

Stereo Review

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HOME THEATER

**NEW DIMENSIONS IN
SURROUND SOUND**

**HOW TO INSTALL
AN A/V SYSTEM**

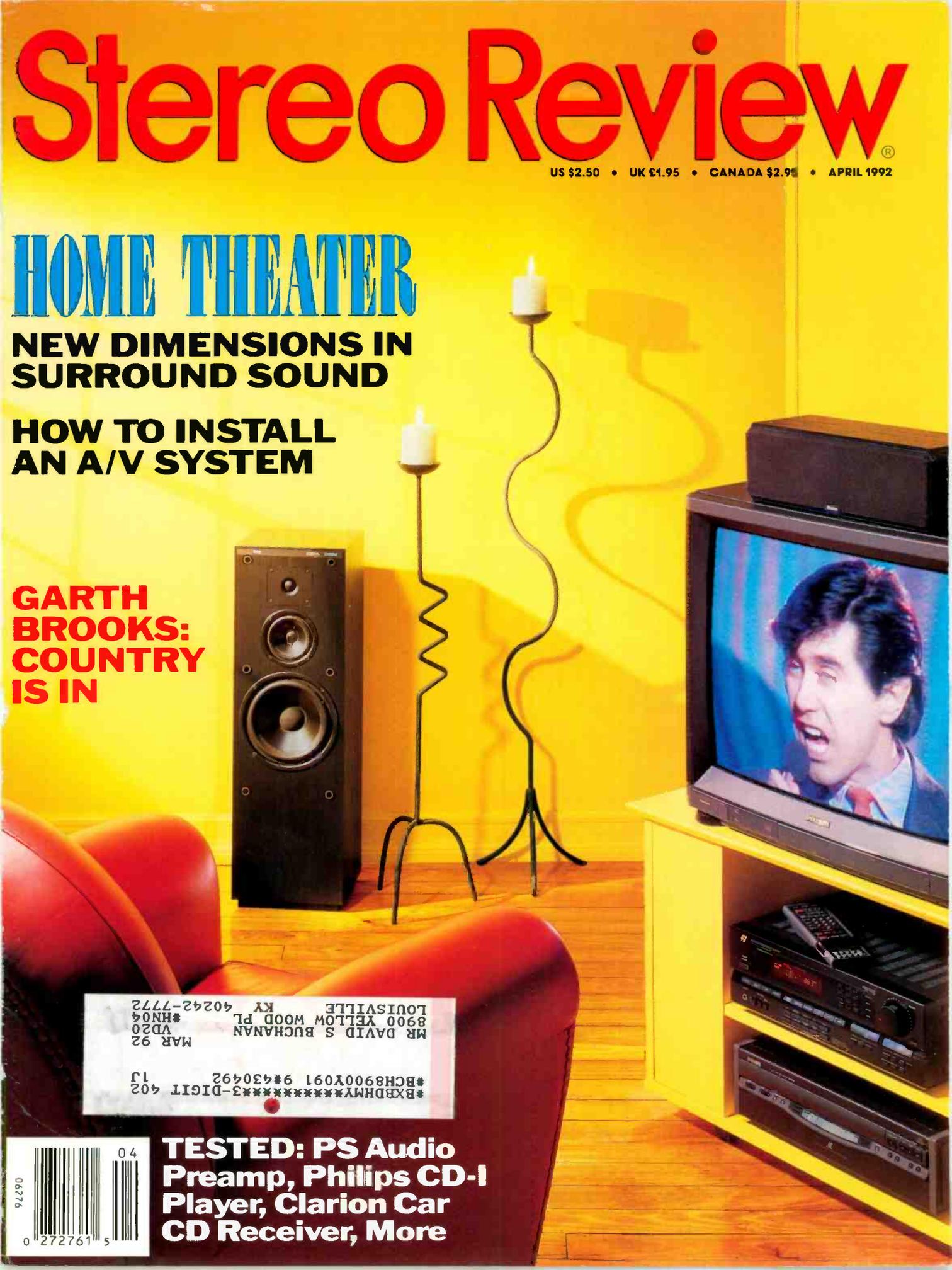
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**TESTED: PS Audio
Preamp, Philips CD-I
Player, Clarion Car
CD Receiver, More**



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comb filter.

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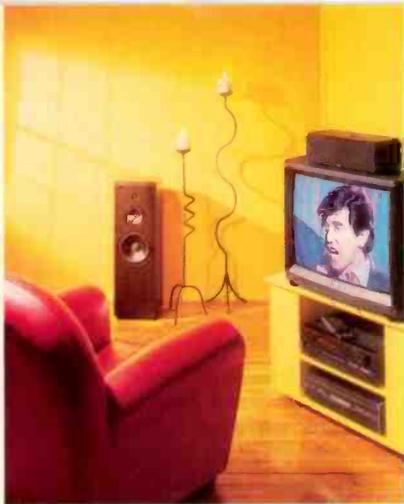


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Cover

The floor-standing speaker is a Boston Acoustics T830, and the same company's Model 404 shielded center-channel speaker is on top of a Panasonic Prism CTM-2791S monitor/receiver. Stowed under the TV screen are a Sansui RZ-9500AV surround-sound receiver and a Philips CDV-600 CD/laserdisc combi-player. For more on surround-sound alternatives, see page 44, and for tips on how to hook up a home-theater system, see page 53. Chair courtesy of Nuovo Melodrom.

Photograph by Tony Cordoza

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Stereo Review

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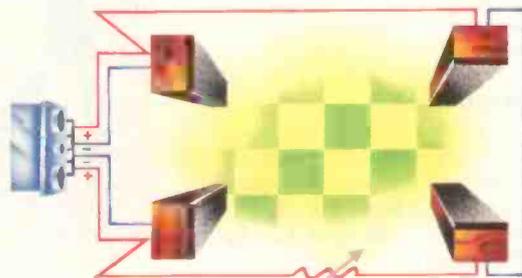
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BULLETIN

Open Door at CES

The International Summer Consumer Electronics Show in Chicago will permit the general public to attend for the first time this year. Held at McCormick Place and the Chicago Hilton from May 28 through May 31, the show will be open only to the trade for the first two days. It will be open to the public from noon on Saturday and all day Sunday, May 30 and 31. The admission price at the door is \$10 per day, and advance sale tickets at \$8 will be available through electronics retailers in the Chicago area or by calling (800) 388-6901.

One of the world's largest international trade shows, CES is celebrating its twenty-fifth anniversary in 1992. Over 1,000 manufacturers are expected to show 15,000 products at this summer's show.

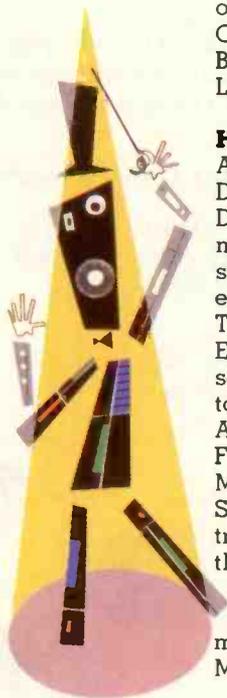
Main Brains

Who says American companies don't invest in research and development? Harman International Industries (Harman Kardon, JBL, Infinity, Concord, etc.) has appointed the distinguished Canadian acoustician Dr. Floyd E. Toole its vice president of acoustic research. . . . International Jensen has established a Corporate Technology Division to develop new approaches to signal processing, loudspeaker design, and psychoacoustics. Directing the group will be Ken Kantor, named vice president of technology.

Music Notes

This year's inductees into the Rock-and-Roll Hall of Fame included the Yardbirds, Booker T. and the MG's, Sam and Dave, the Isley Brothers, the Jimi Hendrix Experience,

by
William
Livingstone
and
Glenn Kenny



Bobby (Blue) Bland, and Johnny Cash, among others. . . . In May, Paul McCartney will receive one of the first Polar Prizes (about \$170,000 each) awarded by the Swedish Academy of Music. The money was provided by Stig Andersson, manager of the once-active pop group ABBA. Other winners include the Baltic countries Estonia, Latvia, and Lithuania.

Home Theater Notes

A recently developed digital Dolby Surround technology, Dolby AC-3, will reportedly be making its consumer debut sometime within the next eighteen months. . . . The THX Division of LucasArts Entertainment has licensed seven additional manufacturers to make Home THX products: Audio Design Associates, Frox, Harman Kardon, JBL, Marantz, Rane, and Soundstream. . . . Shure's trail-blazing HTS home-theater surround decoders, amplifiers, and speaker systems will henceforth be made and distributed by Museatex Audio of Canada.

Getting Satisfaction

Satisfaction is high among buyers of consumer electronics products according to a recent survey conducted by the Verity Group, a market-research company. Verity interviewed 114,000 consumers representing every county in the United States, and more than 80 percent reported that they were "very" or "somewhat" satisfied with the electronic products they had bought, which they identified by product category and brand.

The first Verity Awards for Excellence in Customer Satisfaction have now been presented to the winning manufacturers in various

categories: Alpine (car stereo), Canon (8mm camcorders), Denon (home CD players), JVC (home tape decks), Kenwood (one-brand systems), Mitsubishi (TV's 25 to 29 inches), Panasonic (VHS-C and standard VHS camcorders), Pioneer (TV's 30 inches and over), RCA (VCR's), Sony (personal-headphone stereos), Yamaha (home stereo receivers), and Zenith (TV's 18 inches or less and TV's 19 to 24 inches).

Laserdisc Boom

Sales of laserdisc players continue to increase, and so do the releases of musical programs in this format. EMI/Angel is the latest major classical label to launch its laserdisc line. Its initial releases include Paul McCartney's *Liverpool Oratorio*, Vivaldi's *Four Seasons* with the violinist Nigel Kennedy, the Paris debut of Maria Callas, and "Itzhak Perlman in Russia."

Current releases on other labels are Strauss's *Salome* with Catherine Malfitano (Teldec); "Orient Express" with I Salonisti (London); "James Galway at 50," documentary and performance (RCA); "Midori Live at Carnegie Hall" (Sony Classical); and "Beethoven in Berlin" with Cheryl Studer, Yevgeny Kissin, and the Berlin Philharmonic under Claudio Abbado and Wagner's *Ring of the Nibelung* from the Metropolitan Opera (Deutsche Grammophon).

Image Entertainment is distributing Rizzoli's five-disc art history set, "Masterpieces of Italian Art," surveying art in Italy from the earliest beginnings through the twentieth century. The videodiscs include five 1-hour programs plus 6,000 still pictures.



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An annual poll conducted by AudioVideo International magazine gives experts from around the country the opportunity to choose the best audio components. For the second consecutive year, the Polk Audio RM 3000 was named the best 3-piece loudspeaker system on the market.

“Best of all, they sound excellent...” *Stereo Review*

Perhaps Stereo Review said it best, “The Polk RM 3000 had an open, airy sound that compared very favorably with some much more expensive conventional speakers. Its spectral balance was excellent – smooth and seamless...one of the best examples of a three-piece speaker system that we have yet heard...try listening to the RM 3000. It might eliminate some common misconceptions about how large (and expensive) a speaker has to be to provide plenty of high quality sound.”

We're delighted with the AudioVideo Grand Prix Award. In celebration of this most recent of over 20 Grand Prix Awards for Polk products, we invite you to buy any pair of our award-winning loudspeakers and share in our special offers between February 27 and April 15, 1992.

The Grand Prix Offer

Act now! The RM 3000s are, for a limited time, specially priced at participating Polk dealers. Once you own them, you'll celebrate, too.

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A pair of M3s or a CS 100 is yours at half price when you buy any pair of Polk's award-winning home speakers and a receiver at your participating Polk dealer. Quantities are limited so don't delay.



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Simon & Garfunkel	34667	Sarah Vaughan	42519
Nell Diamond	09269	Big Audio Dynamite	40705
Ozzy Osbourne	Heartlight	Bob James	35594
Quiet Riot	44245	Stevie Nicks	33703
Ted Nugent	38443	Placido Domingo	37243
Marvin Gaye	33692	Branford Marsalis	42122
Islay Brothers	38197	Judas Priest	34787
	39240	Leonard Bernstein	46713
		Legolize II	34253
		Never Too Much	37451
		Eyes of Innocence	39672
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		Sin After Sin	34787
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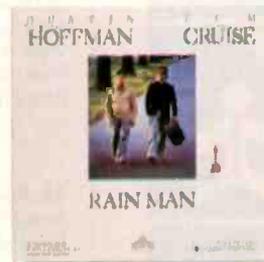
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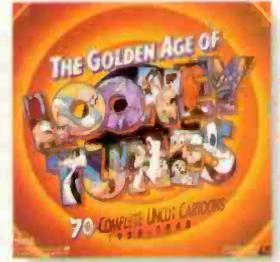
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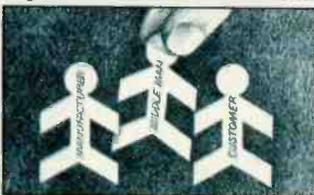
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LETTERS

Pathological Science

Thank you, Ken Pohlmann, for shedding the light of truth on the kind of "pathological science" (and fads) that affects the decisions of many audio electronics consumers, and therefore manufacturers. I was so excited by the February "Signals" column that I contemplated posting a sign, "Beware of N Rays," above the entrance of my local audio dealer.

JOHN MAYHAN
Harrisburg, PA

Ken Pohlmann's lesson on Blondlot's N rays, which turned out to be nonexistent, presumably like sonic differences in speaker cables, put me in mind of X rays and gamma rays. These, too, were rejected by most contemporary authorities, yet they were real. How do we distinguish the truth when learned opinion agitates against *every* new ray?

Ralph Hodges's column in the same issue advocates a phenomenon once belonging exclusively to a lunatic fringe, absolute polarity. Apparently several academics and even one retailer can hear polarity inversion and have listening tests to prove it. Not long ago this simple cure for muffled sound had the stature of N rays. Now it's an X ray. A miracle!

TOM EDWARDS
Boston, MA

Laserdiscs and HDTV

Thank you for Julian Hirsch and Michael Riggs's excellent article on CD/laserdisc combi-players in January, but I have a question regarding the future use of these players. With the arrival of high-definition TV (HDTV), or at least a widescreen version of the current broadcast standard, will letterboxed video-discs fill the entire screen?

MICHAEL JACKERT
Chicago Heights, IL

Michael Riggs replies: One of the greatest benefits of HDTV, when it finally arrives (probably starting around 1996), will be its wider 16:9 aspect ratio, which will be a better match to that of widescreen movies than the current 4:3 ratio. This will probably reduce the number of letterboxed video releases, since it will be possible to fit in more of the width of a film image while still filling the entire screen vertically. In addition, HDTV sets will probably be able to display current letterboxed NTSC-standard video releases full-screen by electronically expanding them. Even before HDTV becomes available, you will be able to buy 16:9 aspect ratio TV monitor/receivers that will do this trick. The first such sets should be available later this year, although at very high prices.

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CIRCLE NO. 8 ON READER SERVICE CARD

Vinyl Art

I'm glad to see that you still list turntables in your annual "Equipment Buying Guide" (February), but I don't understand why you review the new Michael Jackson and Public Enemy albums in the same issue without noting that both were released in LP versions—which are not only less expensive but also better sounding than their CD counterparts. Also, some fans still appreciate cover art. Jackson's LP shows amazing detail, and the LP cover of U2's latest album, unlike the CD, has embossing and is uncensored.

JUDSON KILPATRICK
Brooklyn, NY

U2 and P.P.

Parke Puterbaugh totally missed the mark with his critical review of U2's "Achtung Baby" in February. How easy it would have been for U2 to release a follow-up to "The Joshua Tree" targeted at the mainstream majority. It is wonderful that a band of this stature would create such an innovative and personal album as "Achtung Baby," their finest to date.

JIM BARTASAVICH
Frostburg, MD

I know that serious relationships and other grown-up things dealt with in "Achtung Baby" are scary for some of us. Please tell Parke Puterbaugh that it's perfectly okay for him to stay in the nursery and leave U2 to the adults.

JOHN B. CHILDS, JR.
Garden City, KS

I think the review of U2's "Achtung Baby" signed "P.P." is B.S.

P.S.: My sister thinks the only good thing about the review is the photo of the band.

NANCY E. KUESTER
Elkridge, MD

Parke Puterbaugh's review of U2's "Achtung Baby" was right on. I thought I was the only one who felt that the band's latest release bordered on awful. The couple of minutes of fine music are overshadowed by hyperactive, annoying, distortion-laden guitar work and vocals in the rest of the album. Daring and brave? No. Ugly and disappointing? Definitely.

DEAN FLEISCHMANN
West Bend, IN

Matthew Sweet

I agree wholeheartedly with Parke Puterbaugh's review of Matthew Sweet's "Girlfriend" (February "Best of the

Month"). The album is cleverly recorded, evenly paced, and sounds great cranked up. But I do have one criticism of your record-review section—it's just too short!

MIKE POCHKOWSKI
N. Augusta, SC

Records of the Year

Hats off to STEREO REVIEW for the 1991 Record of the Year Awards (February), particularly the "Honorable Mentions." It's refreshing to see such talents as Robyn Hitchcock, the La's, Matthew Sweet, and Richard Thompson get the recognition they so richly deserve. Two recordings missing from the list, but worth mentioning, are Chris Whitley's "Living with the Law" and Robbie Robertson's "Storyville." While 1991 was largely a year of musical nonevents, these records showed the brilliance that makes a few performers stand out from the crowd.

RICH FARRELLY
Huntington, CT

Chestnuts

David Patrick Stearns's February review of the new Deutsche Grammophon recording of the Saint-Saëns Violin Concerto No. 3 and the Paganini Violin Concerto No. 1 begins with the words, "These two rarely heard concertos. . . ." *Rarely heard?* As a musician in one of America's major symphony orchestras, I have heard and played both of these concertos more times than I can count!

THOMAS L. MOLLOY
Kingwood, TX

Marshall Crenshaw

As a Marshall Crenshaw fan for nearly ten years, I was thrilled to see the feature article on him in the January issue—and his name on the cover! The "Good Evening" collection, however, was produced by David Kershenbaum, noted for his work with Joe Jackson, Joan Baez, and Tracy Chapman. David Kahne, although a fine producer, has not yet worked with Crenshaw.

JAMES KAPLAN
Berkeley, CA

The producer credit was an editorial error for which we apologize.

We welcome your letters. Please address correspondence to Editor, STEREO REVIEW, 1633 Broadway, New York, NY 10019.

You should include your address and telephone number for verification. Letters may be edited for clarity and length.

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Audiophiles can now get Hughes Aircraft Company's revolutionary 3-D sound enhancement system as a stand-alone hi-fi component. Until now, the patented Sound Retrieval System (SRS®) has only been available as part of selected Sony and GE/RCA television receivers. SRS brings a new level of realism to home audio equipment, enabling two conventional speakers to produce a surround-type sound from both broadcast and recorded sound sources. It does this without employing artificial sound manipulation techniques, such as signal delay, encoding, reverb, harmonics regeneration, and phase correction. In addition, its sound quality is not limited to a particular "sweet spot" in a room, but is maintained even as a listener moves about.

Airline passengers will soon view movies on personal video screens directly in front of them, make phone calls from their seats, and shop via credit card for in-flight merchandise from shopping channels. These and other features, including satellite-delivered stock market reports and up-to-the-minute news and sports highlights, are part of a new cabin communications and passenger entertainment system that will bring new levels of comfort and convenience to air travel. A team of Hughes, Sony Trans Com Inc., and Hughes subsidiary Avicom International is developing the system for the new Airbus A330 and A340 jetliners.

A state-of-the-art on-line computer graphics projector helps to manage a network of 300 host computers at General Motors' information services subsidiary. Seven Hughes-built Superprojectors, operating around the clock in the EDS Information Management Center in Plano, Texas, give more than 100 up-to-date network status reports (operations bulletins, maps) and other network management information. The Superprojectors, connected to display-generating computers, project images with resolutions in excess of 1,000 TV lines into 14x16-foot screens. Originally used for displaying information in military command-and-control centers, the projectors use Hughes-developed liquid crystal light valve technology.

Hughes has introduced a new concept in home hi-fi speaker systems, featuring a unique, patented wide-dispersion baffle that delivers smooth, phase-coherent sound. The new speaker technology, Optimum Radiation Baffle (ORB), uses a vertical loudspeaker with two half-cone reflective sections. These baffles reflect sound in a pattern centered around a horizontal plane, while dispersed uniformly and laterally over 180 degrees. The ORB system eliminates the on-axis "hot spot" of conventional speaker setups, as well as distortions and interference associated with speakers having a full conical reflector. These speakers mark Hughes' second major thrust into consumer electronics, following the revolutionary SRS® 3-D Sound Retrieval System.

A series of massive Hughes-built satellites can carry as many as 120,000 phone calls and three TV channels simultaneously. These satellites, which are being used by the International Telecommunications Satellite Organization (INTELSAT), stand nearly four stories tall and weigh 4.5 tons. In comparison, the world's first commercial communications satellite, Early Bird, built by Hughes 27 years ago, was two feet tall, weighed 76 pounds, and could carry only 240 phone calls or one TV channel.

