or skimmed. This is not only a musical loss in a general sense; it further weakens the rhythmic punch.

Mahagonny is a great work that shines abundantly through, however, and there are many values here that were lacking in the old recording. All the more reason to regret that this one couldn't have been better—more idiomatic—than it is. *E.S.*

COLLECTION

BRIGITTE FASSBAENDER. Berg: Four Songs, Op. 2. Ogermann: Tagore-Lieder. Mahler: Des Knaben Wunderhorn (excerpts). Brigitte Fassbaender (mezzo-soprano); John Wustman (piano). ACANTA/KOCH IMPORT SERVICE © 43579 (54 min).

Performance: *Tasteful*
Recording: *Good*

This CD includes seven lieder by Claus Ogermann, a German composer born in 1930, who has set German translations of the poetry of Rabindranath Tagore. The songs, most of them about love, make for pleasant listening but are not especially memorable. The Four Songs, Op. 2, by Alban Berg are set apart from most of the composer's output by their tonal harmonic scheme and fragmented melodies. The six melodic Mahler songs are particularly welcome after the unknown or idiosyncratic fare of the other two composers.

Brigitte Fassbaender sings with attention to the text and its communication. She is not, to my ear, an exciting artist, but she is a finished and serious one. Her previous records of songs by Liszt and Richard Strauss present her in more congenial musical repertoire than the program here. The clear-sounding recording is enhanced, though, by the sympathetic accompaniment of John Wustman. *R.A.*

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CIRCLE NO. 71 ON READER SERVICE CARD

"NIXON IN CHINA"



John Duykers as Mao and James Maddalena as Nixon in the Brooklyn production

Nixon in China? An opera soprano as Pat Nixon? Instead of Cavaradossi, Floria Tosca, and Baron Scarpia, Mao Tse-tung, Madame Mao, and Henry Kissinger? Instead of Wotan, Chou En-lai?

The Nixons and Henry Kissinger could have attended the premiere of this remarkable opera if they had been so inclined. So could Mme. Mao, Chiang Ch'ing, if the present Chinese government had chosen to let her out of prison. When *Nixon in China* was first performed, in Houston in 1987, the events depicted were hardly fifteen years in the past.

Even more remarkable is that *Nixon in China* made the circuit of major American and European opera houses, and received a major recording, within months of its premiere. Neither *Porgy and Bess* nor the operas of Philip Glass were given so much attention.

Why the fuss? It helps to know something about the genesis of the work, a brainchild of maverick director Peter Sellars. Sellars, who has turned the theater and opera worlds upside down more than once, took his idea to poet Alice Goodman and composer John Adams, and then persuaded the Houston Opera, the Brooklyn Academy of Music, the Kennedy Center in Washington, and the Netherlands Opera to pool their resources to get it on.

Sellars, who has been influenced by Eastern culture, was undoubtedly thinking of the revolutionary Chinese opera—in large part the creation of one of the characters in *Nixon in China*, Chiang Ch'ing. The most famous example of the genre, *The Red Detachment of Women*, actually appears in its ballet

form in the course of *Nixon in China*.

Chinese opera often uses subjects from history. There was even an opera recently produced in China concerned with the events leading to the overthrow of the so-called Gang of Four—and Chiang Ch'ing! The mind reels.

But while Chinese operas, especially modern ones, are strong on storytelling and point of view, *Nixon in China* is curiously without a point of view and tells virtually no story at all. It is merely an oratorio-like meditation on a remarkable event from recent history. Its Chinese personages have historical consciousness, the Nixons almost none. But there is no commentary implied in this; all of the characters are portrayed with equal epic grandeur. Only Henry Kissinger, the one American who does have a historical world view, is treated badly. He is roughly satirized, although exactly why is never made clear.

Events and personages are presented in a series of tableaux: the arrival at Peking, the first meeting with Mao, a big banquet, Pat Nixon's visit to a glass factory, the performance of *The Red Detachment of Women* (with Kissinger as villain and everyone drawn into the action). As it goes along, the work seems to wind down into virtual immobility. By the last night in Peking, the characters, all worn out, are singing to us from their beds! No action, no interaction. Instead of the portrayal of events, a stylized, face-front meditation on ideas and events. The sense of isolation, of characters bigger than life, of unreal events suspended in time, is overwhelming.