For more information write to: P.O. Box 80032, Los Angeles, CA 90080-0032

HUGHES

NEW PRODUCTS



Nady

Nady's WH-95 claims to be the first wireless headphone system with audiophile-quality performance. The company says that sound from the WH-95 is indistinguishable from hardwire. The system includes a compact receiver that can work with any set of headphones, a transmitter that accepts up to three program sources, an AC adaptor, patch cords, and a set of stereo earbud phones. Nady claims that the system consistently provides a high-quality signal, even around corners and through walls, up to 150 feet from the transmitter. Price: \$250. Nady Systems, Inc., Dept. SR, 6701 Bay St., Emeryville, CA 94608.

Circle 120 on reader service card



CD/Mate

CD/Mate's new ThermoFoam technology, which bonds rugged, closed-cell foam to fabric, then heat-shapes it to form a protective shell, is used in the forty-disc ThermoFoam Carrier. The lightweight case, which has molded finger grips and a detachable braided strap, has two wells that hold twenty CD's each in antistatic, nylon-fleece sleeves. The washable shell is available in black and several colors. Price: \$59.95. CD/Mate, Dept. SR, 19215 Parthenia St., Suite C, Northridge, CA 91324.

Circle 121 on reader service card

Yamaha

Yamaha's DSP-E200 is a three-channel amplifier designed to add surround sound and ambience effects to a conventional two-channel audio receiver or amplifier. It delivers 25 watts apiece to the center and rear speakers. Aside from a digital implementation of Dolby Pro Logic designed to simulate cinema surround sound, the DSP-E200 offers Con-

cert Video, Mono Movie, Mono Music, Rock Concert, and Concert Hall ambience modes. An adjustable digital delay helps the user tailor effects to suit the room the system is installed in. Price: \$499. Yamaha Electronics Corp., Dept. SR, 6722 Orangethorpe Ave., Buena Park, CA 90620.

Circle 122 on reader service card



Bang & Olufsen

The Beolab 8000 loudspeaker is the first Bang & Olufsen speaker designed for use with non-B&O components as well as in an integrated B&O system. The floor-standing, bi-amplified, bass-reflex system has two 4-inch woofers, a 3/4-inch tweeter, and an 80-watt amplifier in each column. The tubular aluminum enclosures, which stand 52 inches high on a

base 6 inches square, are magnetically shielded for use near a video monitor. Frequency response is rated at 50 to 20,000 Hz ± 2 dB, with deeper bass response in corner placements. Price: \$3,000 a pair. Bang & Olufsen of America, Inc., Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.

Circle 123 on reader service card



NEW PRODUCTS

Soundwave Fidelity

The Sonata 3 "baffleless" loudspeakers from Soundwave Fidelity are said to have a 180-degree radiation pattern and yet to provide a precise stereo image. The drivers are decoupled from the five-sided, acoustic-foam-filled enclosure to eliminate panel resonances. Each speaker contains two 8-inch woofers and two 1-inch dome tweeters. Bandwidth is given as 49 to 20,000 Hz, power handling as 200 watts. Dimensions: 12 x 35¼ x 16 inches. Price: \$1,790 a pair. Soundwave Fidelity Corporation, Dept. SR, 3122 Monroe Ave., NY 14618.

Circle 124 on reader service card

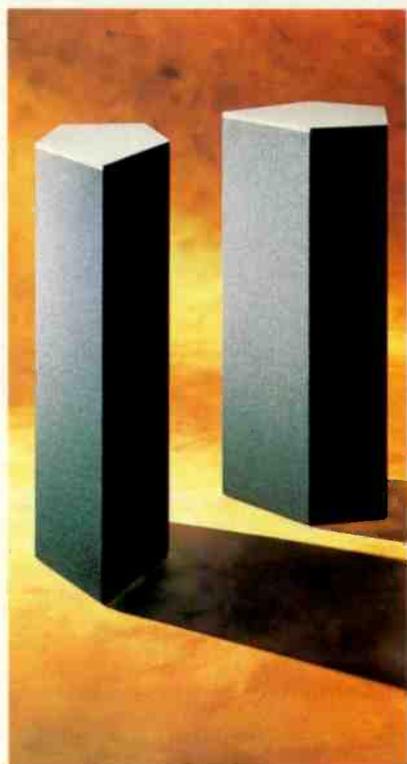


Cerwin-Vega

Cerwin-Vega's DX Series loudspeakers—from left in photo above, the DX-1, DX-5, DX-9, DX-7, and DX-3—feature newly designed woofers with die-cast aluminum frames and vented magnet structures. Power handling ranges from 100 watts per channel for the DX-1 to 400 watts per channel for the DX-9. Nominal impedance is 8 ohms for the DX-1, DX-

3, and DX-5, 4 ohms for the other two. Dimensions range from 11 x 20 x 10¼ inches for the DX-1 to 18 x 35½ x 17¼ inches for the DX-9. Prices (per speaker): DX-1, \$205; DX-3, \$320; DX-5, \$345; DX-7, \$410; DX-9, \$555. Cerwin-Vega, Dept. SR, 555 E. Easy St., Simi Valley, CA 93065.

Circle 125 on reader service card



Cambridge SoundWorks

The Surround speaker system from Cambridge SoundWorks is said to have a uniform integrated power response over its entire range, radiating sound in such a way that the listener can't easily locate where it is coming from. The result is said to be a more realistic ambience. The enclosure houses one 4-inch and two 3-inch drivers, each loaded by a sealed acoustic-suspension cavity. The 3-inch drivers are connected out of phase, pro-



Soundstream

The Soundstream MC-120 car power amplifier offers four 30-watt channels that are bridgeable into two 30-watt channels and one 90-watt channel or into two 90-watt channels. The Chassink design is said to provide excellent heat

dissipation in minimal space. The MC-120 can accept either preamp-level or high-level inputs. Price: \$369. Soundstream Technologies, Dept. SR, 120 Blue Ravine Rd., Folsom, CA 95630.

Circle 126 on reader service card

jecting sound toward the front and the rear of the room. The cabinet, made of ½-inch-thick medium-density-fiberboard, is available finished in gray Nextel or white primer so it can be painted to match a wall. Dimensions are 5 x 8 x 5 inches. Price: \$400 a pair, factory direct. Cambridge SoundWorks, Dept. SR, 154 California St., Newton, MA 02158; telephone (800) 252-4434.

Circle 127 on reader service card



Two Reasons To Trade In Your Speakers Now!



The new Bose Acoustimass-5 Series II speaker system includes Direct/Reflecting® cube speaker arrays and a hideaway Acoustimass bass module (not shown).

1 The Bose® Acoustimass-5 Series II speaker system. Technology that sets a new standard for purer sound with even smaller size.

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— Julian Hirsch, *Stereo Review*, September 1991

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NEW PRODUCTS

JVC

JVC's XL-MG1800 eighteen-disc car CD changer is nicknamed a "CD Tank." The trunk-mounted changer is ruggedly constructed, featuring a dual antishock and antivibration isolation mechanism, a brushless spindle motor, and a rubber safeguard bumper. It can hold three six-disc magazines at once, and it has an expansion terminal that enables up to six

units to be hooked together for continuous play of as many as 108 discs. Other features include an eight-times-over-sampling digital filter, dual 1-bit D/A converters, and a three-beam laser pickup. Price: \$700. JVC Company of America, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

Circle 128 on reader service card



R. F. Engineering

The V12 automatic A/V switcher from R. F. Engineering enables a user to hook up two different video sources to the input of a single monitor. The switcher automatically detects which source is delivering a signal and routes it to the monitor. If two signals are present, it gives priority to the B connection. It can detect audio signals as well and therefore can also be used as an expansion input on an audio preamplifier. Price: \$90 with RCA connectors, \$120 with S-video connectors. R. F. Engineering Inc., Dept. SR, 9215 Lowell Blvd, Westminster, CO 80030.

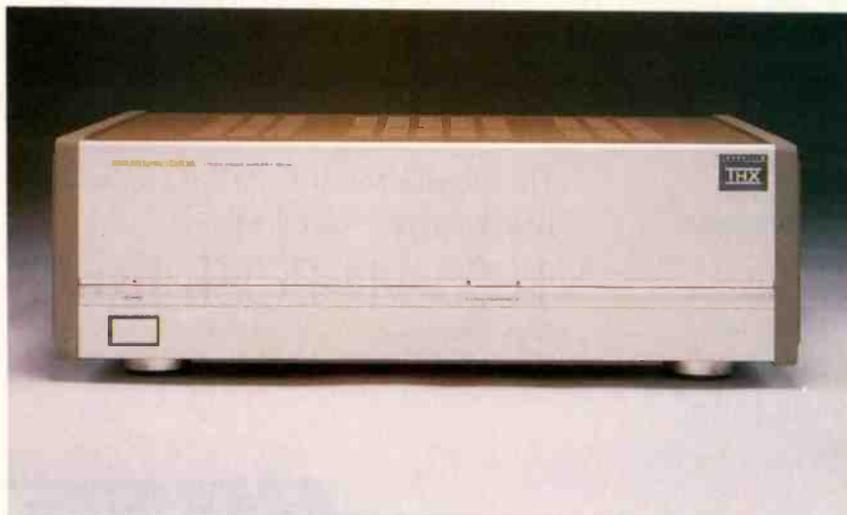
Circle 129 on reader service card

Marantz

Marantz's SM-80 is one of a handful of power amplifiers to receive Home THX certification for use in a home theater setup. Marantz claims that the SM-80 is capable of reproducing the wide dynamic range of today's movie soundtracks without clipping or overheating. The dual-mono amplifier has two fully isolat-

ed power modules with Class A input and driver stages and Class AB output stages. Its rated output is 120 watts per channel into 8 ohms, bridgeable to 350 watts in mono. Price: \$699. Marantz U.S.A., Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.

Circle 130 on reader service card



Reel to Real Designs

The Focus speaker system from Reel to Real Designs uses controlled directivity to improve imaging. The driver complement includes two 7-inch bass drivers with two-layer Kevlar honeycomb construction, a 1/4-inch woven-dome tweeter, a 3-inch ribbon supertweeter, and three 12-inch subwoofers with carbon-filled polypropylene cones. Bandwidth is rated as 16 to 28,000 Hz, sensitivity as 96.5 dB. Nominal impedance is 4 ohms. Peak power handling is said to exceed 500 watts per channel. Dimensions are 14 x 56 x 15 1/4 inches. Walnut, oak, rosewood, black lacquer, teak, and ribbon mahogany finishes are available. The Focus system comes with a ten-year warranty. Price: \$4,450. Reel to Real Designs, Dept. SR, 3021 Sangamon Ave., Springfield, IL 62702.

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- New Edition: Greatest Hits, Vol. 1 (MCA) 83623
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 Linda Ronstadt: Lush Life (Asylum) 33200
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 Mancini: Cinema Italiano (RCA) 24736
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 Another Bad Creation: Coolin' At The Playground Ya Know! (Motown) 10456
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SIGNALS

by Ken C. Pohlmann

Where Did DAT Go Wrong?

THE forecasters were confident. By 1992 digital audio tape (DAT) would be fiercely competing with analog cassettes for rack space in record shops. Likewise, DAT recorders would dominate the hi-fi stores, pushing aside cassette machines. Within another seven years, DAT was supposed to replace the analog cassette entirely. Clearly, the forecasters were wrong. As a consumer product, as heir-apparent to the analog cassette, DAT appears to have failed.

The first time I saw a DAT recorder was in 1984. After three years of development, the boys in the lab were confidently demonstrating both stationary-head (S-DAT) and rotary-head (R-DAT) models. The fact that ten engineers were hovering over the R-DAT version, while the S-DAT version had only two, convinced me that someone toward the top of the company had already decided that R-DAT was going to get the nod. I asked a number of questions regarding the complexity of a rotating-head design and whether DAT could ever be remotely as cheap as the much more elegant CD format. I never got solid answers to those questions.

The introduction of DAT into the U.S. marketplace was as auspicious as the maiden voyage of the S.S. Titanic: The Titanic struck an iceberg, and DAT struck lawsuits. The idea of a device that could clone the data from a prerecorded digital source (such as a

CD), and thus enable consumers to make perfect copies, made the record companies go atomic. The upshot was chaos in the ranks of hardware manufacturers and many improbable plans to resolve the impasse. One of the most ill-conceived ideas was the Copy Code notch. A narrow band of frequencies would be sliced out of music recordings, whether on DAT, CD, LP, or any other medium, and DAT recorders would be designed to detect the presence of this notch and refuse to go into recording mode. In general, anyone who owned a CD player, or had ever remotely considered buying one, thought this was an astoundingly bad idea. When the National Bureau of Standards actually tested the Copy Code system and found that it audibly degraded the quality of recorded music, the notch was finally nixed. Notch or no, sales of DAT recorders in open markets such as Japan were poor.

Other problematic solutions included making DAT recorders that could not record at the 44.1-kHz CD sampling frequency or make direct digital copies from any source that had its copy-prohibit bit turned on, regardless of sampling frequency. All early consumer DAT decks operated this way, effectively eliminating one of the major incentives for buying one. Dissatisfied with this approach, hardware and software manufacturers held discussions that yielded the Serial Copy Management System (SCMS). This tinkering with the DAT data protocol would enable digital copying of a prerecorded tape or disc but inhibit copying of the copy. After handshaking all around and introduction of bills in Congress to make SCMS mandatory in DAT decks, Sony formally introduced DAT to the U.S. market—and was promptly slapped with a lawsuit. By this time, the equipment manufacturers were probably as confused as consumers.

Another year passed, and more talks between hardware manufacturers and record labels culminated in an announcement on August 11, 1991—the same day that a solar eclipse darkened portions of North America—that the parties had agreed to seek, in addition to SCMS, imposition of a royalty of 2 percent of the manufacturer's price to dealers or distributors on all

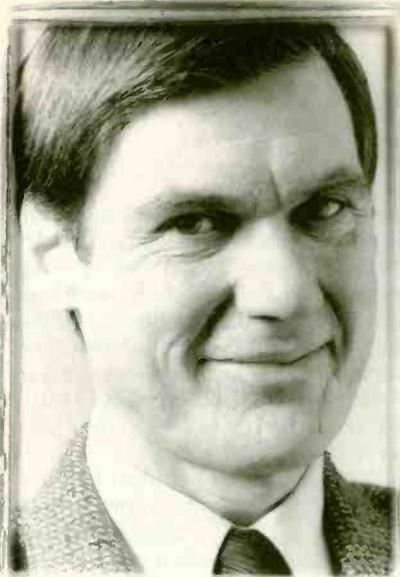
digital audio recorders (to a maximum of \$8 on single-well machines and \$12 on dual-well machines) and 3 percent on all blank media for those recorders. The hardware manufacturers said that they would pick up this extra cost, thus saving consumers from a new tax. Three weeks later, sponsors introduced the necessary bills into Congress.

With this back-room deal in place, the suit against Sony was quickly withdrawn, and DAT finally sailed into open water last fall—ten years after its inception. Of course, by then, with previews of DCC and Mini Disc fresh in their minds, consumers ignored DAT. As a mass consumer product, DAT is history.

What went wrong? Was DAT a bad idea or merely a victim of unfortunate circumstances? Probably a little of both. Although not a bad technology, DAT is certainly a complicated one. The task of storing audio data at a density of 114 megabits per square inch requires a very tricky mechanical design. And while the cost of sophisticated electronics can be easily amortized with high production, it's not so easy with complex mechanisms. This dictated relatively high cost both for home DAT recorders and for mass duplicators. In other words, DAT hardware and software were both destined to be expensive.

The other obstacle was the record companies. After years of fuming about sales lost to home taping, they drew the line at DAT and dug in their heels. They knew that without the support of prerecorded tapes, DAT would never prosper. Besides, with strong CD and cassette sales, they had little to gain from DAT. The lack of prerecorded software combined with lawsuits, debacles such as the notch, and high prices to work against DAT's success.

In the wake of the disaster, DAT has left us with two dubious legacies: the Serial Copy Management System and a substantial tax on digital recording formats. But are we any wiser? Will this year's anticipated DCC and MD launches prove more successful? Now that many record labels are owned by hardware manufacturers, will things go more smoothly? That's for the consumer to decide. □



AUDIO Q & A

by Ian G. Masters

Hi-Fi VCR Speeds

Q *I have been told that recording audio on a hi-fi VCR will produce near-CD quality even at the slowest speed, giving 6 hours of music per T-120 tape. Others say that only the fastest speed should be used. Which is correct?*

MICHAEL CRUTCHER
Lowell, MA

A Theoretically, the only thing that affects the hi-fi performance of a VCR is the writing, or tape-to-head, speed of the revolving head, and that doesn't change from one linear speed to another. The slower tape speeds pack the recorded tracks closer together, but the number of magnetic particles that pass the head with each rotation remains about the same.

The greater proximity of the tracks at the slow speed might increase noise slightly, but this is minimized both because the recording system uses frequency modulation (FM), and is thus fairly immune to noise problems, and because adjacent tracks have different azimuth angles and are thus less likely to interfere with each other. Many audiophiles who have experimented with slow-speed hi-fi recording have found it practically indistinguishable from the standard-play equivalent, although the very mass of material on a tape is sometimes hard to manage.

Polarized Plug

Q *Until now, I have been able to plug all my audio components into one another and turn the AC power on and off with a single switch. My new CD player, however, has a polarized plug with one prong wider than the other, and the outlets on my other components can't accommodate it. I have been plugging the player into the wall and turning it on separately, but that's not very convenient,*

so I am considering using an adaptor that will accept the unequal-size prongs but fit the existing outlets. Is there a chance of orienting the plug incorrectly and damaging my system?

M. LEE MARSHALL
San Gabriel, CA

A That's very unlikely. More and more pieces of electrical equipment have polarized connections for safety reasons, but in truth the possibility of there being any hazard in an audio component is slight. In any event, since your other components are already plugged into the house current with random polarity, and that isn't a problem, using the adaptor you describe to attach the CD player to the other components will pose no risk. If you're worried about shock hazard, however, check each of the components in the chain by running your finger very lightly over an exposed metal surface; if there's a slight tingling sensation, or if the metal seems to impede the motion of your finger ever so slightly, reverse the plug for that component. Do this for everything in the system; in the end, all components will be properly grounded.

Car Changer Mounting

Q *I want to install a trunk-mount CD changer in my hatchback car, but the available space is limited. My dealer has suggested a kicker box containing a 15-inch upward-firing subwoofer with a space at the bottom for mounting the changer so its loading door is accessible. Would that be a good arrangement?*

ANTOINE P. COBB
Portsmouth, VA

A It sounds like a recipe for disaster to me. For one thing, although automotive CD players are usually very good at dealing with vibration, it's a rare unit that could share a box with a pounding, throbbing 15-inch subwoofer without misbehaving. Also, the insides of speaker enclosures, particularly sealed ones, can become very hot; both your player and your precious discs could suffer damage. And the back wave from your enormous speaker will probably vent through the exposed loading opening, dragging dust, smoke, and whatever else is floating around the interior of your car through the changer mechanism. If you take steps to prevent this by isolating the changer in an enclosure-within-an-enclosure, the reduction in internal volume is likely to affect the subwoofer's performance. It would probably be preferable, therefore, to choose a pair of smaller subwoofers in modest boxes and give the changer an enclosure of its own.

Replacing Foam Grilles

Q *My speakers are about fifteen years old, and I am still satisfied with their performance. Their foam grilles have deteriorated badly, however, and won't even stay attached to the cabinets. The speaker company no longer exists, and I don't know how to go about getting replacements. Is there a source for parts for extinct speakers?*

CRAIG A. STREETT
Towson, MD

A Acoustically transparent reticulated polyurethane foam was a very popular grille material during the 1970's. Most of it was produced by the foam division of Scott Paper Company, which called it Polycoustic Foam, and for a while it largely replaced cloth—until, that is, it turned out that foam had a relatively short life and tended to break down after a few years. It is possible that Scott might still be able to supply foam of some sort, although it's unlikely to match your present grilles. It's probably worth a try, however, as foam had some real advantages: It was 97 percent air, so it really was acoustically transparent.

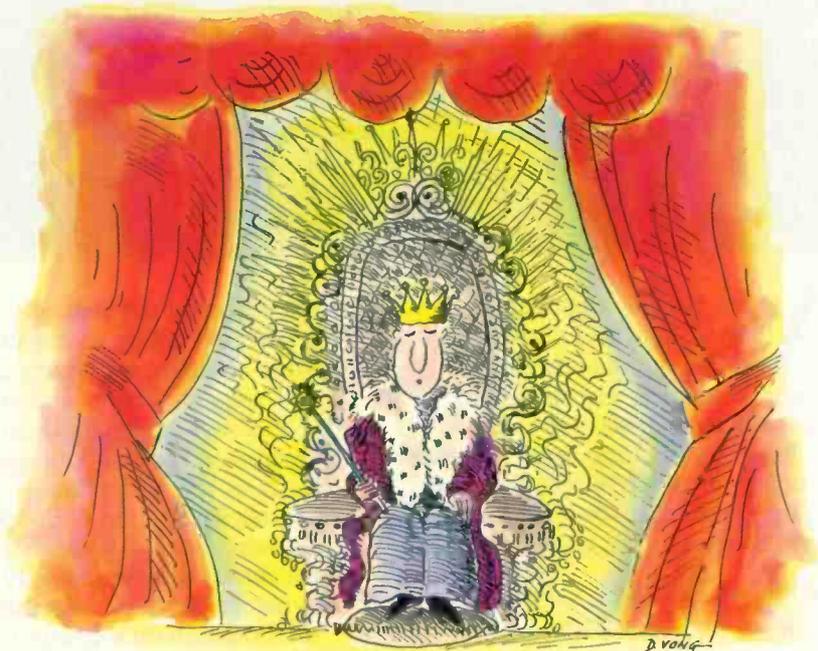
Head Wear

Q *I'm worried about excessive wear of the tape heads in my open-reel recorder, particularly since they stay in contact with the tape during fast winding. Will worn heads damage tape? And if so, how will I know when to buy new heads?*

OBIN ROBINSON
Corning, NY

A Head wear can indeed be a problem, but usually it doesn't physically affect the tape itself. I have seen extreme cases where worn heads have damaged a tape's edges, or even created a faint crease down the middle of the tape, but these are rare instances. Normally head wear will affect the sound, particularly on playback, by disrupting tape-to-head contact and hence degrading high-frequency performance. Wear may also enlarge the size of the gap in the playback head, again affecting high-frequency response. Often the wear is uneven, resulting in a wedge-shaped gap; if you can see that under a magnifying glass, it's a safe bet that your heads need replacing. Ditto if the tape has dug a tape-width path in the head surfaces or the tape guides over the years. If you suspect you may have problems of this sort, it's worthwhile having your recorder checked out while replacement heads are still available. □

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the hands of
the few.



Introducing the 300-watt mono



Adcom stereo components have a loyal and devoted following, having earned a reputation among audiophiles, engineers and musicians for extraordinary performance at affordable prices. Now Adcom introduces its newest amplifier, the no compromise GFA-565, for those in pursuit of absolute power and sonic perfection, but who prefer not paying a king's ransom.

The Evolution of Adcom's GFA-565
Adcom's new mono GFA-565 evolves from

the design of the critically acclaimed GFA-555, greatly extending its capabilities. Representing brute strength, it delivers 300 watts at 8 ohms, 450 watts at 4 ohms and an awesome 850 watts at 2 ohms*. Most significantly, it will accurately drive even esoteric loudspeakers which present loads as low as 1 ohm.

Inspired by the GFA-555, the new GFA-565's well-regulated, high-current power supply has an enormous reserve capacity to meet tremendous dynamic demands, resulting in distortion-free reproduction on a continuous basis.

Adcom GFA-565 no amplifier.



Why Use Two Mono Amplifiers?

The ability to deliver very high power into complex loads is a prerequisite for superior sound reproduction. Power supplies capable of delivering the energy necessary for high power, high-current amplifiers are massive. But there are practical limits to the size and weight of stereo amplifiers designed for home use, as well as heat dissipation and reliability constraints. Consequently, the use of two Adcom GFA-565 mono amplifiers offers optimum sound definition, detail and dynamics, satisfying even the most demanding perfectionist.

More Sound, Less Money

Like the GFA-555, the new Adcom GFA-565 sounds superior to amplifiers costing two and three times as much. It is so powerful and pure that it may be the last amplifier you ever buy, even if you upgrade your loudspeakers several times over the years. And that makes the GFA-565 an extraordinary bargain considering its exceptional performance.

**Continuous power output, 20 Hz - 20 kHz < 0.02% THD, measured in accordance with FTC specifications.*

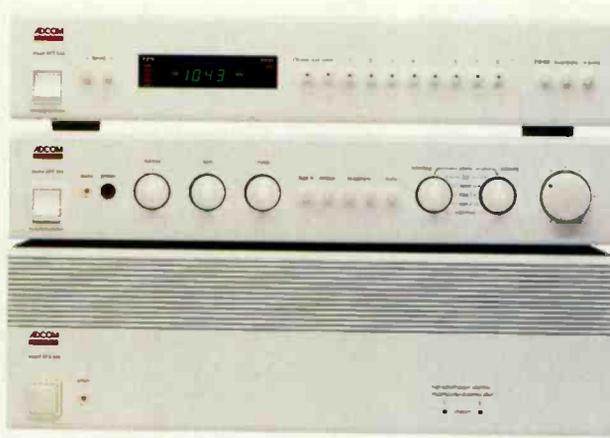
(over please)

The Adcom GFA-565: details you can hear.

High-Current Output Stage

More and more of today's high performance loudspeakers exhibit very low impedances and particularly difficult loads. Many so-called esoteric amplifiers are incapable of delivering large amounts of undistorted power continuously into these complex loads thereby defeating the objectives of the loudspeaker's design.

The GFA-565's highly advanced, triple Darlington output stage featuring 20 rugged, discrete output transistors is designed to deliver extremely high-current at low impedances into reactive loads. No protection circuitry or current limiting devices



*Adcom components are also available with white front panels.
Shown: GFA-545 with GFP-555 preamplifier
and GFT-555 AM/FM stereo tuner.*

are incorporated which would restrict the delivery of full power output. Protection against short term overloads, short circuits or long term, excessive output is achieved by non-interfering power supply fuses and thermal circuit breakers.

Well Regulated, High-Current Power Supply

Advancements in CD technology and the introduction of digital audio tape have created opportunities to reproduce the full dynamics and psychoacoustic experience of a live musical performance. To realize the full potential of this technology, amplifiers and loudspeakers must be capable of delivering tremendous energy continuously, not just for tiny fractions of a second.

The massive power supply of Adcom's GFA-565, featuring 70,000 microfarads of filter capacitance and a huge 1.25kVA toroidal power transformer, has enormous reserve power capability. This is a no compromise power supply that eliminates all audible

limitations. Hum, vibration and noise, the byproducts of lesser power supplies, have also been reduced to an absolute minimum. For most home applications, the optional variable speed cooling fan is unnecessary, making the GFA-565 a silent performer despite its formidable power.

Instantaneous Distortion Alert

A highly accurate LED on the front panel is activated by a unique monitor circuit if any form of distortion—THD, IM, TIM, SID, etc.—exceeds 1 percent. This will provide ample warning that the music system is being operated beyond its design parameters.

Ask for a Demonstration

No amount of words or technical specifications will adequately describe the experience of listening to a music system featuring a pair of Adcom GFA-565 amplifiers. If you are one of those few who are seeking real power and sonic perfection, please contact your authorized Adcom dealer for a demonstration of this most remarkable audio component.

Specifications

**Power output, watts/channel, continuous, 20 Hz - 20 kHz,
<0.02% THD:** 8 ohms/300
4 ohms/450
2 ohms/850

**Signal-to-noise ratio, A-weighted,
full output:** >106 dB

Input impedance: 50,000 ohms

Input sensitivity:

For rated output: 2.15 V

For 1 watt: 130 mV

Damping factor (20 Hz - 20 kHz):
>1000 @ 8 ohms

Dynamic headroom (at 4 ohms):
1.6 dB

Voltage: 120 V/60 Hz (available in
220 V/50 Hz on special order)

Dimensions: 17" x 8 1/4" x 11 1/2" D
(432 mm x 210 mm x 292 mm D)

Shipping weight: 45 lbs (20.50 kg)

Available options:

565 FAN: Top mounted, automatically
variable, ventilating fan.

565 BAL: Rear mounted, symmetrical
(balanced line) input circuit.

RM-8 rack mount adaptors.

White front panel and switch.

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CAR STEREO



Clarion 5770CD CD Receiver

Ken C. Pohlmann, Hammer Laboratories

THE Clarion 5770CD CD receiver combines a CD player, an AM/FM tuner, and four channels of amplification rated at 12 watts each into 4 ohms. It is housed in a removable DIN chassis and bears the unmistakable imprint of Clarion's slightly funky yet tasteful styling.

Sporty dashboard units like this one shun knobs, so volume, bass, treble, balance, and fader are controlled with pushbuttons on the left side of the front panel. Simply press the A-M (audio mode) button to select the desired function, then use the front/right and rear/left buttons to change the value of the setting. A liquid-crystal display (LCD) indicates the control setting within a numerical range (0 to 33 for volume, -7 to +7 for the tone controls, and so forth). The audio-mode control always reverts to volume after a few seconds of being left alone. The volume control, by the way, has two adjustment speeds: It starts off slow, then jumps to a faster speed, enabling you to make big changes quickly without sacrificing fine-adjustment capability.

There are nine buttons aligned across the bottom of the front panel. A power button turns the Model 5770CD on and off. A pair of unlabeled buttons (marked with a radio symbol and a disc symbol, respectively) switch between tuner and CD playback. The ISR (instant station recall) button can be used to memorize a single radio preset and CD track; when you hit the button, the

5770CD goes to the stored station or track, depending on which mode it's in at the time. A mute button reduces volume by 20 dB, a loudness-compensation button engages bass- and treble-boost contours, a display-color button switches the front-panel lighting between green and amber, a tuning-mode button switches between automatic seek and manual tuning, and a band button selects AM or any of three banks of FM station presets.

A pair of up/down buttons at the right side of the unit are used to tune the radio up and down the frequency band, to skip between CD tracks when pressed lightly, or, when held down, to provide audible forward or reverse fast search. An array of five centrally located buttons is used for selecting station presets—five AM and fifteen FM stations in three banks of five. A sixth button, labelled PS/AS, enables you to scan the station presets or to load stations into the presets automatically.

When a CD is playing, four of the five buttons that choose station presets in tuner mode change function to select track repeat, playback of the first 10 seconds of each track, return to the first track on a disc, and random track playback. A disc-eject button is nestled near the left side of the CD loading slot. If an ejected disc is not removed from the loading slot within 15 seconds, the unit thoughtfully reloads it for safekeeping.

The Model 5770CD is a removable

head unit. When a button at the upper right corner is pressed, a handle levers forward so that the unit can be slid from its mounting bracket. Twenty pins on two connectors mate with two sockets on the back of the head unit. Power, audio signals, and even the antenna lead all feed through these connectors. The sockets float on the mounting bracket to accommodate small variations in alignment between the bracket and the head unit. As with most removables, the 5770CD has an internal battery to save its memory of station presets and the last CD track played before power was interrupted. Finally, the unit has a 10-ampere fuse on its back panel.

Nighttime illumination of the front panel is quite good, with highly legible back-lighting for most buttons. The mute, loudness-compensation, display-color, and tuning-mode buttons are not lighted, but they have good tactile identification. The LCD is typical of those on most head units. In the tuner mode it shows station frequency and preset numerals and identifies radio band, stereo reception, scan, and other functions. In the CD mode, the display briefly shows track number, then reverts to elapsed time within the current track. Other indicators mark repeat, scan, random-track playback, and other CD functions.

Like most other current tuners, the Model 5770CD's Magi-Tune tuner section uses a field-effect-transistor (FET) front end with quartz-locked

CAR STEREO

FEATURES

- Removable chassis for theft prevention
- Internal battery to preserve station presets and memory of last CD track played
- Twenty station presets (five AM and fifteen FM)
- Automatic seek and scan tuning
- Automatic stereo/mono and local/distant switching
- 1-bit D/A converters
- Front/rear fader control
- CD track skip, audible fast search, intro-scan, and random-order track playback
- Switchable loudness compensation
- Two-speed electronic volume control
- Display color switchable between amber and green
- Mute button
- Triggered audio mute for use with cellular telephones
- Line outputs for external amplifiers

LABORATORY MEASUREMENTS

- **Compact Disc Player**
 - Maximum output level:** 2.13 volts
 - Frequency response:** 20 to 20,000 Hz +0.45, -0.90 dB
 - De-emphasis error:** -0.04 dB at 16,000 Hz
 - Channel separation:** 74.2 dB at 1,000 Hz, 69.2 dB at 20,000 Hz
 - Dynamic range (A-weighted):** 108.5 dB
 - Signal-to-noise ratio (A-weighted):** 93.2 dB
 - Harmonic distortion (THD + N at 1,000 Hz):** 0.019% at 0 dB, 0.12% at -20 dB
 - Linearity error:** +1.4 dB at -90 dB
 - Interchannel phase shift:** 4.9 degrees at 20,000 Hz
 - Defect tracking:** tracked 1,500-micrometer errors on Pierre Verany #2 test disc
- **Tuner Section** (all measurements for FM only except frequency response)
 - Usable sensitivity** (mono, 75-ohm input): 14.4 dBf
 - 50-dB quieting sensitivity** (mono, 75-ohm input): 17.0 dBf
 - Harmonic distortion (THD + N) at 65 dBf:** mono, 0.41%; stereo, 1.32%
 - Signal-to-noise ratio at 65 dBf:** mono, 71.6 dB; stereo, 47.0 dB
 - Channel separation at 1,000 Hz (65 dBf):** 29.3 dB
 - AM rejection (65 dBf):** 49.5 dB
 - Capture ratio (65 dBf):** 3 dB
 - Selectivity:** alternate-channel, 79.0 dB; adjacent-channel, 19.5 dB
 - Image rejection:** 45.1 dB
 - Frequency response:** FM, +0.33, -0.16 dB, 30 to 15,000 Hz; AM, +1.9, -5.7 dB, 30 to 3,000 Hz
 - Maximum output voltage (100% modulation):** 0.98 volt
- **Amplifier and Control Section** (all measurements made with 14.4-volt DC power supply and with all channels driven into 4 ohms unless otherwise noted)
 - 1,000-Hz output at clipping:** 14.8 watts into 4 ohms, 7.9 watts into 8 ohms
 - Harmonic distortion (THD + N at 1,000 Hz, 1-watt output):** 0.047%
 - A-weighted noise** (referred to 1-watt output): -75.2 dB
 - Frequency response:** +0.80, -1.26 dB, 20 to 20,000 Hz
 - Tone-control range:** 100 Hz, -10.3 dB; 10,000 Hz, +10.1, -9.9 dB

phase-locked-loop (PLL) digital tuning. In addition, it provides automatic local/distant sensitivity switching and automatic stereo/mono switching. The CD section incorporates a three-beam pickup, an eight-times-oversampling digital filter, and dual 1-bit digital-to-

Besides a CD transport that operates with rare smoothness, Clarion's engineers have included a number of features in the Model 5770CD that make listening more convenient.

analog (D/A) converters. Although 3-inch CD's are a rarity in this country, they are quite popular in Japan, and the 5770CD's transport accepts both regular and small-diameter discs.

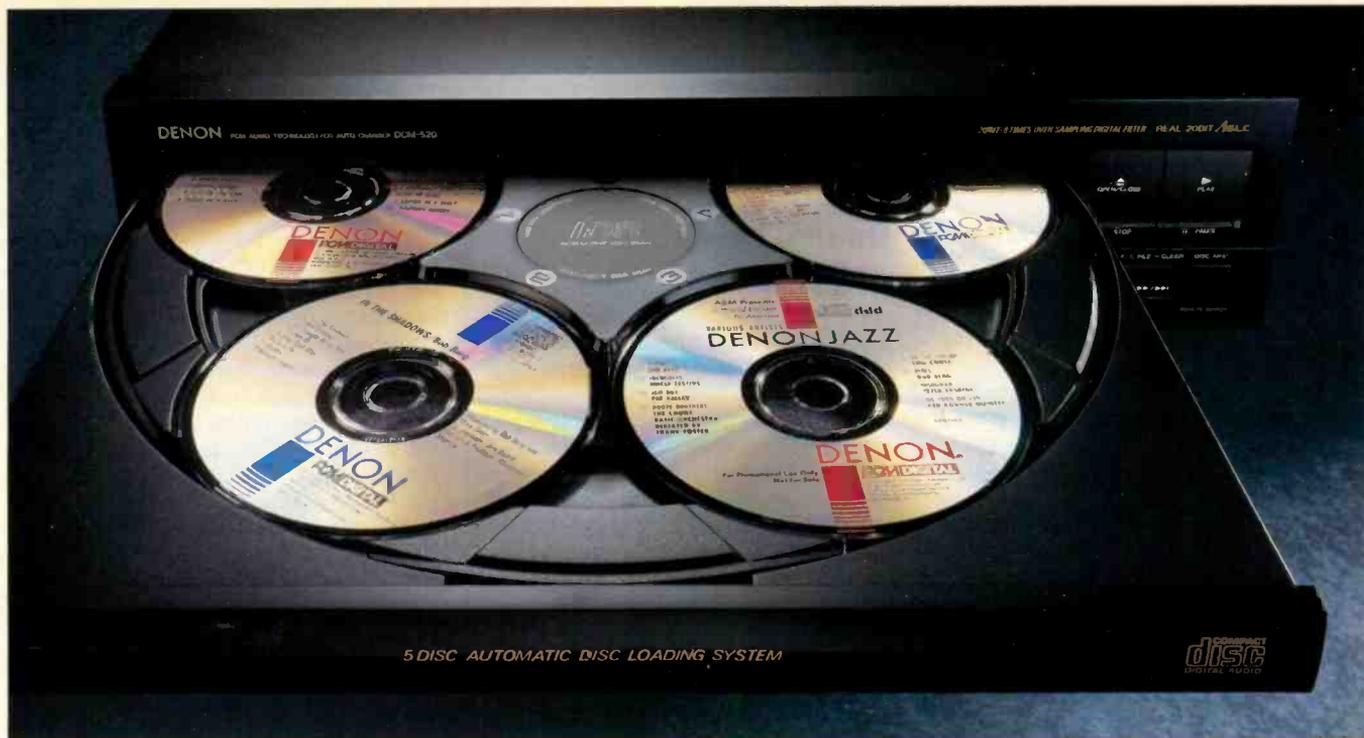
Lab Tests

The Clarion 5770CD measured well on the test bench. The CD section's frequency response was up 0.45 dB at 20 Hz and down 0.90 dB at 20,000 Hz. Dynamic range and signal-to-noise ratio (S/N) were also very good. Distortion was low, and D/A conversion linearity was excellent, especially for a car player. Defect-tracking performance, though acceptable, was the unit's weakest point.

The FM tuner section's sensitivity was very good, as was its alternate-channel selectivity; adjacent-channel selectivity was outstanding, surpassing that of most home tuners. Image rejection (important mostly in the vicinity of airports) was okay, as was AM rejection. Total harmonic distortion plus noise (THD + N) and S/N, which were good in mono, deteriorated more than we would ordinarily expect in stereo, at least partly because of 19-kHz stereo pilot-tone leakage. The Model 5770CD's power-amplifier section exhibited low noise and distortion and comfortably exceeded its power rating, delivering 14.8 watts into 4 ohms.

Installation

Installing the Model 5770CD did not pose any unusual problems. As with



Before we built a CD changer to play 6 hours a day, we built a CD transport to play 24 hours a day.



DN-970 CD CART™ MACHINE. THE BROADCAST INDUSTRY STANDARD.

Many people think building a CD player and a CD changer is the same. Not Denon. Denon engineers recognize that people who buy CD changers usually play them for longer periods of time.

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The essence of the Denon CD Carousel Changer transport is its absolute simplicity; fewer parts mean less to go wrong. To the DCM-Series' fine transport design, Denon added its legendary digital audio quality. The DCM-320 and DCM-420 have dual 18-bit D/A converters to bring out fine musical detail. The DCM-520 employs Denon's remarkable dual 20-bit LAMBDA D/A converters for ultra-high resolution with ultra-low noise and distortion.

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CAR STEREO

most removable head units, it was a fairly easy matter to slide the mounting bracket into the dashboard and secure it by bending tabs on the top, sides, and bottom and attaching a rear mounting strap.

Electrical wiring was typical. The Model 5770CD has four gold-plated RCA phono jacks for line-level output, eight pigtailed for the amplifier outputs, and an antenna lead. There are also leads for battery power, ignition and ground, power antenna turn-on, and a triggered audio mute for cellular telephones. The battery lead has an in-line noise filter to help suppress interference from your car's electrical system before it reaches the head unit. For this particular test, I initially connected the 5770CD's internal amplifiers to the car's reference loudspeakers, then for more critical listening disconnected these leads and instead attached the unit's line outputs to more formidable external power amplifiers.

Road Tests

Following installation chores, I hit the South Florida roadways near my home. I first turned my attention to the receiver's internal amplifiers. Although relative lightweights compared with what you'd find in a typical separate amplifier, they did a good job of driving four loudspeakers. Frequency response was good, and distortion at low listening levels was minimal. Amplifiers of their size cannot drive an audio system to very loud levels or deliver the power needed to reproduce low frequencies in their full glory, but they are sufficient for casual listening. And if you do find them inadequate, it's easy to upgrade to more powerful external amplifiers.

The tuner section performed well even in dense urban areas. Frequency response was excellent, and overall fidelity of sound reproduction was good. The automatic local/distant and

stereo/mono switching circuits did an excellent job of adjusting the tuner to the prevailing signal conditions. For example, it was never overloaded by strong signals and did a good job of fishing out weak signals. As with any tuner, multipath interference occasionally posed problems, but overall the Model 5770CD's tuner still outperformed most other mobile radios I have used or tested.

The CD player was very impressive. Its transport operated with barely a whisper of mechanical noise, and it loaded and unloaded discs with a smoothness that I've rarely seen. Compared with some other CD transports that sound like a driver's ed student grinding the gears of his daddy's manual transmission, this one certainly gives the impression of superior mechanics, and I have to believe it will work longer without deterioration or failure.