But we are concerned here not so much with a theater piece as with a recording of the music of a theater

piece. Without its score, or without a score of this dimension, *Nixon* would be a curious theatrical experiment of limited impact. With John Adams's music, it is a powerful and even emotional experience. The deepest part of the piece, by far, is in the score. As the action dwindles away to nothingness, the music becomes richer and more intense, reaching its highest level of expressivity and intensity in that immobilized final act.

John Adams is usually classified as a minimalist, and there are many things about this score that will remind you of Philip Glass. But, far more than Glass, Adams has adapted minimalism to the grand tradition in its most accessible form. His instrumental scoring (unlike Glass and others, he uses only an unamplified, traditional orchestra) is extremely attractive. He writes well for the voice, too, and his vocal lines are highly expressive.

"Expressive of what?," you will ask. Something is going on even if it is hard to put your finger on it. Adams's musical gestures are all chosen for maximum effect, and the pacing, once launched, never seems to falter. The music is rooted in familiar classical and popular patterns, but it is constantly refreshed by invention and fantasy. The starting point is gestural and even visceral; you get the feeling right away. But just when you think you know how everything is going to carry on, Adams supplies a twist and a turn that makes you catch your breath.

The combination of familiarity and fantasy, of inevitability and surprise, occurs all the way through and is part of the work's great musical appeal. Perhaps even more surprising is the strong emotional effect of some of the solos, a quality that transcends or even belies the highly coded—if admittedly brilliant—libretto.

Nonesuch's recording of *Nixon in China* was made in December of last year, immediately after the performances in Brooklyn. It is an outstanding achievement—comparable to the famous recording of Glass's *Einstein on the Beach* made just after it was performed at the Met. But this is not just a landmark recording; it is an involving musical experience that comes to life in recorded form even more than it did on the stage. *Eric Salzman*

ADAMS: *Nixon in China*. James Maddalena (baritone), Richard Nixon; Carolann Page (soprano), Pat Nixon; John Duykers (tenor), Mao Tse-tung; Sanford Sylvan (baritone), Chou En-lai; Trudy Ellen Craney (soprano), Chiang Ch'ing; Thomas Hammons (baritone), Henry Kissinger; others. Chorus; Orchestra of St. Luke's, Edo de Waart cond. NONESUCH © 79177-1 three LP's, © 79177-4 two cassettes, © 79177-2 three CD's (145 min).

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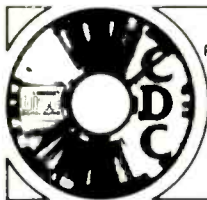
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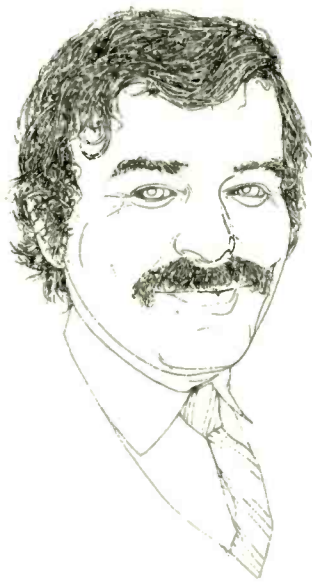
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by *Ralph Hodges*



The Phantom of the Organ

JUDGING from my recent travels, more and more audiophiles are discovering some of the impressive recordings that feature or involve the Ruffatti concert pipe organ installed in San Francisco's Davies Symphony Hall about five years ago. It is a big instrument—the largest of its kind in North America, the claim goes—and it is splendidly flexible, with stops intended to be appropriate for the entire organ repertoire and tunings that can be changed with push-buttons on the five-manual electronic console. If some recording engineers have found the challenges of recording this organ almost beyond them, we can probably blame the great size of Davies Hall itself (achieving a pleasing loudness in that space is perhaps the biggest difficulty posed by the hall) and the toil involved in finding the best "sweet spots" for microphones.