Further proof of the transport's

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quality could be found in its stability: It was never affected by rough roads, and the laser never skipped a beat. In addition, Clarion's engineers have included a number of CD features that help make your listening more convenient. For example, you can eject a disc even after you've shut off the ignition, and when you return to disc playback after pausing or switching to radio, the laser pickup returns exactly to the point in the music where it left off earlier.

The CD player's fidelity was top-notch, with no audible distortion even at very low signal levels. I listened to a wide variety of music and found that the frequency balance sounded correct, distortion and noise were inaudible, and overall sound quality was excellent. For example, the female operatic voice is very challenging to reproduce, but the Model 5770CD sailed through a recording of Kiri Te Kanawa singing Richard Strauss's

Four Last Songs with incredible clarity and presence.

In case anyone is still wondering, 1-bit D/A converters (such as those in this unit) have clearly surpassed all but the most expensive multibit converters. In car components, 1-bit designs are particularly desirable because they are much more immune to performance drift caused by changes in temperature or supply voltage—which can sorely affect multibit converters. Because 1-bit D/A converters will not lose calibration, their sound quality will not deteriorate over time.

I judged ease of use to be very good. In particular, tactile identification was very good. After a few minutes of acclimation, it was easy to find and operate controls without looking. I wonder, however, why the display is so stingy—showing track numbers only briefly before switching to elapsed time. I prefer to see both simultaneously. And I still don't under-

stand why designers persist in putting color-switching buttons on front panels. I guess it's a good gimmick for salespeople to demonstrate, but, at least in South Florida's bright sunlight, regardless of the car's color scheme, most head units are permanently switched to amber because it is more visible than green.

Minor quibbles aside, there is no question that the Clarion 5770CD is a fine example of a state-of-the-art CD receiver. It costs somewhat more than low-end CD models, but the difference in quality is clearly visible *and* audible. The tuner was reliable with both strong and weak signals, even in radio-nightmare urban areas, the CD player's transport operated like a Swiss watch, and its 1-bit D/A converters will sound great for years to come. But please be sure to use this unit's removability feature religiously. The bad guys are also fine judges of quality technology. □

uses a remarkably light yet rigid microcell diaphragm material. Creating a tweeter that recovers and responds virtually instantly to any audio signal.

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TECHNICAL TALK

by Julian Hirsch

Audio Trends

AT the annual Winter Consumer Electronics Show (CES) held in Las Vegas in early January, a vast array of products, ranging from watches to elaborate audio/video home theaters, is shown to dealers, sales representatives, and the press. Like most of the other attendees, I am always on the lookout for innovative or novel products, but major advances do not necessarily appear every year. At the preceding summer CES in Chicago last June, two new developments made headlines: the Digital Compact Cassette, or DCC, from Philips, and the Mini Disc, or MD, from Sony. In Las Vegas, nothing new was divulged about MD. Although some tape manufacturers announced blank DCC's, it appears that the hardware (from Philips, Matsushita and Tandy, initially) will not be with us until later this year.

A strong trend was visible in the home-theater category, with many companies offering A/V receivers, add-on amplifiers, or surround-sound signal processors. This trend was also evident among speaker manufacturers. Many were showing, for the first time, products designed specifically for home-theater use, including center-channel speakers and small surround speakers with directivity characteristics optimized for that application.

I saw a distinct trend toward small, inexpensive speakers of surprisingly good quality from companies normally known for much more expensive

speakers. Naturally, no firm quality judgment can be made from a demonstration in a show environment, but considering that these speakers were typically priced between \$200 and \$250 a pair (retail), their sound quality was remarkable. I saw and heard such speakers from several manufacturers, including PSB and KEF.

The Consumer Electronics Show offers an excellent opportunity to look at and listen to components aimed at people who are able to make a very large investment in their audio systems. A number of the high-end audio exhibits featured large and very expensive amplifiers paired with often strange looking, sometimes large, and almost always very expensive speakers. Frankly, I rarely find the sound of these audio systems to be unusual, although their workmanship and construction quality are typically outstanding.

Notable exceptions were several new components from Linn Products of Glasgow, Scotland. We have reviewed Linn components in the past and have found them to offer novel design and good performance, though at a fairly high price. At the show, the company was demonstrating an all-Linn system, including the CD recording and the A/D converters used to make it. There was a new two-piece CD player, an FM tuner, a preamplifier, and a power amplifier driving a new top-of-the-line loudspeaker. The whole system would cost close to \$20,000 (more than half of that for the speakers), and it sounded like it. It also had a surprisingly simple full-system remote control.

In sum, although there was little that was revolutionary announced at this winter's CES, I saw a clear trend toward affordable—and listenable—speakers plus a continuing increase in the availability of moderate-price home-theater systems.

ON a totally unrelated matter, a recent letter from a reader asks why our loudspeaker test reports refer to aberrations in loudspeaker response that are obviously the result of the interaction between our room and the speaker's intrinsic frequency response. He considers this information pointless, since

anyone else would be using a different room.

I understand his concern and dearly wish that I (or anyone else) could measure the response of a speaker totally independent of its surroundings. Unfortunately, under real-world listening conditions, speakers do not have any uniquely definable frequency response. Like it or not, the room (and the placement of the speakers within it) unavoidably affects the overall frequency response.

Most of these aberrations are inherent in the presence of natural acoustic boundaries (walls, floor, ceiling, windows, doors, etc.). Some of them are predictable, but many are not. The modern measurement techniques that we use can reduce the effects of the environment on response measure-

At the Winter Consumer Electronics Show, I saw a distinct trend toward small, inexpensive loudspeakers of surprisingly good quality.

ments, but they cannot be eliminated within a normal listening room.

Through hundreds of speaker tests in our room, I have been able to identify some of the simple interactions. In most cases I just leave them in the final curve, from which I draw whatever conclusions seem reasonable. Sometimes, by comparing my results with similar measurements made by the speaker manufacturer, I can identify which aberrations are inherent in the speaker and which are peculiar to my test room.

The bottom line is that a true, valid judgment of a speaker's merit as a part of your music system can be made *only* in your own listening room. Tests or subjective comments by any other individual can never be more than a rough guide. They may help you to focus your attention on a speaker's weaknesses or strengths, but they cannot give a truly objective description of its performance in *your* home. □



The new Santa Fe DCM 42 FM/AM cassette receiver with CD control stands out as a triumph of European design, the extraordinary integration of ergonomics and economics. The Santa Fe DCM 42 boasts a High Definition FM Tuner, a high frequency response autoreverse cassette deck and full

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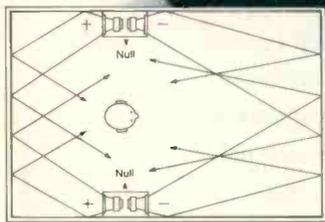


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Our Surround II speakers are specifically designed for use as side speakers in surround sound systems. The purpose of side speakers in a Dolby Surround or DSP system is to "surround" the listener with *non-directional* ambient sounds, unlike conventional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

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



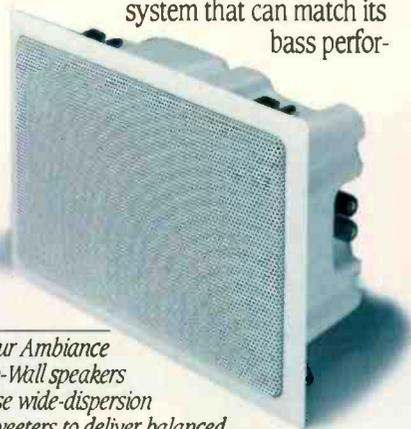
The Surround II is a dipole radiator. When mounted on the side walls of your listening room, the sound is directed towards the front and rear of the room, using phase cancellation to create a null in

the direction of the listener. The sound then reaches the listener from *all* directions, the way it was meant to be heard. The performance of Surround II is essentially identical to that of our original Surround* which represents an outstanding value compared to other speakers using similar technology.

At our introductory price of \$249 pr., Surround II is *the* value on the market in a surround sound speaker.

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Our Ambiance In-Wall speakers use wide-dispersion tweeters to deliver balanced stereo sound throughout your listening room.

mance. Henry Kloss designed Ambiance In-Wall with a very wide dispersion tweeter that delivers accurate response over a very wide area. So you can place Ambiance In-Wall where it *looks right* in your wall (or your ceiling), and still have it *sound right* no matter where you are in the room. *Stereo Review* said Ambiance "easily held its own against substantially larger, more expensive speakers."

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CIRCLE NO. 7 ON READER SERVICE CARD

TEST REPORTS



PS Audio 5.6 Preamplifier

Julian Hirsch, Hirsch-Houck Laboratories

THE Model 5.6 preamplifier from PS Audio of Grover City, California, is a somewhat unconventional stereo control center that provides an exceptional mix of functionality, performance, and component quality at a price far below those of many other high-quality component preamplifiers.

The Model 5.6 has five high-level inputs, identified as tuner, DSP (digital signal processor), CD, tape 1, and tape 2, plus a phono input whose gain and input resistance can be switched (at the back of the preamplifier) for either a moving-magnet (MM) or a moving-coil (MC) cartridge. The rear apron also contains two sets of main outputs and two pairs of tape-recorder inputs and outputs. All input and output jacks are gold-plated.

The primary front-panel controls are three knobs—for input selection, balance, and gain (volume)—that operate with a silky-smooth feel. The gain control is actually a thirty-two-step, multiwiper, 1-percent-precision attenuator. Furthermore, the Model 5.6's unique control system avoids unnecessary use of mechanical switches, replacing them for several functions with four small, gold-plated contact buttons that require only a momentary touch to perform their switching action. The system operates by sensing the 60-Hz hum pickup on one's body from nearby AC power lines and using this to operate internal precious-metal relays located close to the circuits they control. Green LED indicators on the panel show the status of these touch switches.

The contact-operated functions include on/off switching, tape-monitor activation, and two others designated STRAIGHTWIRE and BYPASS. Except for the monitor function, all of these are somewhat unconventional. Even the ON switch is not what it seems to be, since the preamplifier's circuits are powered whenever the component is plugged into a live electrical outlet. The switch merely mutes and unmutes the output of the audio circuits, which remain operating at all times.

Signals entering the PS Audio 5.6's high-level inputs, following input selection, normally pass through a ten-times (20-dB) voltage-amplifier stage and then the tape-monitor switching and balance-control circuits. In the straightwire mode, the high-level gain circuits are bypassed, leaving only the phono preamplifier and the output stage as the active circuits. The bypass mode, which operates independently of the straightwire switch, circumvents the tape-monitor and balance-control circuits. When both modes are

TEST REPORTS

engaged simultaneously, the Model 5.6 effectively becomes a "passive preamplifier" that provides only signal switching and attenuation.

Phono equalization is achieved passively instead of in the negative-feedback loop of the gain circuit (as in most phono preamplifiers). To increase the gain for use with a moving-coil cartridge, the preamp's MM/MC switch reduces the amount of negative feedback rather than adding more gain circuits. The standard 100-ohm input resistance in the MC mode can be changed as desired by means of plug-in resistors available from the manufacturer or dealer.

The PS Audio 5.6 measures 17 inches wide, 9 inches deep, and 2½ inches high. It weighs about 10 pounds. The front panel is fitted with handles, and the entire unit is finished in black with gold markings. Price: \$799. PS Audio, Inc., Dept. SR, P.O. Box 1119, Grover City, CA 93483.

Lab Tests

The PS Audio 5.6's sensitivity (through a high-level input) was 58

millivolts (mV) for a reference output of 0.5 volt. The MM phono sensitivity was 1.4 mV, and the MC sensitivity was 0.026 mV. The respective A-weighted noise levels through these inputs were -84.2, -79, and -73 dB (referred to 0.5 volt). The preamplifier's output clipped at a much more than adequate 9.4 volts.

The phono-input (MM) overload level, referred to the 1,000-Hz gain, was 94 mV at 20 and 1,000 Hz, 57 mV at 20,000 Hz. The phono section's input impedance in the MM mode was 49,000 ohms in parallel with 98 pF of capacitance.

Frequency response was flat within +0.05, -0 dB from 15 to 20,000 Hz through the high-level inputs. Channel levels differed by 0.15 dB with the balance control in its detented position. In the straightwire mode, the response rolled off slightly above 10,000 Hz, to -0.4 dB at 20,000 Hz. The RIAA equalization differed slightly between the two channels. One was flat within 0.05 dB from 15 to 20,000 Hz, and the other varied 0.18 dB over that range.

Total harmonic distortion plus noise (THD + N) at 1,000 Hz reached a minimum of 0.0022 percent in one channel and 0.0037 percent in the other, at 8.6 volts output. Spectrum analysis of the harmonic distortion (excluding noise) at 1,000 Hz and at several levels from 0.5 to 5 volts showed readings between 0.0037 and 0.008 percent.

Comments

The PS Audio 5.6 is clearly designed for the person who prefers a top-quality audio control center without the numerous frills and extra features found in most such components. It would be difficult to imagine a simpler stereo control center (if you feel that even a balance control is superfluous, a touch on the bypass button eliminates that function). Although its external features have been reduced nearly to the practical minimum, its internal circuitry is as advanced as one could wish, and its bench performance is certainly on a par with the best you are likely to find from a preamplifier at any price.

I think the feature of this unusual component that most appealed to me was its smoothness—the solid feel of its controls—and the total absence of unwanted artifacts such as switching clicks. The continuously powered Model 5.6 is ready to go into action at the lightest touch of the ON switch. Since I never use tone controls, I appreciate the contribution their absence makes to the front panel's uncluttered appearance (and perhaps to the overall excellence of the preamplifier's performance).

As for how it "sounds," I simply do not believe that electronic components of this quality have any inherent "sound." Once a product's performance has reached this level of refinement, its smoothness, reliability, ease of operation, and freedom from unwelcome noises become of prime importance to me.

The PS Audio 5.6 is priced between the typical "mass-market" preamplifier and models that would be considered true high-end products, but its overall quality and performance are much closer to those of the latter than of the former. It is an excellent value and a component that will do full justice to the finest recordings and music systems. □

FEATURES

- Inputs for five high-level sources plus phono, with phono gain switchable for moving-coil or moving-magnet cartridge
- Tape-monitor loop
- Touch-sensitive switching for on/off, Straightwire and Bypass modes, tape-monitor functions
- Straightwire mode bypasses internal amplifier stages
- Bypass mode bypasses balance and tape-monitor circuits
- Volume (gain) control via a thirty-two-step precision switch
- Gold-plated RCA-type signal jacks
- Circuits remain energized at all times; on/off switch mutes and unmutes the outputs

LABORATORY MEASUREMENTS

Output level at clipping: 9.4 volts

Sensitivity (for a 0.5-volt output): high-level, 58 mV; phono (MM), 1.4 mV; phono (MC), 0.026 mV

A-weighted noise (referred to a 0.5-volt output): high-level, -84.2 dB; phono (MM), -79 dB; phono (MC), -73 dB

Distortion (THD at 1,000 Hz): 0.004% at 0.5 volts, 0.0042% at 2 volts, 0.0037% at 8 volts

Frequency response (high-level inputs): 20 to 20,000 Hz +0.05, -0.0 dB

Phono-input overload (MM, 1,000-Hz-equivalent levels): 94 mV at 20 and 1,000 Hz, 57 mV at 20,000 Hz

Phono-input impedance (MM): 49,000 ohms in parallel with 98 pF

RIAA equalization error: 20 to 20,000 Hz +0.05, -0 dB in one channel, +0.18, -0 dB in the other

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Mariah Carey—Emotions. Title cut; *Make It Happen; Can't Let Go; The Wind*; etc. (Columbia) 428-029

Steve Winwood—Refugees Of The Heart (Virgin) 413-005

Chris Walker—First Time (Pendulum) 431-676

Various Artists—New York Rock & Soul Review (Giant) 431-676

Murray Perahia Plays Brahms—(Sony Classical) 431-379

Yo-Yo Ma/Emmanuel Ax Cello Sonatas by Prokofiev and Rachmaninoff (Sony Classical) 431-288



Michael Bolton—Time, Love & Tenderness. Title cut; *Missing You Now*; etc. (Columbia) 415-711

Yanni—In Celebration Of Life (Private Music) 431-247

Keith Sweat—Keep It Comin' (Elektra) 431-130

George Michael—Faith (Columbia) 362-228

Jodeci—Forever My Lady (MCA) 430-959

Patti Austin—Carry On (GRP) 430-686

David Benoit—Shadows (GRP) 430-652

Neil Young & Crazy Horse—Weld (Reprise) 430-645/390-641

The Earl Klugh Trio Vol. 1 (Warner Bros.) 430-561

Erasure—Chorus (Sire/Reprise) 430-546

Frank Sinatra—The Very Good Years (Reprise) 430-363

Joe Sample—Collection (GRP) 430-280

Bette Midler—For The Boys (Atlantic) 430-876



Prince And The New Power Generation—Diamonds And Pearls. *Cream; Gett Off; Push*; plus many more. (Paisley Park) 427-419

INXS—Live Baby Live (Atlantic) 430-298

Kenny Loggins—Leap of Faith (Columbia) 430-256

John Mellencamp—Whenever We Wanted (Mercury) 430-231

Vanessa Williams—The Comfort Zone (Wing) 426-510

Corigliano: Symphony No. 1. Barenboim cond. (Erato) 426-262

Natalie Cole—Unforgettable. Title cut plus *The Very Thought Of You; Avalon*; etc. (Elektra) 422-279



Tears For Fears—Songs From The Big Chair (Mercury) 423-848

Seal (Sire/Warner Bros.) 425-827

Squeeze—Play (Reprise) 425-777

The Best Of Stevie Nicks (Modern) 425-694

Robyn Hitchcock & The Egyptians—Perspex Island (A&M) 425-645

Aaron Neville—Warm Your Heart (A&M) 425-611

Wynton Marsalis—Thick In The South, Vol. 1 (Columbia) 425-587

Sting—The Soul Cages (A&M) 424-440

Shabba Rankin—As Raw As Ever (Epic) 424-374

Dawn Upshaw—The Girl With Orange Lips (Elektra/Nonesuch) 424-275

PM Dawn—The Utopian Experience (Gee Street/Island) 430-207

Reba McEntire—For My Broken Heart (MCA) 430-090

Rush—Chronicles: Greatest Hits (Mercury) 423-780/393-785

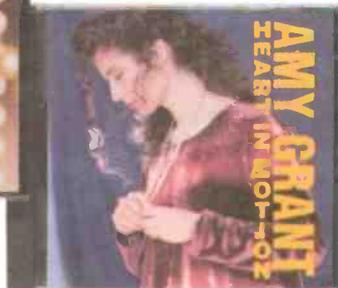
John Cougar Mellencamp—Uh-Huh (Riva) 423-574

Bon Jovi—Slippery When Wet (Mercury) 423-392

Bebe & Cece Winans—Different Lifestyles (Capitol) 423-137

Mariah Carey 407-510

Amy Grant—Heart In Motion. *Baby, Baby*; many more. (A&M) 424-457



Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Alan Jackson—Don't Rock The Jukebox (Arista) 420-935

Midori—Live At Carnegie Hall. (Sony Classical) 420-570

Karyn White—Ritual Of Love (Warner Bros.) 420-356

Jean Luc Ponty—Tchokolala (Epic) 420-224

The Manhattan Transfer—The Offbeat Of Avenues (Columbia) 420-208

The Crusaders—Healing The Wounds (GRP) 419-952

Another Bad Creation—Coolin' At The Playground Ya' Know! (Motown) 419-903

Lenny Kravitz—Mama Said (Virgin) 418-814

Vince Gill—Pocket Full Of Gold (MCA) 418-459

Lee Ritenour Collection (GRP) 425-876

Two Rooms—Celebrating The Songs Of Elton John And Bernie Taupin (Various Artists) (Polydor) 430-421

John Williams & Boston Pops—I Love A Parade (Sony Classical) 422-717

Crowded House—Woodface (Capitol) 422-253

Skid Row—Slave To The Grind (Atlantic) 422-220

The Allman Brothers Band—Shades Of Two Worlds (Epic) 422-212

Bad English—Backlash (Epic) 422-170

Travis Tritt—It's All About To Change (Warner Bros.) 422-113

Alice Cooper—Hey Stoopid (Epic) 422-063

The Psychedelic Furs—World Outside (Columbia) 422-055

Tom Scott—Keep This Love Alive (GRP) 422-022

Marc Cohn (Atlantic) 421-552

EMF—Schubert Dip (EMI) 421-487

Spyro Gyra—Collection (GRP) 420-950

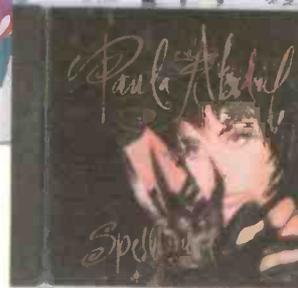


Paula Abdul—Spellbound. Title cut plus *Rush; Promise Of A New Day*; etc. (Virgin) 420-257

Jesus Jones—Doubt (SBK) 417-691

C & C Music Factory—Gonna Make You Sweat (Columbia) 416-933

David Lee Roth—A Little Ain't Enough (Warner Bros.) 416-610



Toto—Past To Present 1977-90 (Columbia) 411-371

AC/DC—The Razors Edge (ATCO) 410-662

Classic Rock's Greatest Hits

Allman Brothers Band—A Decade of Hits (Polydor) 430-439

Rod Stewart—Sing It Again Rod (Mercury) 423-822

The Moody Blues—Grt. Hits (Polydor) 423-756

Eric Clapton—Time Pieces (Polydor) 423-467

David Bowie—Changes-bowie (Rykodisc) 412-247

Grateful Dead—Skeletons From The Closet (Warner Bros.) 378-406

Roy Orbison—The All-Time Hits, Vols. 1 & 2 (CSP) 377-945

The Best Of The Doors (Elektra) 357-616/397-612

The Who—Who's Better, Who's Best (MCA) 376-657

Buddy Holly—From The Original Master Tapes (MCA) 348-110

The Byrds Greatest Hits (Columbia) 342-501

A Decade Of Steely Dan (MCA) 341-073

Elton John Greatest Hits (MCA) 319-541

Credence Clearwater Revival—Chronicle—20 Grt. Hits (Fantasy) 308-049

The Jimi Hendrix Experience—Smash Hits (Reprise) 291-641

"The Commitments" (Sndtrk) (MCA) 429-753

James Taylor's Grt. Hits (Warner Bros.) 291-302

Best Of The Doobies (Warner Bros.) 291-278

The Steve Miller Band—Grt. Hits 1974-78 (Capitol) 290-171

Eagles—Their Grt. Hits, 1971-75 (Asylum) 287-003

Best Of ZZ Top (Warner Bros.) 279-620

Chicago—IX—Grt. Hits (Columbia) 260-638

Simon & Garfunkel's Grt. Hits (Columbia) 219-477

Bob Dylan's Greatest Hits, Vol. 2 (Columbia) 212-654/392-654

Stevie Ray Vaughan And Double Trouble—The Sky Is Crying. Title cut; Little Wing; etc. (Epic) 429-359

Dire Straits—On Every Street (Warner Bros.) 428-359

The Vaughan Brothers—Family Style (Epic/Associated) 411-306

George Michael—Listen Without Prejudice, Vol. 1 (Columbia) 411-181

Brahms: The 3 Violin Sonatas. Perlman/Barenboim (Sony Classical) 409-367

Larry Carlton—Collection (GRP) 407-825

Jane's Addiction—Ritual De Lo Habitual (Warner Bros.) 407-908

Harry Connick, Jr.—We Are In Love (Columbia) 406-645

Horowitz—The Last Recording (Sony Classical) 405-985

Damn Yankees (Warner Bros.) 405-886

Depeche Mode—Violator (Sire/Reprise) 405-423



The Very Best Of The Righteous Brothers—Unchained Melody. (Verve) 423-772

Warrant—Cherry Pie (Columbia) 411-389

Public Enemy—Apocalypse 91. (Def Jam/Columbia) 428-003

The Platters—Very Best (Mercury) 430-611

The Best Of Atlanta Rhythm Section (Polydor) 427-500

Rod Stewart—Downtown Train/Selections From The Storyteller Anthology (Warner Bros.) 425-322



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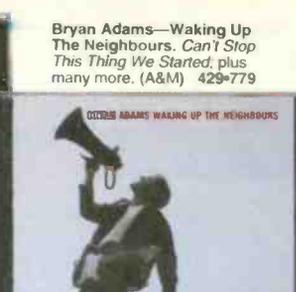
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TEST REPORTS



Lexicon CP-3 Digital Surround Processor

Julian Hirsch, Hirsch-Houck Laboratories

LEXICON, of Waltham, Massachusetts, for more than twenty years a manufacturer of highly sophisticated digital signal-processing devices for professional audio applications, has also applied its expertise to the development of related products for the consumer market. The company's latest entry is the CP-3 digital surround processor, arguably the most advanced such device to become available to nonprofessionals.

The Lexicon CP-3 has two basic functions: as a Dolby Pro Logic processor that also meets the special processing requirements for the Lucasfilm Home THX sound system, and as a music enhancer capable of simulating a number of acoustic environments that effectively transform any listening room into a more realistic or satisfying acoustic space.

Devices with apparently similar capabilities have been available for some time from several audio equipment manufacturers, but the CP-3 takes a giant step beyond its predecessors

in the fidelity with which it can simulate a desired acoustic environment and in the degree of control it offers the user. Once set up for the desired characteristics, it is also extraordinarily easy to operate.

The Lexicon CP-3 has four basic classes of operating modes: SURROUND, REVERB, AMBIENCE, and PANORAMA. SURROUND processing provides the now-familiar cinema-type effects associated with Dolby Pro Logic through additional speakers at the rear and center front of the room. Within SURROUND are several modes, including Television, Music (a seven-channel ambience-extraction mode for playing unencoded recordings that makes use of two extra speakers at the sides of the room), Mono Logic (for simulating effects at the rear and sides from mono sources while keeping dialogue at the front), and a fully digital implementation of Dolby Pro Logic.

AMBIENCE generates simulated early reflections, mimicking those of any of six different kinds of concert halls

(rectangular and fan-shaped halls of small, medium, and large size). REVERB simulates a space with a long reverberation time, such as a reverberation chamber or a church. If no side speakers are used, REVERB can also create a version of PANORAMA that expands the stereo image, with added reflections, through the front speakers.

PANORAMA extracts the natural ambience from recorded music and moves it outward to expand the stereo image and add spaciousness to the sound. PANORAMA requires only the two front loudspeakers of a standard stereo system, but if rear speakers are also available, it will send them a difference signal. Another feature of PANORAMA is interaural-crosstalk cancellation, which compensates for the normal stereo situation in which both ears receive signals from both speakers. By effectively allowing each ear to hear only the sound from its corresponding speaker, the sound stage can be dramatically widened for listeners equidistant from both speakers (this is also the basic operating principle of the Carver Sonic Holography system and Polk Audio's Stereo Dimensional Array loudspeakers).

The Lexicon CP-3 presents a disarmingly simple external appearance. A black box that measures 17½ inches wide, 14¼ inches deep, and 3¾ inches high, it weighs a solid 18½ pounds.

PHOTO: JOOK P. LEUNG

Critics called it
“lascivious, unmusical,
and
tasteless.”



Hear
it in
all its grandeur.

Jesús López-Cobos

In 1875, the reviews of *Carmen* were so bad that after 33 performances Bizet became ill and depressed, and died.

One critic said it was licentious, an incarnation of vice. Another (Tchaikovsky) said it would become one of the most

popular operas in history.

“They were both right,” says maestro Jesús López-Cobos.

“As a Spaniard, I can empathize with the themes. But as one whose background is mostly operatic, I know the *motivation* of the music. For instance, Don Jose’s music should sound ‘sarcastic’. And *Carmen*’s themes should, indeed, be sexy. The work should evoke visual as well as musical images. Listen, and you will see them.”

The job of recording engineer Jack Renner was to sit you in the best seat in the house.

“And to re-create, as accurately as possible, what happened in time and space.”

“Re-create” is the operative word. Unlike rock, which is typically massaged and ‘fixed in the mix,’ orchestral music is best captured the way it sounds in the hall. A combination of direct and reflected sound that comes first from the musicians and, nanoseconds later, from the room.

“We used three meticulously placed omnidirectional mikes going direct to digital two-track and then straight to CD. There is no mix, no EQ, no compression, no processing of any kind.” What there is, is Bizet. At his most lascivious.

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Jesús López-Cobos, Conductor, Cincinnati Symphony Orchestra.

True audiophile speakers, the Boston T930 II Towers are among the finest in the world at any price—despite the price. They are worthy of Bizet, of López-Cobos, and of the best seat in the concert hall provided by Renner.



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TEST REPORTS

The front panel has a row of pushbutton controls along its bottom and two luminous displays, an input-level indicator and an alphanumeric setup window, in its upper half. The buttons include four input-source selectors, a pair of program selectors that step through a number of operating modes, up/down volume control, mute buttons for the effects program only and for both main and effects programs, and an on/off switch. Although the on/off switch does shut down the CP-3, its signal-processing circuits are energized whenever the unit is connected to a power source.

The back of the CP-3 is relatively simple, with four pairs of input phono jacks, a pair of tape-output jacks that carry a buffered version of the selected source, pairs of line-level outputs for main front, rear, and side speakers, and single line-level outputs for a center speaker and a subwoofer. There are also three composite-video inputs, which are switched with their corresponding audio sources and supplied to a video-out jack that connects to a monitor's video input. A master power switch on the back disconnects all power from the CP-3's circuits.

An unusual feature of the Lexicon CP-3 is its inclusion of two different remote controls, an Expanded Remote for complete control and a much simpler Standard Remote for basic operating functions only. In conjunction with menus that appear on the CP-3's front-panel display (or on a video monitor connected to its video output), the Expanded Remote provides an almost indescribable degree of control over the processor's many operating parameters. Some thirty-five to forty pages of the comprehensive instruction manual are devoted to initial calibration of the CP-3, and space does not allow even a brief listing of its several dozen setup adjustments, many involving a choice from a large number of settings. Suffice it to say that with enough patience and expertise—which can be provided by the dealer who sells the unit—the CP-3 can be set up to simulate almost any imaginable acoustic environment in almost any room.

Once the necessary setup adjustments have been made, the CP-3's memories can be locked to prevent them from being changed accidentally. If you decide you want to make

changes, the memories can be unlocked at any time.

The Expanded Remote can be used for normal operation of the CP-3. Among other things, it duplicates the functions of the front-panel controls, and its thirty-six buttons seem almost ridiculously sparse compared with those of many other hi-fi component remote controls, which may have twice that number. Nevertheless, Lexicon decided (rightly, I think) that effective use of the CP-3 by most people requires the fewest possible unfamiliar operating controls.

The Lexicon CP-3's Concert Hall simulation produced the most realistic sense of space I have experienced outside of real halls.

Therefore, the CP-3 also comes with a Standard Remote control providing only the most basic operating functions. It has buttons only for on/off switching, volume adjustment, four-way system balance (to set the relative levels for the various speakers), separate muting of the effects and main program signals, input selection, and mode selection.

The five mode buttons on the Standard Remote are marked Night Club, Concert Hall, Music Surround, Television, and Movies (for Home THX Cinema). The many settings used for each of those modes are stored in the CP-3's memories and recalled at the touch of the corresponding button. Lexicon suggests that when the instrument has been calibrated to the user's satisfaction, the Expanded Remote should be put away and the Standard Remote should be used for operation.

If one is experimentally inclined, however, it is easy to use the Expanded Remote at any time to change the unit's operating parameters. An interesting safety feature has been built into the system. It will respond only to the remote control that was used to turn it on (except for such basic functions as volume adjustment). Attempting to use the other remote unit will bring up a WRONG CONTROL warning

on the display. Changing from one control unit to the other is simple, however. You merely shut off the CP-3 with one control and turn it on with the other.

The Lexicon CP-3 is furnished with a comprehensive fifty-seven-page owner's manual, a twenty-seven-page booklet explaining the theory and design principles behind it, and a single-page *Quick Reference Guide*. Its special design features include automatic setting of input level, input balance, and azimuth correction, along with other adjustments that earlier digital signal processors either ignored or required to be set by the user. Having these adjustments done automatically by the CP-3 contributes to its surprisingly simple operation (as distinguished from its rather complex setup and calibration). This level of sophistication and performance does not come cheaply, however. The price of the Lexicon CP-3, including both remote controls, is \$2,995. Lexicon, Inc., Dept. SR, 100 Beaver St., Waltham, MA 02154.

Lab Tests

As with most digital signal processors, little about the Lexicon CP-3 can be determined through conventional performance measurements. Even for the few electrical performance parameters that *can* be measured externally, the sheer number of possible settings make measurement a largely fruitless task.

Our measurements were, therefore, limited to such items as the front-channel frequency response, noise levels, and distortion in several operating modes, plus the frequency response of the center and subwoofer channels. The balance of the evaluation (and by far the most significant portion) was done purely by listening.

We noted one peculiar characteristic of the CP-3. Following the instructions, we left the unit energized but shut it off with the front-panel switch when it was not in use. Usually, but not always, we would find it on and fully operational the next morning. Our power line is exceptionally constant and free of transients. Nonetheless, Lexicon told us, the most likely cause of this annoying but harmless behavior is an overnight sag in the power-line voltage. The company says that CP-3's now available to consum-

TEST REPORTS

ers incorporate a revision (a new system ROM chip) that prevents it from restarting itself under such conditions and displays a warning when the line voltage drops significantly.

The 1,000-Hz front-channel output at clipping was slightly over 9 volts, and the total harmonic distortion (THD) plus noise was about 0.03 to 0.05 percent just before clipping occurred. A spectrum analysis of the front channels at 1,000 Hz and 0.5 volt output showed small amounts of third, fifth, ninth, and eleventh harmonics, each from -90 to -95 dB relative to the output level. The total distortion (excluding noise) was 0.049 percent. The noise level was very low, from -110 to -120 dB relative to 1 volt across the audio spectrum. Power-line hum was -107 dB.

The front-channel frequency response in the Concert Hall mode varied less than 0.2 dB from 20 to 20,000 Hz. In the Television and Movies modes, the highs are intentionally rolled off above 1,000 Hz, to -3 dB at 8,000 Hz and -4.5 dB at 10,000 Hz, in conformance with Home THX specifications. In the Night Club mode, the response extended from 20 to about 17,000 Hz, with small variations of ± 2 dB at middle and high frequencies. The center-channel response in Dolby Pro Logic mode was flat over most of the audio range, within ± 1 dB from 100 to 17,000 Hz, and rolled off at lower frequencies to -3 dB at 80 Hz and -10 dB at 50 Hz. Response was similar in the Television and Movies modes except for a slight high-frequency rolloff, to -3 dB at 8,000 Hz and -6 dB at 17,000 Hz. All of this is, again, in keeping with Home THX requirements. The subwoofer output's response was flat within 1 dB from 10 to 60 Hz, falling to -3 dB at 70 Hz and -12 dB at 100 Hz.

Comments

Our measurements showed that the Lexicon CP-3 essentially met the few specifications for which we could test, but they conveyed little about how it actually performed. Since we lacked space or facilities for an optimum home-theater installation, we listened to CD's and FM radio using a four-speaker setup (front and sides).

Several days of experimentation were needed for familiarization with the CP-3's calibration procedure,

which requires that the user be seated at a normal listening location, facing the front speakers. Since our equipment rack is at the back of the room, I had to aim the Expanded Remote control at the CP-3 over my shoulder, while looking at the setup menus on a video monitor at the front of the room.

Although the setup instructions are quite specific, the terminology used is peculiar to this unit, and it took a bit of practice to reach a particular part of the menu and make the desired adjustment. All in all, the calibration was an arduous task, and we did not attempt to investigate those portions that were not applicable to our speaker configuration.

The results were impressive and well worth the effort required to achieve them. In particular, the Concert Hall simulation produced the most realistic sense of space that I have experienced outside of real halls. There was no artificiality nor any distinct echoes, merely a natural reverberation that was consistent with the effect we were hoping to obtain. Similarly, if less spectacularly, the other modes each produced a distinctly different ambience effect. Lacking a suitable video source or Home THX speaker setup, we could not judge the CP-3 is licensed to carry the THX logo indicates that they should be equally satisfactory.

While setting up and calibrating the Lexicon CP-3 was probably the most involved and time-consuming process we have ever gone through to use an audio component, subsequent operation with the Standard Remote control was simpler than with any of the other high-performance digital ambience processors we have used.

Although the CP-3 is certainly expensive, its performance easily justifies that investment for anyone planning a serious home-theater system. Lexicon points out that its authorized dealers will install, program, and calibrate the system in the customer's room, so that the end user need simply refer to the *Quick Reference Guide*, which shows exactly what every button on the Standard Remote control does and how it is operated. He will be able to put away the Expanded Remote and enjoy the finest surround sound and home-cinema sound that is currently available. □

Definitive Technology Authorized Dealers

AR- Leisure Electronics: Little Rock.
AZ- Audio Video Emporium: Tucson* Hi Fi Sales: Mesa. CA- Audio Concepts: Long Beach, San Gabriel-Creative Stereo: Santa Barbara, Santa Maria, Thousand Oaks, Ventura* Pacific Coast A/V: Corona del Mar* Paradyne: Sacramento* Performance Audio: San Francisco* Shelley's Stereo: Santa Monica* Sound Co. Escondido, San Diego* Sound Goods: Campbell, Mt. View* Systems Design: Redondo Beach. CO- Listen Up: Denver, Boulder, Colorado Springs. CT- Al Franklin's: Hartford* Carston's: Danbury* Robert's Music: New London.
DC Suburbs- Audio Buys/Audio Associates.
DE- Sound Studio: Dover, Newark, Wilmington.
FL- Absolute Sound: Winter Park* Audio Ctr.: Ft. Lauderdale* Audio Workshop: Sarasota* Sound Ideas: Gainesville* Sound Insight: Ft. Pierce* Stereotypes: Daytona Beach* Stereo World: Ft. Myers, Naples.
HI- Maul Audio Center: Kahului.
IA- Audio Logic: Des Moines* Hawkeye Audio: Iowa City.
ID- Stereo Shoppe: Boise, Moscow.
IL- Absolute Audio Video: Rockford* August Systems Champaign* Mills Recording: Chicago* Simply Stereo: Hoffman Estates, Orland Pk.* Stereo Studio: Palatine, Villa Park* Select Sound: Naperville* Sterling Elect.: Sterling* The Shoppe: Kankakee.
IN- Ovation Audio: Clarksville, Indianapolis.
KS- Audio Visions: Wichita.
KY- Ovation Audio: Lexington, Louisville.
LA- Alterman Audio: New Orleans, Metairie.
MA- Boston (see Nashua, NH)* O'Coins: Worcester.
MD- Audio Buys/Audio Associates: Annapolis, Gaithersburg, Langley Park, Laurel, Rockville* Gramophone: Baltimore, Ellicott City* Soundscape: Baltimore* Sound Studio: Salisbury.
ME- Cookin': Portland.
MI- Classic Stereo: Grand Rapids, Kalamazoo* Listening Room: Saginaw* Overture Audio: Ann Arbor* Pecar's: Detroit, Troy.
MN- Audio Perfection: Minneapolis.
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PA- GNT Stereo: Lancaster* Hart Electronics: Blakely, Kingston-Listening Post: Pittsburgh & suburbs* Sas-safra's: Philadelphia & suburbs, Allentown* StereoLand: Natrona Heights* Studio One: Erie.
RI- Eastern Audio: No. Providence.
SC- Dashboard Stereo: Charleston* Stereo Video: Greenville* Upstairs Audio: Columbia.
TN- Hi Fi Buys: Nashville* Lindsey Ward: Knoxville.
TX- Audio Tech: Temple* Audio Video: College Station* Bunkley's Sd. Systems: Abilene* Bjorns: San Antonio* Harold's Electronics: Odessa, Midland* Krystal Clear Audio: Dallas* Sheffield Audio: Houston.
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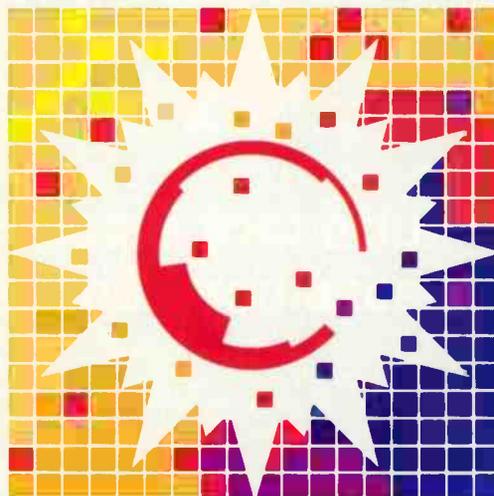
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TEST REPORTS



Philips CDI-910 CD-Interactive Player

Julian Hirsch, Hirsch-Houck Laboratories

SINCE the compact disc was introduced as a high-fidelity music medium almost ten years ago, a number of related formats using similar digital recording and playback standards have been developed. The CD-V (CD-Video) format, which combined a short video program with 20 minutes of music, never became popular, but there are other uses for graphics in combination with sound, generally referred to as CD+G (CD plus Graphics). CD+G discs, which are rare in this country, provide song lyrics, artwork, and other still images that can be displayed on a video monitor during music playback. Meanwhile, the CD-ROM (read-only memory) has brought the enormous data-storage capacity and relatively low cost of the CD to the computer world, and it appears to be a growing application for CD technology.

The latest CD variant to become a marketable product is CD-I, or CD-Interactive. It is "one-way" compatible with music discs. A CD-I disc cannot be played on an ordinary CD player, but a CD-I machine *can* play ordinary music CD's. The Model CDI-910 from Philips is the first CD-Interactive player to reach consumers. Although it can play audio discs, its main purpose is to bring interactive audio/video programs to the home user.

As its name implies, the CD-I system requires user participation to select and control the information it presents. The Philips player looks much like any standard home CD player, with a rather plain front panel. Its most prominent controls are three large buttons for initiating play and track-stepping in either direction. Small round buttons open and close the disc drawer, switch the power, and control the

pause and stop functions. The front-panel headphone jack has its own volume control.