This organ is special for me because I was permitted to tour it just before its concert debut. In fact, all the courtesies were laid on, including the services of a local organist for demonstrations and of an assistant voicer for background information and structural details.

An organ of this magnitude is toured internally. Behind the 192 visible "façade" pipes—all of which "speak"; I guarantee it—were some 7,000 hidden pipes (there should be more than 9,000 now) arranged in three stories. The different floors—glorified scaffolds, really—were reached by a system of ladders and crawl-holes that immediately put me in mind of World War II submarine movies, and the conditions on each floor were more than a little claustrophobic.

At length, hot and panting, the voicer and I stumbled out onto the topmost story, where the impression of having been swallowed by leviathan was at its most vivid. In general, this story is home to the smallest pipes, many of them little bigger than drug vials and pitched to frequencies where birds communicate. They can be plucked right out of the wind chests and blown by mouth. "Peep." Charming. But it was this innocent activity that probably gave us away.

"Aha, so you're finally way up there." It was the voice of the organist, far below on the stage. "This is what it's like!"

SHRIIIIEEEEK!!

"My God!" shouted my companion. "I've never been *in* this thing when it's been going full pop, and I never want to be! Let's get out!"

So through crawl spaces we squirmed and down ladders we clattered, trying to avoid a stumble (falling on some of the ranks of smaller pipes would not be materially different from landing on a bed of spikes). Always we were pursued by the sadist at the console, first with SHRIEK and then with BLARE, and HONK, and ROAR. "Go back! Go back! You'll never get through this! Yahahahaha!" HOOOOOWL!

As we neared safety, a growing subterranean tremor from the way ahead brought us to a halt. It seemed the mighty 32-foot stops were coming to life, and perhaps even the dreaded acoustic bass. (For acoustic bass, 32-foot stops play in fifths, creating beat tones that extend down below 10 Hz and simulate the effect of a 64-foot stop.) I must confess to a bit of concern. Were men meant to survive this

sort of thing at close range? Would it be worse than a Saturn booster? How loud, O Lord, how loud?

"This way, it's quicker," urged my guide, and we plunged into the battering air near the foot of the monster pipes.

Our intended exit point was closer to the hall's central axis than the route we had taken in, and as we hastened toward it I marveled at the way a quirk of acoustics seemed to be localizing the organ's onslaught up ahead, rather than back at the pipes we had now left behind. Then, rounding the final turn into the open, I suddenly marveled no more. For there, tucked in an alcove, was . . . gulp . . . a Cerwin-Vega *subwoofer*, thumping away at some improbably low frequency that had the driver within a millimeter of bottoming in its ported enclosure. A subwoofer in a pipe organ with two 32-foot pedals! I was struck speechless.

The organ's specifications do not mention a subwoofer, and I can't blame them. The hall's patrons do not like attending a live concert to hear a loudspeaker. My hosts explained, a little sheepishly, that it was used to add just a touch of something to the effect of the big pipes. Perhaps. But when the device was silenced, a great deal of the delicious deep shudder of the organ's lowest register went with it, at least on stage.

Is the subwoofer heard on recordings of the organ? Probably, if the organists knew how to turn the thing on and wanted to use it. Does its presence somehow invalidate the experience of these recordings? Not really. It is only a small part of the performance, although an arresting one. Perhaps we should just be glad that it's possible, by whatever means, to make a pipe organ, which is most at home with the high domed vaults and knee-bruising stone floors of a cathedral, sound satisfying in a much drier concert-hall environment. After all, the installers could have concealed loudspeakers all around the hall and injected full-range artificial reverberation, compared with which a subwoofer is minor tampering.

Still, knowing it's there remains a killer. □

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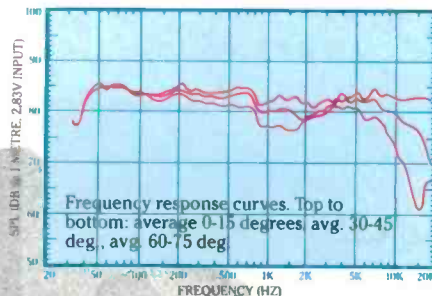
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