The display window is strikingly simple and uncluttered compared with those of most ordinary CD players. When a disc is loaded, large numerals display its total number of tracks and playing time; during play, they show the current track number and its elapsed time. Conventional symbols identify the pause and play modes, and the words SHUFFLE, REPEAT, SCAN, and FTS (for Philips's Favorite Track Selection system) appear across the top of the window when applicable. The type of disc being played is identified by the word GRAPHICS (for CD+G discs) or by COMPACT DISC followed by DIGITAL AUDIO or INTERACTIVE.

The CDI-910 can be used alone as an ordinary CD player. By itself, however, with no connection to a video monitor, it is strictly a "no frills" machine, lacking the fast-scan and programming features we have come to expect in even the least expensive CD players. The supplied remote control does not appear, in any obvious way, to correct this deficiency. It has eight small buttons for the pause, stop, and play functions, track skipping in

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either direction, and volume adjustment (which is not provided on the player's front panel). It also has a TV/CDI button, to be used when the player is connected to the antenna input of a TV receiver, for switching between broadcasts and the CD-I output.

An equal space is devoted to a small joystick control whose function will be apparent to anyone who has ever played a video game. Around the joystick, which Philips calls a "thumbstick," are four unmarked, curved buttons—identified in the instruction manual as "action keys"—that also help in using the CD-I software.

The rear apron of the CDI-910 contains audio and both composite-video and S-video output jacks, a remote-control jack for use with optional Philips accessories, threaded F-type antenna input and output connectors, a switch to select Channel 3 or 4 for the

RF output connection to a TV receiver, and an input connector for use with an external pointing device or keyboard. A covered opening marked Extension Socket is for use with future accessories.

The video portion of the CDI-910 is at least as important as its audio section. Its video output is connected to a TV receiver or directly to a video monitor using the appropriate output jacks. The stereo audio outputs can go to the audio system of the TV set or monitor (if available) or to an external audio amplifier and speakers.

When the CDI-910 and the connected video display are turned on, the screen shows several small squares or rectangles, called icons. A white cursor arrow on the screen can be moved about with the thumbstick on the remote control. Placing the arrow on the INFO icon and "clicking" one of the

four action keys displays the message that the player will handle 3- and 5-inch CD-Interactive, CD-Digital Audio, and Photo-CD discs.

In general, clicking on an icon will bring up new icons on the screen dealing with different functions. Among these are repeating the entire disc or the current track, setting a scan time of 5, 10, or 20 seconds (the amount of each track to be played in the automatic-scan mode), and selecting the FTS and shuffle-play modes. The instructions can be displayed in English, Spanish, or French.

Clicking on the OPEN icon causes the player's disc drawer to open; the icon then changes to read CLOSE. After a disc is loaded, clicking on the CLOSE icon shuts the drawer, and a triangular PLAY CD-I icon appears. Clicking on it brings the opening portion of the disc up on the monitor. Once a disc has been loaded, its own instruction menus come into play and must be followed.

Unfortunately, it is impossible to be more specific about the operation of the system. Although some general procedures are common to all CD-I software, each disc has its own peculiarities, which often must be learned by trial and error.

The Philips CDI-910 measures 16½ inches wide, 15¾ inches deep, and 4 inches high. It weighs 16½ pounds. Optional accessories include a mouse or trackball to replace the remote control's thumbstick and a remote-control receiver that plugs into the rear of the player to extend the hand controller's operating range. Price: \$1,000. Philips Consumer Electronics, Dept. SR, 1 Philips Dr., P.O. Box 14810, Knoxville, TN 37914-1810.

Lab Tests

Our measurements of the Philips CDI-910 involved only its audio CD-playing functions. We were also supplied with fourteen CD-I software releases (distributed by Philips Interactive Media of America) for a subjective evaluation of its interactive A/V performance.

The frequency response was flat within ±0.09 dB from 20 to 20,000 Hz. De-emphasis response error was a maximum of 0.27 dB at 1,000 Hz. Channel levels were balanced within 0.2 dB. Interchannel phase shift was a maximum of 0.5 degree between

FEATURES

- Plays 3- and 5-inch CD, CD+G, CD-I, Photo-CD, and CD-ROM XA digital recordings
- Stereo audio, composite-video, and S-video outputs
- RF output on Channel 3 or 4 for driving TV set without direct inputs
- 75-ohm TV antenna input and RF output connectors
- Display of total tracks, total time, current track number and elapsed time, operating status, type of disc
- Front-panel controls for play, track skipping, pause, stop
- Headphone jack with volume control
- Front-panel and rear-apron input connectors for optional mouse or trackball controller
- Wireless remote control duplicates front-panel controls and has TV/CDI button to control display source, volume buttons, thumbstick control lever, and four action keys
- Rear extension socket for future accessories

LABORATORY MEASUREMENTS

- Audio CD measurements only
- Maximum output level:** 2.7 volts
- Frequency response:** ±0.09 dB from 20 to 20,000 Hz
- De-emphasis error:** -0.27 dB at 1,000 Hz
- Channel separation:** 90 to 92 dB from 100 to 1,000 Hz, 74 dB at 20,000 Hz
- Dynamic range (A-weighted):** 92.3 dB
- Signal-to-noise ratio (A-weighted):** 96.28 dB
- Distortion (THD + N) at 0 dB:** 0.007% from 20 to 2,000 Hz, 0.01% at 10,000 Hz, 0.03% at 20,000 Hz
- Maximum interchannel phase shift:** +0.5 degree from 14,000 to 20,000 Hz
- Linearity error:** -0.3 dB at -70 dB and -80 dB, +0.3 dB at -80 dB, +3.6 dB at -90 dB
- Defect tracking:** tracked 2,000-micrometer errors on Pierre Verany #2 test disc
- Impact resistance:** top, B; sides, B

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14,000 and 20,000 Hz. Channel separation was 90 to 92 dB from 100 to 1,000 Hz, falling to 74 dB at 20,000 Hz.

Total harmonic distortion plus noise (THD + N) at a 0-dB level was 0.007 percent from 20 to 2,000 Hz, increasing to 0.1 percent at 20,000 Hz. Low-level linearity was within 0.8 dB from -60 to -80 dB, increasing to only 3.6 dB at -90 dB. Dynamic range was 92.5 dB, quantization noise was -90.5 dB, and the A-weighted noise level was -96.3 dB. The maximum audio output level from a 0-dB track was 2.71 volts, and headphone volume was very good.

The CDI-910's defect-tracking performance was above average, enabling it to play the 2,000-micrometer errors on the Pierre Verany #2 test disc without mistracking. The player was quite resistant to impact, requiring a moderately hard slap on its top or side to cause momentary mistracking.

Comments

To judge the performance of the CDI-910 in its primary function of playing CD-Interactive discs, we tried, at least in part, each of the fourteen discs supplied to us. Most of them were designed for young children (ages three to ten), and we merely played enough of those to judge their content. Some of the children's programs, however, were excellent illustrations of the CD-I system's potential as an educational tool. Especially notable was a *Sesame Street* disc, the only one of the children's discs that we viewed in its entirety.

A few of the discs were suitable for adults of any age. Probably the best was "Treasures of the Smithsonian," a comprehensive tour of the museums and collections of the Smithsonian Institution that includes high-resolution pictures, CD-quality sound, and text. We didn't count the various exhibits and viewing options, but there seemed to be hundreds—we didn't exhaust them in our digital tour, which lasted some hours. The order, pace, and depth of the tour are entirely up to the user.

A similar but slightly less elaborate program, "The Renaissance of Florence," offered an overview of Florence and its treasures, many of which could be viewed in close-up detail. Less ambitious but potentially useful adult educational discs were a Rand-

McNally *Atlas of the United States* and one called "Stamps—Windows on the World."

The Philips CDI-910 is a good CD player. Its audio performance was above the average of the players we have tested in recent years. Nevertheless, it is clearly not a good choice for someone who just wants to listen to CD's. Most of its audio-playback features are accessible only through the remote control with the aid of a video monitor. While it may be entertaining to select CD tracks as though you were playing a video game, it seems rather roundabout to have to use a video monitor to play music.

The CD-Interactive format itself has enormous potential as a recreational and educational tool. Although our sample discs heavily emphasized children's programs, the other programs, such as the tours of the Smithsonian and of Florence, show that CD-I can have real appeal to adults as well. The system is certainly habit-forming, as I discovered in my brief experience with it.

I also found some weaknesses in it. The basic functions will seem perfectly natural to anyone who has used a computer—and probably confusing to anyone who has not. The CDI-910's supplied instructions are very specific about how to install and use it, however, and all the CD-I software uses the same basic command structure. But the specifics differ rather widely from disc to disc, and there are no

instructions with the discs themselves other than what appears on the screen. The situation resembles the differences between various computer programs using the same operating system. If today's computer software came with no operating instructions, most of us would not be able to use it effectively. I am not sure how young children will react to the CD-I challenge (probably better than I did), but I found that some of the supplied programs were less than clear in their operation. Also, while most programs treat all of the four action keys interchangeably, some require that you use specific keys for different purposes. You have to learn about this through experience. Interestingly, the most complex programs were among the easiest to use.

Another drawback was that the thumbstick on our sample's remote control was occasionally erratic or imprecise in its response (like some computer joysticks I have used). It is easy to see why Philips offers accessory mouse or trackball controllers, which presumably would operate more smoothly.

In sum, the Philips CDI-910 is an intriguing and capable first entry in what could become a very important new category of CD players. We encourage you to find a store that carries the CDI-910 and try it out for yourself, as it is not really possible to convey in words alone what Philips has achieved in the CD-I format. □



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Sonance Model 45 In-Wall Loudspeaker

Julian Hirsch, Hirsch-Houck Laboratories

SONANCE, a pioneer in the development of loudspeakers designed for in-wall mounting, currently manufactures an extensive line of speakers and related accessories designed to help people make their audio systems as physically inconspicuous as possible. At the top of the Sonance speaker line is the Model 45, a two-way system with an 8¼-inch woofer in a cast frame and a 1-inch soft-dome tweeter.

The drivers are mounted on an off-white molded-plastic panel, which can be installed between the 16-inch-spaced studs of a standard room wall (the 3-inch depth of the woofer magnet structure enables it to fit within the thickness of a 2 x 4 stud). The system operates as a sealed enclosure whose volume is defined by the inter-stud distance and the room height.

The speaker assembly normally ap-

pears as a framed grille (both cloth and perforated-metal grilles are available) measuring 12 x 16 inches. The grille can be pried out to reveal the drivers and a three-position tweeter-level knob. The woofer cone is formed of a black plasticized material with a rubber edge surround.

The specifications of the Model 45 include a frequency response of 35 to 22,000 Hz ± 2 dB, a sensitivity of 90 dB sound-pressure level (SPL) at 1 meter, and a recommended minimum amplifier power of 5 watts. The crossover frequency is 2,700 Hz, and the nominal system impedance is 6 to 8 ohms. Price: \$695 a pair. Sonance, Dept. SR, 961 Calle Negocio, San Clemente, CA 92672.

Lab Tests

Because of its design, an evaluation of the actual performance of the So-

nance Model 45 (or any other in-wall speaker) requires that the speakers be installed in a standard room wall. For temporary use or testing, they can be installed in a section of standard wall and positioned much as one would a large planar speaker.

Sonance mounted each speaker for us in a wall section 32 inches wide, 78 inches high, and 4 inches deep. Base extensions enabled the panel to stand freely. The speaker unit was placed slightly above the middle of the panel, which put the center of the woofer cone about 46 inches above the floor, or approximately at ear level for a seated listener.

The size and weight of these panels (over 100 pounds each) allowed us little latitude in placing them. They ended up about 3½ feet in front of a wall, 3 to 4 feet from the side walls, and 5½ feet apart (measured from the driver centers).

We tested the Model 45's as though they were a pair of large panel speakers (which, for all practical purposes, they were). We set the tweeter-level controls to their maximum positions. The composite frequency response of the left and right speakers showed a ± 2.5 -dB variation from 80 to 1,500 Hz, a slightly lower but extremely flat output from 1,500 to 11,000 Hz, and a peak of about 5 dB between 11,000 and 20,000 Hz.

The close-miked woofer response dropped off smoothly below 100 Hz, to -10 dB (relative to average mid-range level) at 30 Hz. The overall response variation was an excellent ± 3 dB from 60 to 20,000 Hz. Quasi-anechoic response measurements confirmed the general features of the room-response curves.

The tweeter-level control affected frequencies above 2,500 Hz by a maximum of 5 to 6 dB. The high-frequency dispersion was typical of a 1-inch dome, with the output 45 degrees off-axis down about 5 dB (relative to the on-axis response) from 9,000 to 10,000 Hz, 10 dB at 15,000 Hz, and 17 dB at 20,000 Hz.

The Model 45's impedance was relatively constant, between 6 and 10 ohms over most of the audio range. It reached 12 ohms at 50 to 60 Hz, 19 ohms at 1,700 Hz, and 13 ohms at 5,000 Hz, with minimum readings of 6.4 ohms at 200 Hz and 6 ohms at 3,000 and 15,000 Hz. The phase angle of the

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impedance (but not its magnitude) showed a number of sharp jogs at 120 Hz and below, which may have been associated with panel resonances in the simulated wall.

Sensitivity was 92 dB SPL at 1 meter with a 2.83-volt input of pink noise, slightly better than the 90-dB rating. With an input level of 2.23 volts, equivalent to a 90-dB SPL, the woofer's total harmonic distortion plus noise was 0.6 to 0.7 percent from 150 to 1,500 Hz, rising at lower frequencies to 1 percent at 140 Hz, 4 percent at 100 Hz, 6 to 7 percent from 80 to 45 Hz, and 10 percent at 40 Hz.

The Model 45 handled high-power peaks easily. At 1,000 and 10,000 Hz, our amplifier clipped at levels of 700 to 1,100 watts with no audible complaint from the speaker. But a single-cycle 100-Hz tone burst, which did not cause the woofer cone to "bottom" even at 750 watts, produced visible

and audible waveform distortion in the loudspeaker's output at considerably lower power levels. The gradual onset of the distortion made it difficult to establish a specific overload input level, however.

Comments

The Sonance Model 45 produced a smooth, well-balanced sound that was strikingly free of boominess or shrillness. Compared with most of the other speakers we have heard recently, its sonic personality seemed almost bland, without such characteristics as "presence," "crispness," or special directional pinpointing of various sound sources.

Our measurements left no doubt that the Model 45 is "all there" when it comes to the key speaker characteristics of wide, flat response, good dispersion, and relative freedom from most types of nonlinear distortion. We

obtained the flattest overall response, and the best sound, with the maximum tweeter level. The only measurable (and audible) weakness we found was the relatively high distortion below 100 Hz at moderately loud levels. We could not establish whether the distortion originated in the speaker or in its wall-segment enclosure, but it could sometimes be heard as a buzzing sound on sine waves and other sustained signals.

Because of the in-wall application of these speakers, it is not possible to predict, except in the most general way, how they might sound in other installations on the basis of tests such as ours (or anyone else's). But the inherent response range, flatness, and good dispersion of the Model 45 are strong indicators that it can probably deliver performance as good as you can get at this time from an in-wall installation. □

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SURROUND

SOUND

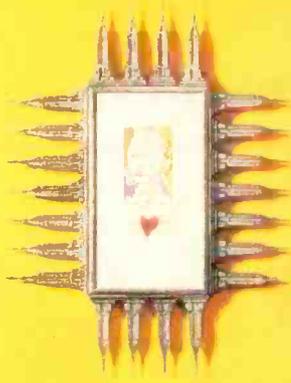
Breaking through to the third dimension

STEREO sound from two loudspeakers is often wonderful. But with two more speakers and some added circuitry, it can be dramatically more spacious and true to life. "Stereo" is Greek for solid (that is, three-dimensional), and surround sound is an enhanced form of stereo that is more convincingly three-dimensional and real. Audiophiles have been experimenting with surround-enhanced stereo for a quarter-century, but the last five years have yielded substantial sonic improvements and impressive cost reductions.

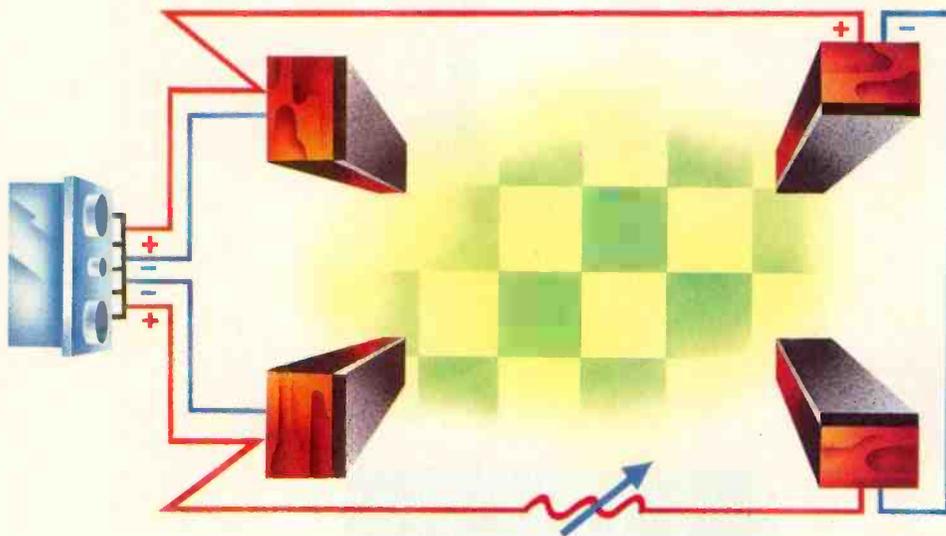
PHOTO BY TONY CORBOZZA



by Peter W. Mitchell



Do-It-Yourself Surround



You can whip together a basic system for ambience extraction and simple Dolby Surround decoding just by putting an extra pair of speakers at the sides or rear of the listening area and wiring them to your amplifier's hot (+) terminals. A 5-watt, 25-ohm potentiometer provides rear level control.

Twenty years ago it seemed obvious that two-channel stereo would shortly be obsolete. Experiments with four-channel recordings were yielding significantly heightened realism. The sense of *being there* in the stadium or concert hall was especially impressive with large-scale music. Two-speaker stereo seemed flat, unrealistic, and stale by comparison. But within a few years the four-channel revolution had failed, aborted by three obstacles:

1. *Incompatible formats.* Four-channel recording was not one system but three, with mutually incompatible decoders. SQ decoders from CBS couldn't handle CD-4 records from RCA, and vice versa.

2. *Primitive technology.* Four-channel records and decoders were rushed to market before the technology was fully developed. The final SQ and CD-4 decoders were quite good, but consumers had already given up on the format's unfulfilled promises.

3. *Confusion about purpose.* Four-channel's original goal (to produce a convincingly realistic sound field) was co-opted and discredited by the parallel development of quadraphonic recordings that attempted to place instruments and voices in every quadrant of the compass.

Four-channel records faded away, but the appeal of surround sound did not die. It just went underground while engineers figured out ways to make it work with standard two-channel recordings. In the mid-1970's the foundations were laid for the two major classes of surround sound that are becoming increasingly popular to-

day—concert-hall ambience for music and Dolby Surround for video programming.

The Sound of Ambience

The aim of stereo reproduction is to provide a realistic illusion of live music. Should that be a "they are here" illusion, putting the musicians in your living room? Or do you want a "you are there" illusion, producing the impression that you are surrounded by the spaces of the concert hall, cathedral, or jazz club where the music was performed? The you-are-there illusion is the aim of ambient-surround technology.

Musical sound is shaped by the acoustical character of the environment where you hear it. It has been said that when the Boston Symphony plays, its most important "instrument" is Symphony Hall. That would be obvious if you could hear the same orchestra playing in a high-school gym or (worse yet) outdoors, where it would sound thin and scrawny.

Whether your idea of musical heaven is a night club with a jazz combo, Philharmonic Hall with an orchestra, or a cathedral with a pipe organ and chorus, ambient-surround stereo can create that you-are-there feeling. In each of these environments, only a small part of the sound comes directly from the musicians to you. Most of the sound goes everywhere else—backward toward the stage paneling, up to the ceiling, out to the walls of the hall—so that listeners are bathed in

reflections coming at them from every direction.

The most important aspect of these reflections is their timing. Since they travel a longer distance than the direct sound, they arrive later at the ear, delayed by approximately 1 millisecond (ms) for each foot of extra distance. Reflections arriving less than 40 ms after the corresponding direct sound are not perceived as separate echoes. Their effect is subliminal, altering your perception of the direct sound—making it seem warmer, fuller, and louder than it really is. Reflections that are delayed much longer than 40 ms may become audible as distinct echoes, forming the reverberant "tail" that gradually dies away after each note.

Pop music is recorded in sound-absorbent studios, but electronic delay circuits and reverberation chambers are often used to add a sense of space to the sound. Recordings of classical music include the ambience of the concert hall, sometimes at an exaggerated level. The crucial difficulty is that in conventional stereo playback the ambience is reproduced by the same speakers as the direct sound. Since the recorded ambience arrives at the listener from the same frontal direction as the direct sound, it may produce the impression that the musicians are playing at the mouth of a reverberant cavern.

By channeling delayed reflections to separate speakers at the sides or rear of the listening room, ambient-surround stereo liberates the sound from the speaker boxes. It peels the

ambience off the front wall and puts it into the air around you, providing a tactile specificity that two-speaker stereo rarely equals. After you have experienced a surround system's illusion that you are in the same body of air as the performers, the impression of depth produced by two-speaker stereo may seem as flat, remote, and artificial as the geometric perspectives in a fifteenth-century painting.

But if you listen mainly to electronic rather than acoustic music—rock, for example, rather than classical music or traditional jazz—ambient-surround sound may not suit you. Consider the difference between a recording of a rock group in a studio versus the sound you hear when the band plays a concert in a large arena. The latter may be louder, but often the sound is distorted and unclear, thanks to the P.A. system and the many delayed reflections in the big hall. It's fun to experiment with the Stadium setting on a surround-sound processor, but you may prefer the intimacy, purity of sound, and clarity of detail that straight two-speaker stereo provides.

Psychoacoustics and Technology

Ambient-sound reproduction is an experimental area in which no two products work exactly the same way. The basic techniques are these:

Left-Minus-Right Extraction. In any recording some of the sound is monophonic, identical in the left and right channels. The remaining sound is the "stereo difference" signal, or L-R, which contains all of the spatial and "depth" cues. Basic ambient-surround systems simply extract this difference signal and feed it to speakers at the sides or back of the room.

The diagram on the facing page shows a low-cost ambience system that doesn't even require additional electronics. The L-R extraction is accomplished by connecting the ambience speakers to the left and right "hot" outputs of a conventional stereo amplifier.

Delayed L-R. The main difficulty with simple L-R extraction is that the ambience speakers must be substantially farther away from the listener than the main stereo speakers. If the surround speakers are too close to you, their sound will arrive first, and you will hear them (incorrectly) as direct sound sources. This problem can be avoided by using an electronic delay to retard the ambience signal by 20 or 30 milliseconds.

Basic Dolby Surround processors provide both L-R extraction and a 20-ms delay, so a low-cost Dolby Surround circuit can yield satisfying ambient-surround sound for music as well as movies. The cost of this processing is so low today that it is included in many audio/video receivers and big-screen TV sets.

Stereo Delay and DSP. The high-tech approach is to imitate what the concert hall does: Delay the whole sound, not just the L-R portion of it. In 1970 the Danish scientist E. R. Madsen discovered that by delaying a stereo signal by 20 ms and feeding it to side speakers, hidden ambience in recordings would be "unmasked," enabling the listener to perceive it more realistically. Many electronic delay systems also recirculate the signal through the delays to create electronic reverberation.

Several manufacturers, notably Lexicon, Yamaha, and JVC, use digital signal processing (DSP) circuits to provide not just one delay but many, mimicking the complex array of delayed reflections that occur in a real hall. These systems can provide a stunningly realistic concert-hall impression. The multiple-delay pattern provides *ambience synthesis*, while the initial delays provide Madsen-type *ambience extraction*.

A DSP unit's operating controls may be dizzyingly complex, enabling you to select the delay pattern, the strength and length of the initial delays, and the timbre and decay time of any added reverberation. Such flexi-

bility gives you the freedom to produce a very natural-sounding effect that matches and extends the ambience already in the recording. It also allows you to create a twangy, unnatural clangor. The greatest problem with any ambient-surround processor is that it can easily be misused to create truly awful sound.

Dolby Surround

Most people's first exposure to surround sound occurred not in a hi-fi store but at the movies. It's not a new idea; surround speakers were part of the première showings of Disney's *Fantasia* in 1940. It became practical and popular when Dolby Laboratories included surround sound, along with noise reduction and extended frequency response, in the system of film-sound enhancements known as Dolby Stereo. Worldwide movie audiences got a dramatic introduction to Dolby Stereo when the rebel spaceship roared overhead from back to front in the opening scene of *Star Wars*.

For the movie industry, the key virtue of Dolby Stereo is its universal compatibility. Since the surround effects are included in the film's standard optical stereo soundtrack, the same copy of the film can provide basic mono in a low-cost neighborhood theater as well as wide-range stereo with surround sound in a new cineplex. Similarly, when the film is shown on TV, transferred to videocassette, or purchased as a laserdisc, it will play properly through any audio system—a TV set's 3-inch speaker, a basic two-speaker stereo setup, or a wide-range Dolby Surround playback system. When a movie is transferred to video its surround encoding remains intact.

Dolby Surround encoding is based on "matrix" methods of four-channel recording that were devised for LP records in the early 1970's. These are called 4-2-4 systems: Four original signals are mixed to make a two-channel stereo recording, which is decoded in playback to recover an approximation of the original four channels. In film sound the four channels are left, center, right, and surround. (The center channel is used for almost all on-screen dialogue, but it carries music and effects sounds as well. Its purpose is to insure that voices and other sounds originating from on-screen sources will appear to come from the screen even when viewers are seated off-center.)

To produce a two-channel Dolby Stereo recording, the center channel is

**Surround
sound peels the
ambience off the
front wall
and puts it into
the air around
the listener.**

added to the left and right channels as a mono (in-phase) signal. The surround signal is also added to the left and right, but out of phase. The surround signal is encoded for Dolby B noise-reduction to minimize hiss, a problem in optical film soundtracks as well as music cassettes.

For playback, the left-total and right-total channels are added together in the Dolby Surround decoder to recover the center signal, while L-R subtraction extracts the out-of-phase surround signal. Every Dolby Surround decoder contains a Dolby B noise-reduction circuit and a delay circuit that retards the surround signal by about 20 ms to prevent unwanted localization of frontal sounds in the surround speakers.

Since all Dolby Surround decoders provide delayed L-R processing of the surround information, they can also extract hidden ambience in musical recordings. Thanks to the popularity of audio/video "home theater" systems with Dolby Surround decoding, a growing number of TV shows and musical CD's are being surround-encoded. Even among the large majority of CD's and audio tapes that are not encoded, many contain out-of-phase ambience that can be extracted by a Dolby Surround decoder.

Dolby Pro Logic

Basic Dolby Surround decoders suffer from the same limitation that afflicted matrix four-channel decoders of the early 1970's: poor separation. Once an egg has been scrambled, it is difficult to separate the white from the yolk. In a 4-2-4 system the four channels, once mixed into two, cannot be completely unscrambled again. Some of the original left- and right-channel information stays in the center and surround signals after decoding.

Dolby Pro Logic decoders cope with this problem by using "steering" circuits to detect which channel is loudest at each moment, raise its volume, and momentarily reduce the level of the other channels. For example, if a truck drives into a scene from the left, the Dolby Surround decoding will cause the left channel to be slightly louder. A Pro Logic decoder will immediately boost the left and reduce the volume of the center channel, so you clearly hear the truck's roar in the left speaker.

In early Pro Logic decoders you could hear the process working, with volume-pumping and inappropriate wandering of sound images. But newer decoders work quite well, and

film-sound engineers mix while listening through a professional Dolby Pro Logic decoder to make sure that images are placed on the soundtrack where they should appear in playback. The opening sequence in *Back to the Future*, with its array of ticking clocks and other gadgets, is an excellent test of a decoder's localization. If you choose to omit the center speaker from your home theater, the separation of extreme left and right sounds will be fine, but the "tracking" of images across the screen may be vague.

Dolby Pro Logic decoders are able to provide precise localization of on-screen sounds and airy, spacious ambience at the same time. Until recently such decoders were complex and expensive. But now that the entire Pro Logic circuit is available in a single low-cost integrated-circuit chip, it can be included in A/V receivers and budget-price decoders.

Surround Speakers

With Madsen-type delayed-stereo ambience processing, the surround signals span the same frequency range as the main stereo channels. Ideally, in that case, the surround speakers should be full-range models. But in Dolby Surround the "rear" signal contains neither deep bass nor high treble, so the surround speakers can be small models chosen for smooth midrange response.

In all surround-sound installations, the most important requirement is that the midrange timbre of the surround, or "effect," speakers should be similar to that of the main stereo pair. Often it makes sense to choose surround speakers that are junior-size versions of your main speakers. In Dolby Surround it is even more important to match the center speaker with the left and right. If the center speaker has a different frequency response, the stereo image at each frequency will shift toward the speaker with the higher output.

Many of the best-sounding home-theater installations are subwoofer/satellite systems with five identical small speakers, for left, center, right, and two surrounds, plus a subwoofer or two for the deep bass. The wiring of a surround system can become a bit messy, with cables running from the surround processor to as many as six amplifier channels and then from the amplifiers to the various speaker boxes. To simplify the hookup you can use an A/V receiver with all of the processing and amplifier circuits in a single

case, or use a separate processor with small powered speakers containing their own amplifiers such as the Bose RoomMates, AR's Powered Partners, or Atlantic Technology's Pattern.

For maximum spatial effect, surround sound should be diffuse, arriving from all directions. Some of the best ambient-surround systems use six speakers (four surround channels plus your main stereo pair). If you use a single pair of surround speakers, they should not fire directly at your chair. They should be aimed to scatter their output, arriving as strongly from the sides as from behind you.

You may achieve good diffusion by laying the surround speakers on their backs, firing upward to scatter their sound off the walls and ceiling, or mount them high on the back wall facing outward to bounce sound off the side walls. A few hours of experimenting with speaker location and aiming may provide more realistically spacious sound. The more successful the installation, the more difficult it will be to perceive the surround speakers as discrete sources of sound.

The goal of surround sound is to make the walls of your room disappear, but they may still have an acoustic effect. If you stuff your surround speakers into wall-ceiling corners, reflections off those adjacent surfaces will color the surround sound, boosting its lower midrange and midbass so that it no longer matches the timbre of the direct sound from the front. Solution: Use tone controls or an equalizer in the rear-signal path to tame the excess, or move the surround speakers out of the corners.

Fine-Tuning

Since surround sound is an enhancement to stereo, it requires relatively little amplifier power. The rear-channel amplifier can be rated at less than one-third the power of your main amp, often as little as one-tenth.

Dolby Surround decoders usually contain a circulating test signal that you can use to equalize the levels of the left, center, right, and surround speakers. From that reference setting you can fine-tune the rear volume to achieve the most pleasing result.

Non-Dolby surround systems must be adjusted by ear. The great temptation is to crank up the surround volume to achieve a spectacularly spacious effect. But that usually produces a very unnatural sound in which any flaws in the delay circuits are all too audible. In ambience the watchword is subtlety. (I've never seen a concert

Home THX

THX is not a process, nor a product, but a certification program devised by engineers at Lucasfilm, Ltd., to set performance standards for movie-theater sound. It is an extension and refinement of the revolution in theater sound that was launched by Dolby Stereo two decades ago. The aim of the program is for the sound you hear in a THX-certified theater to be as close as possible to what the film-sound engineers heard in the studio. Several hundred theaters have obtained THX approval, and the number is growing.

The theater's entire sound system, including its Dolby Surround decoding, must meet Lucasfilm standards for frequency response, freedom from distortion, attainable peak loudness, and actual playback level. Also, the theater's background noise level (including air-conditioning rumble and sound leakage from adjacent theaters in a cineplex) must be low enough that quiet details in the soundtrack won't be obscured.

Home THX translates most of this concept to the home video theater. (Controlling your home's background noise remains your problem.) Before receiving Home THX certification, prototypes of the surround processor, amplifiers, and loudspeakers must meet Lucasfilm standards. Any manufacturer wanting THX certification can submit products to Lucasfilm for testing.

All THX processors use Dolby Pro Logic decoding to insure that sounds are accurately localized where the film-sound engineers intended them to be. Other circuits compensate for differences between living-room and theater environments. For example, in a large theater the highs roll off gradually according to an industry-standard curve, and film-sound engineers often equalize soundtracks to compensate for that rolloff. When you play the resulting laserdisc at home through speakers with "flat" response, the treble may sound harsh. A THX processor corrects this, as do the "theater-compensation" circuits in some non-THX home surround-sound processors.

THX processors also correct for subjective differences in timbre between the main and surround speakers, and they "decorrelate" the left and right surround signals to prevent them from sounding monophonic. THX-approved amplifiers are tested to guarantee that they will deliver full power into the typically reactive impedance of a loudspeaker, not just an 8-ohm test resistor.

THX-approved speakers must have controlled directivity. The front speakers (left, center, right) will have narrow vertical dispersion to minimize reflections off the floor and ceiling. Meanwhile, the surround speakers, which are intended to be mounted on the side walls, will have a dipolar pattern, firing toward the front and back but not directly at the listener. This insures that the surround sound is scattered around in the room before it arrives at your ears.

Professional equalization is the newest addition to the Home THX recipe. A THX equalizer connects to the output of the surround decoder. For each of the three front channels (L, C, R), it provides equalization in narrow, one-third-octave bands from 80 to 800 Hz in order to correct for loudspeaker irregularities, cancellations caused by wall and floor reflections, and standing waves. "Interpolating constant-Q" circuits minimize unwanted interaction between adjacent frequency bands. Each channel also contains two bands of parametric EQ above 1,000 Hz. Their center frequencies and bandwidths can be adjusted to fine-tune the system's response. Two more parametric EQ bands in the subwoofer channel help to compensate for irregular bass caused by standing waves.

After you buy a THX equalizer, a trained THX installer will come to your home with a professional spectrum analyzer. He or she will measure the actual response of your system at several locations in your prime listening area and fine-tune the equalizer settings until the speakers deliver smooth response to your ears. Then a blank panel can be bolted over the controls to prevent accidental alteration of their settings.

Compared to a typical non-THX Dolby Surround system, the main advantage of a Home THX system is its freedom from unwanted side effects (such as sounds appearing at locations where they don't belong). The sound is more consistently like that in a good theater. Non-THX systems with Dolby Pro Logic decoding can be designed to provide substantially the same benefit, and some do. But with THX you don't need to guess.

The THX processor, like any Dolby Pro Logic device, works best with surround-encoded recordings. When you try to extract ambience from unencoded recordings, the "steering" logic could cause unnatural shifts in the stereo image and should therefore be bypassed. —P.W.M.

audience turn around because the reflections off the walls caught their attention.) If you can plainly hear the rear speakers working, they are too loud. Ideally, listeners should be unaware of surround speakers—until you switch them off and feel a sudden loss as the three-dimensional sound field collapses into the front wall.

Four-Channel Recording

For most listeners, surround-encoded CD's and laserdiscs reproduced through a Dolby Surround decoder provide a thoroughly satisfying concert-hall impression. But if people develop a strong appetite for surround sound, other approaches are waiting in the wings. Ambisonic encoding, a method developed a decade ago in England, is an alternative 4-2-4 matrix encoding system. From recordings made with a four-capsule "sound-field" microphone, an Ambisonic playback system can even reproduce a dimension of height as well as lateral directions.

When the compact disc format was defined a decade ago, two arrangements were specified for the digital data on the CD. The system in everyday use today can provide almost 80 minutes of two-channel stereo. An alternative format, available when anyone wants to start using it, enables a CD to contain up to 40 minutes of discrete four-channel sound. Unfortunately, there's a chicken-and-egg problem: Before four-channel CD's can be sold, manufacturers will have to produce CD players equipped to decode them. The modification is slight; a four-channel CD player would cost only a few dollars more than a two-channel model. But none exist today.

Meanwhile, for movie theaters Dolby Laboratories recently introduced a new method of placing an all-digital soundtrack on the film next to the normal optical-stereo soundtrack. In this new SR-D format the digital code is located on the film between the sprocket holes. It contains a total of six discrete audio channels: left, center, right, left-surround, right-surround, and sub-bass. And for the next generation of all-digital VCR's and laserdiscs that will appear in the latter part of this decade, Dolby has already developed a home version of SR-D encoding called AC-3. It will accommodate the same six discrete audio channels in digitally compressed form. Surround sound is here to stay. □

GARTH

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ONE day in 1984, Garth Brooks, then a big-jock-on-campus at Oklahoma State University, decided to go for a ride with his childhood friend Mickey Weber and another guy named Mike. The next thing they knew, the car was crushed under the back of a flatbed truck, mashed like the folds of a spent accordion. Weber went through the windshield up to his chest and stuck there. At the hospital, doctors decided Mike needed surgery to restore the features of his face. Then there was Brooks, who'd been sitting in the back seat.

"He got his hat crushed," Weber recalls. "That was about it."

Obviously, Brooks, now thirty and the reigning king of contemporary country music, already had more than a nodding acquaintance with extraordinary good luck by the time he came to Nashville in the late 1980's. But nothing prepared him for his success in the music business. And almost no one in the industry was prepared to believe that Brooks—or any country performer, for that matter—could reach the heights he has in such a short time, especially since, as Brooks himself says, "I sure ain't paid no dues."

Dues or no, with his second album, "No Fences," Brooks pulled down the record for the best-selling country album in history—five million copies sold to date. And his third album, "Ropin' the Wind," recently showed the pop world a thing or two, beating out albums by Guns n' Roses and Hammer to claim the No. 1 spot on *Billboard's* Top 200 Albums chart for seven weeks.

More significant, Brooks's breakthrough means that country music, long considered the entertainment choice of hicks, rubes, hayseeds, yokels, and bumpkins, has gained a new degree of respectability. In a way, it's as if Brooks and Nashville conspired to settle the score, to prove that country performers can sell more records than a lot of pop or rock acts, and sell them just as quickly. In Texas language, Brooks slipped a rattlesnake in their pocket and then asked 'em for a match.

Just why Brooks has become such a phenomenon is both complex and subjective. But again, luck clearly has something to do with it. True, Brooks's sentimental songs blur the lines between country and pop—check out his straightforward cover of Billy Joel's *Shameless* or his own *The Dance*, a mini-essay on life and death—and speak to baby boomers

raised on the syrupy singer-songwriters of the 1970's. But SoundScan, *Billboard's* new system for tabulating the Top 200 Albums chart, which is based on sales regardless of category, proves that the genre has a lot of closet fans and that Brooks came along at the right time to drag them out of hiding.

"I really don't have a clue why it happened to me," Brooks told me, sitting in the privacy of a parked car before a concert in Tulsa. But his manager, Pam Lewis, has more than an inkling. "The secret to his success," she said, "is that people can relate to him. He's an Everyman. He's chubby, he's balding, and sometimes his grammar's not the best. But he's very human. I've seen him cry on stage."

Yet in fairness to the rest of the world's talented musicians, overweight singers, and exquisite criers, the popular-music field—and specifically country—was ready for somebody like Brooks. Rap and heavy metal have driven radio listeners away in droves, inspiring them to tour the Southern side of the dial, where today's country often sounds like the natural evolution of Sixties and Seventies pop, at least when it's not touting the qualities of family and home. Others have turned to country as a way to stave off the bad-economy blues.

"Whenever times get bad," says Steve Berger, president of Nationwide Communications, Inc., a radio group with fourteen stations, "people return to their roots."

All that makes the Recession Two-Step one of Nashville's favorite jigs. But then every fan has his personal reasons for saddling up with a specific artist. "I like him because he has morals like in [his song] *Unanswered Prayers*," said one male admirer, eighteen-year-old Chris Stallworth, before Brooks's Tulsa show—a concert so energetic and animated that it probably would have made Brooks a certifiable pop/rock star fifteen years ago. And a group of young women too drunk to give their names said they love Brooks's good-time *Friends in Low Places* because it fits their care-free girls-night-out attitude. That No. 1 song, about a hick who shows up in boots to ruin his former girl friend's black-tie affair, is unquestionably the biggest crowd pleaser in his shows.

And yet, Brooks said, "a hick is probably the last thing I am, and the first thing I wanted to be when I moved to Nashville" in 1986.

The son of a draftsman, Troyal Garth Brooks grew up in Yukon, Okla-



**"A hick is
probably the last
thing I am, and
the first thing I
wanted to be..."**

homa (pop. 22,000), a wheat-and-oil town where Jesus and George Strait define much of the life style and where even God would have a hard time getting a ticket to the biggest football game of the season, the one where the Yukon High Millers, no strangers to state championships, test their prowess and prove their manhood.

After distinguishing himself in high-school football and baseball, Brooks won an athletic scholarship to college, where he was a four-year letterman in track and field as a javelin thrower. ("After two years of catching it, they finally let you throw it!") But music had always been an integral part of his childhood—his mother, Colleen Carroll, had recorded country tunes for Capitol Records—and at college Brooks played guitar and wrote original tunes, wedding his music to his major of advertising and marketing in hopes of writing jingles for a living. His classmates remember him as "a special guy, and very loyal," according to one, Mike Jones. But by his own admission, Brooks wasn't exactly the world's nicest guy.

"I was pretty much a [bleep] throughout high school and college," Brooks confided in the hushed tones usually employed by thespians and TV evangelists. "Especially where women were concerned. I went through them pretty quickly. I did everything bad that you can imagine to do to them."

UNTIL he met Sandy Mahl, a fellow student three years his junior with whom he lived for several years before marrying in 1986. Brooks credits his wife—who's currently expecting their first child—with much of his success. It was Sandy who worked three jobs and insisted that Brooks stick it out when things weren't going his way after the couple moved to Nashville. Brooks had already given up once before, the first time he traveled to Tennessee, confident he'd be hailed as country's new messiah, his name on water towers all over town.

But Twangtown, where young boys with guitars on their shoulders and dreams in their pockets stand on every street corner, thought differently. And so Brooks came home with his tail between his legs. Years later, out of both pride and commiseration, a committee of his supporters painted "Home of Garth Brooks" on the Yukon water tower, above, even, the reference to the almighty Millers.

Brooks's big break finally came

when Lynn Shults, then with Capitol and now a *Billboard* columnist, heard him perform at an industry showcase. Capitol had already rejected him, as had every other major label in town. "Maybe we missed something," Shults told him.

Still, in April 1989, the company shipped only 11,000 copies of his debut album, "Garth Brooks," indicating little vision of Brooks's enormous crossover appeal. Today, that album has sold more than 2½ million copies, in part because of Capitol's aggressive merchandising campaign for Brooks's second album, "No Fences." Joe Mansfield, Capitol Nashville's vice president of sales and marketing, admits that the company paid to have the album prominently displayed in chain record stores and discount department stores. That's standard operating procedure with pop records but rare for country.

Brooks is said to be a stickler for details—a control freak—and, despite his success, to fight with Capitol Nashville honchos over the way the company has handled his career. On stage, however, he still appears as the humble jock, tearing up the audience with high-energy theatrics such as climbing up into the light chamber and throwing water on his band—and then in a soft voice thanking the crowd and saying that if they don't mind he'd like to come back next year.

Much of the energy on stage, he said, is sexual, explaining, "A great concert is like any great sex, where you get wild and frenzied, then turn that around quick to something gentle, tender, and slow, and then get wild and crazy again, and just keep doing that over and over until one of you drops dead. If you've done what a sexual partner should, then that woman should live the rest of her life saying, 'Damn! Sex is good!' That's the way it is with music."

Yet sex has gotten him in trouble, most notably in his video for *The Thunder Rolls*, a song about a cheating husband and his wife's discovery of the affair. Brooks dramatized the song's final verse—where the wife shoots her philandering spouse—which his record producer had talked him into omitting from the CD and tape versions. In the video, the wife shows bruises to suggest she's been abused, and there is some suggestion that their daughter, too, has had something other than a healthy relationship with Daddy.

The original script called for more interaction between the husband and

the daughter, and for the couple to struggle over the gun. But Brooks later decided he was carrying the story line too far, even though all of the violence is handled tastefully—the actual gunshot is symbolized by a tree crashing through the window.

The budget for the video was roughly \$100,000, far above the usual country video budget of \$30,000 to \$60,000. To save money, and to try his luck at acting ("I always wanted to be the bad guy . . . my brother, Kelly, and I used to laugh ourselves to death talking about what we'd do to people if we ran a torture chamber"), Brooks decided to don a fake beard and wig and play the husband himself. That meant he also acted his own highly suggestive scenes of sexual foreplay with the husband's mistress, a move that got him into hot water with his wife. On top of that, the video ended up being banned by the two country-music video channels, which cited violence as the reason.

Whether violence was the real reason the video was banned—a hidden agenda may have been to discourage other country artists from straying beyond the narrow boundaries of country video concepts or to censor the steamy depiction of sex—Brooks had the last laugh. The video won a *Bullet* at last October's Country Music Association awards, where Brooks was also named Entertainer of the Year.

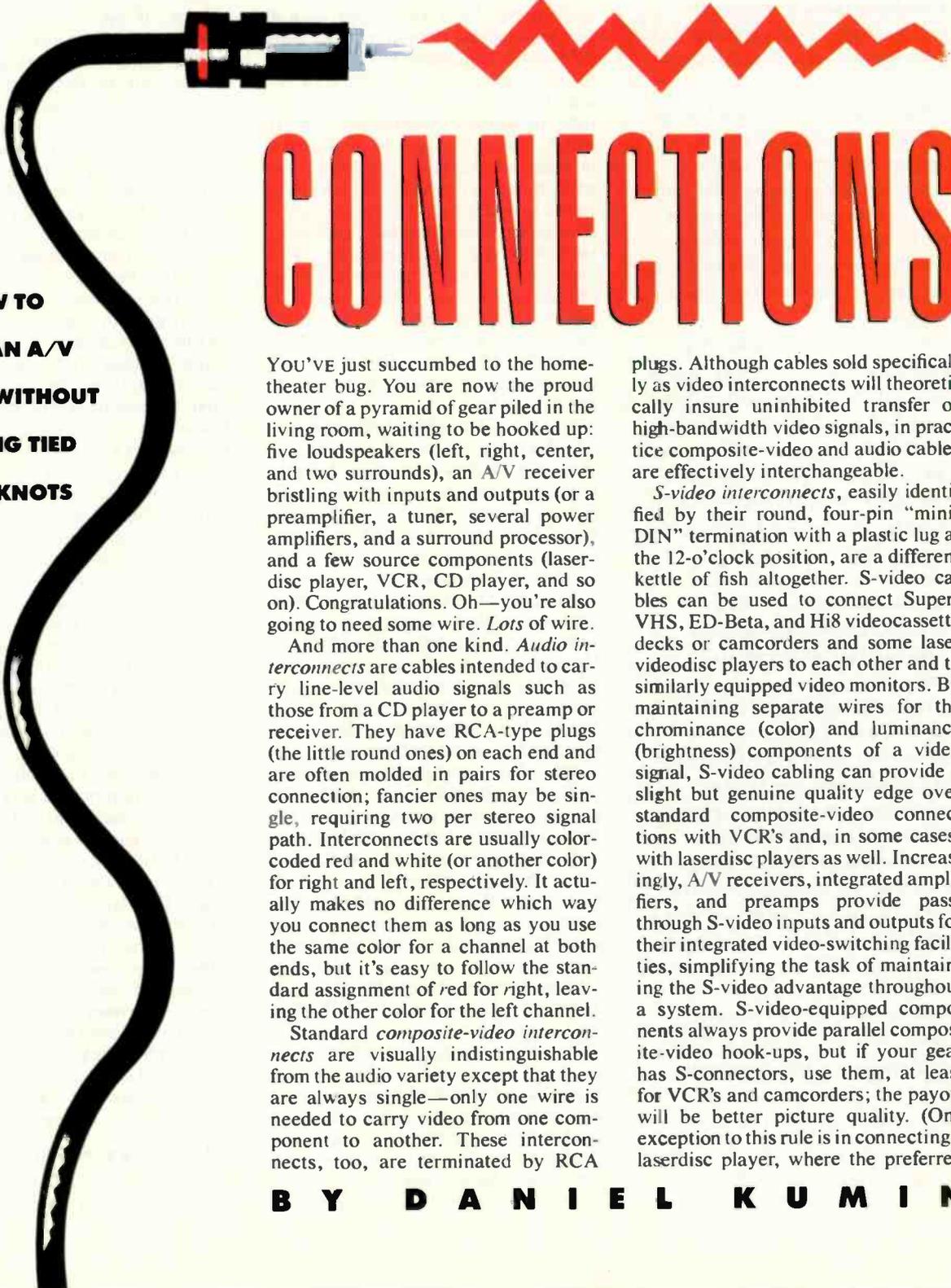
With so much success so soon—he's already done a Bob Hope show, appeared on the sitcom *Empty Nest*, and starred in an NBC special of his own—Brooks knows he runs the risk of overexposure and that it all could end tomorrow. If so, he might entertain the idea of going into politics.

"I want the people, and I want the power," he said in a dramatic whisper while waiting for a photo setup at Tulsa's Denver Grill, a 1950's-themed diner. But it turns out that Brooks wants power only to use the podium to tell kids to stay in school and keep off drugs. The theatrical tone aside, he seems to mean it, even if the words sound like every entertainer's cliché.

To the conservative powers that be in Nashville, as long as Brooks keeps selling tickets and albums and steers away from controversial music videos about misogyny and murder, he could realize his vision of not just playing to a million people but making a difference in their lives. It'll take years of hard work and dedication, of course, but it'll also require plain, old-fashioned good luck. And *that* Garth Brooks seems to have in spades. □

HOME THEATER

CONNECTIONS



**HOW TO
WIRE AN A/V
SYSTEM WITHOUT
GETTING TIED
UP IN KNOTS**

YOU'VE just succumbed to the home-theater bug. You are now the proud owner of a pyramid of gear piled in the living room, waiting to be hooked up: five loudspeakers (left, right, center, and two surrounds), an A/V receiver bristling with inputs and outputs (or a preamplifier, a tuner, several power amplifiers, and a surround processor), and a few source components (laserdisc player, VCR, CD player, and so on). Congratulations. Oh—you're also going to need some wire. *Lots* of wire.

And more than one kind. *Audio interconnects* are cables intended to carry line-level audio signals such as those from a CD player to a preamp or receiver. They have RCA-type plugs (the little round ones) on each end and are often molded in pairs for stereo connection; fancier ones may be single, requiring two per stereo signal path. Interconnects are usually color-coded red and white (or another color) for right and left, respectively. It actually makes no difference which way you connect them as long as you use the same color for a channel at both ends, but it's easy to follow the standard assignment of red for right, leaving the other color for the left channel.

Standard *composite-video interconnects* are visually indistinguishable from the audio variety except that they are always single—only one wire is needed to carry video from one component to another. These interconnects, too, are terminated by RCA

plugs. Although cables sold specifically as video interconnects will theoretically insure uninhibited transfer of high-bandwidth video signals, in practice composite-video and audio cables are effectively interchangeable.

S-video interconnects, easily identified by their round, four-pin "mini-DIN" termination with a plastic lug at the 12-o'clock position, are a different kettle of fish altogether. S-video cables can be used to connect Super-VHS, ED-Beta, and Hi8 videocassette decks or camcorders and some laser videodisc players to each other and to similarly equipped video monitors. By maintaining separate wires for the chrominance (color) and luminance (brightness) components of a video signal, S-video cabling can provide a slight but genuine quality edge over standard composite-video connections with VCR's and, in some cases, with laserdisc players as well. Increasingly, A/V receivers, integrated amplifiers, and preamps provide pass-through S-video inputs and outputs for their integrated video-switching facilities, simplifying the task of maintaining the S-video advantage throughout a system. S-video-equipped components always provide parallel composite-video hook-ups, but if your gear has S-connectors, use them, at least for VCR's and camcorders; the payoff will be better picture quality. (One exception to this rule is in connecting a laserdisc player, where the preferred

B Y D A N I E L K U M I N

DIGITAL DEVELOPMENTS

ANOTHER connection format is cropping up these days: digital. Initially employed to link separate CD-transport components with outboard digital-to-analog converter units, digital links are beginning to appear in more and more audio and home-theater systems. Digital audio signals from CD and laserdisc players and digital tape decks are carried in binary form to a central preamp/processor/converter, which may even perform surround processing in the digital domain. If the music-and-sound signals remain digital virtually up to the power amplifiers, the likelihood of signal loss or distortion, or of added noise or hum, is practically nil.

Digital links come in two varieties: *optical* and *coaxial* (or electrical). Optical digital interconnects are almost without exception in the plastic fiber-optic format originated by Toshiba, called Toslink. A coaxial electrical digital interconnect is nothing more than a single-cable RCA-type interconnect. A digital audio signal has a bandwidth similar to that of composite video, so standard video interconnects (and, for that matter, regular old audio interconnects) can make digital connections without compromise.

The reason optical digital interlinks are preferred is that, being entirely nonelectrical, they are neither subject to external influences, such as induced noise or hum, nor able to leak radiation that could degrade signals flowing through nearby interconnects. By the same token, the potential noise/radiation factor is a good argument for employing a high-quality, well-shielded interconnect for any coaxial digital links. Specialized aftermarket digital links are still relatively rare, especially the optical variety, but most components that have optical outputs include a Toslink cable.

cabling will depend on the relative quality of its color-separation circuitry and that in your TV set. Try both composite- and S-video connections to see which gives the better picture.)

Prices for interconnect cables—especially audio interconnects—span a very wide range. Most components come with cables for connecting them to other equipment, and these will normally work fine. You can buy basic audio cables for a few dollars each if you need extras. Premium cables with gold-plated connectors to prevent corrosion or heavy-duty shielding to resist unusually strong hum fields or radio-frequency interference (RFI) will cost more but may be worthwhile in some situations. There are nowadays numerous brands of specialty cables boasting exotic construction or unusual materials that are claimed to improve sound or picture quality. The supposed benefits of such cables have proved difficult to verify, and the prices can be high. They are, however, very well made in most cases, and they are likely to be at least physically and cosmetically superior to more run-of-the-mill cables.

Speaker cable ranges from inexpensive hardware-store zip cord to python-size, \$100-a-foot specialty wiring. Either way, its job is to carry the relatively high-voltage, high-current signal from a power amplifier's or receiver's speaker outputs to the loudspeakers with minimal loss or change.

As with interconnects, the performance advantages claimed for expensive, esoterically designed speaker cable tend to be elusive, but that does not mean that you should use just any old piece of wire that happens to be handy. It is important to keep the electrical resistance of the cable reasonably low, especially with low-impedance loudspeakers. For short runs, ordinary 18-gauge copper zip cord often is adequate, but heavier 16-gauge wire is equally easy to handle and costs very little more. For long runs (more than 20 feet or so), you probably should consider moving up to 14- or even 12-gauge wire. Under no circumstances should you use cable with aluminum conductors or the extremely skinny (20-gauge or less) stuff often sold as "speaker wire."

Speaker cable can end in bare wire, or it can be dressed up with various crimp-on or screw-on "terminators." Straight pins fit the popular spring-loaded push-in terminals found on the backs of many midprice receivers and amplifiers. Spade lugs (shaped like little U's) and banana plugs (named for

their appearance) are suitable for the heftier screw-down binding posts on most high-end gear. Dual banana plugs, which make both signal and ground connections at once, are harder to find than singles or spade lugs, but they're convenient if you connect and disconnect equipment frequently.

A Basic Layout

Hooking up an A/V-receiver-based system, if not exactly simple, is at least straightforward. Patch each source component's left and right audio outputs to the receiver's inputs with audio interconnects. All line-level audio inputs—CD, AUX(iliary), VIDEO SOUND, and so on—are electrically identical, but for sanity's sake it's best to follow the receiver's labeling.

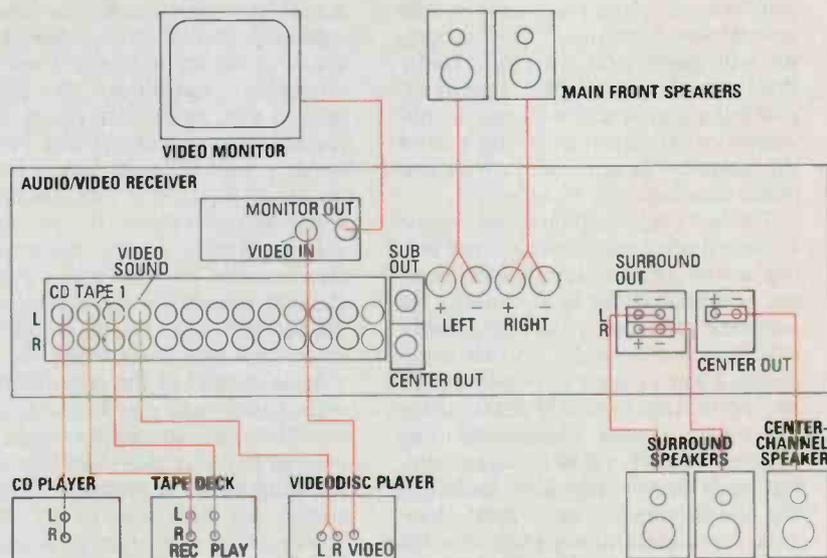
Similarly, source video outputs connect to the corresponding video inputs on the receiver—use the S-video connections where possible and appropriate. The receiver's VIDEO MONITOR output goes to your TV set or video monitor's EXTERNAL or VIDEO 1 input, using a single composite or S-video interconnect. Don't panic if you put an input or output where it doesn't belong—you can't damage anything if you connect a video source to an audio input or vice versa. Once you realize your mistake, just disconnect the wires and reconnect them properly.

Connect all the loudspeakers in the usual way with the speaker wire of your choice. Keep careful track of the + (red) and - (black) terminals, connecting the same wire in each pair to the same kind of terminals for all four or five speakers so that your whole system will be in phase. (Some wires may be color-coded red for + and black for -, but in most cases you will have to use a stripe or ridge in the insulation of one conductor as an identifier.) If you mix up a wire, you damage only sound quality: The bass will be thin or uneven and stereo imaging vague until you correct the error.

Routing all that wire can be a challenge. One trick is to send it down through holes in the wall or floor and let it clutter your basement ceiling rather than your living-room baseboards. Of course, for second-floor rooms, apartments, and most rental dwellings, power-tool solutions are not an option. Several companies offer specialized speaker cables in the form of flat ribbons that can pass unobtrusively under carpeting or along walls.

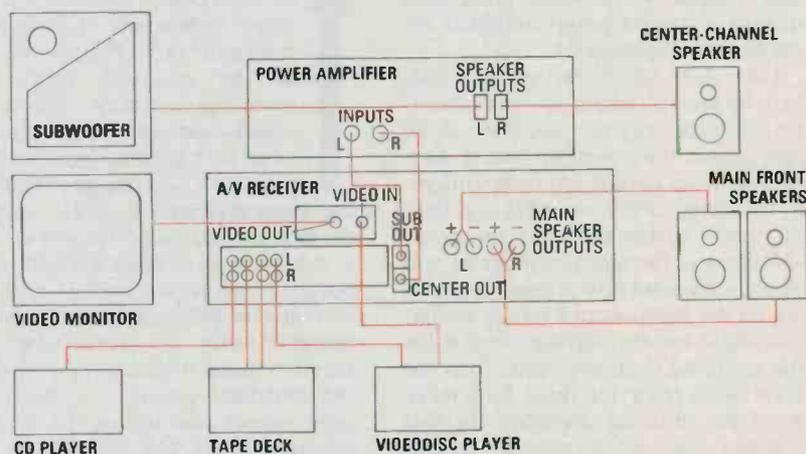
The Next Step

So far, so good. But with more elaborate systems, things quickly be-



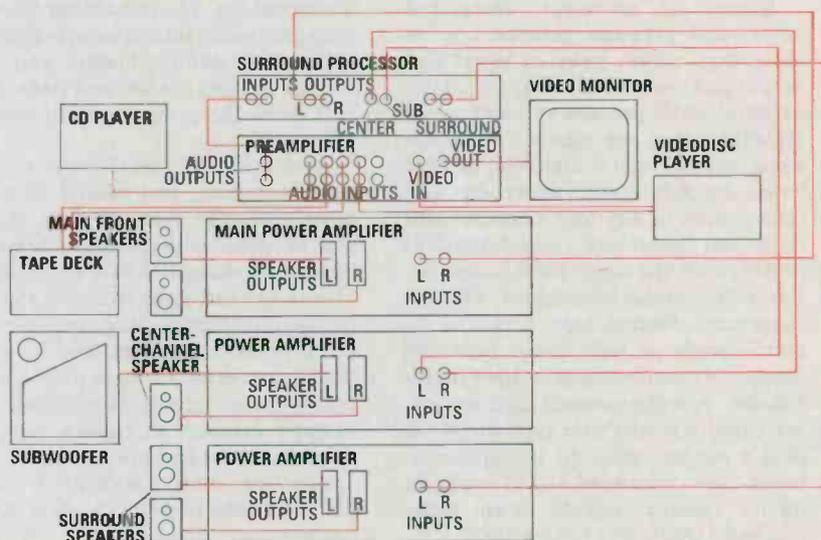
A BASIC LAYOUT

Hooking up multiple components through an audio/video receiver is a relatively straightforward matter. Attach the outputs of your components to their designated inputs, follow the color coding of the plugs and their interconnects, and make sure your speakers are in phase by keeping track of which ends of the speaker wires you've designated plus (+) and minus (-), and you've got it.



A POWER-BOOSTING SCENARIO

Supplement your A/V receiver with a power amplifier to pump up the center and subwoofer channels. Send the individual line-level outputs from your receiver into the right and left channels of the amp, then attach one speaker wire from the amp to the subwoofer and another to the center-channel speaker. Keep everything consistent so you don't wind up sending the center signal to the subwoofer.



THE SEPARATES APPROACH

This approach involves the most complex connections. All of your components are hooked to the various inputs of a preamplifier, and the preamp's main output is routed to a surround processor, which then feeds three power amplifiers: one for left and right channels, another for the surround speakers, and another for the center-channel speaker and the subwoofer.

come a bit complex. Most A/V receivers offer line-level preamp outputs for each channel so that you can substitute a more robust outboard power amplifier for any or all on-board channels. Many receivers also have a line-level output for a subwoofer, a desirable system addition if you're serious about achieving full cinematic impact.

A GOOD way to upgrade a receiver-based A/V system is to add an outboard power amplifier at least twice as powerful as the receiver's main channels and a single subwoofer with significant output down to 35 Hz or below. You can then use one channel of the new amplifier to power the subwoofer and the other channel for the center speaker, which frequently gets short shrift in terms of power in A/V receivers. (If your system has no center speaker, choose a bridgeable power amp and employ its higher-power mono bridged mode to boost your subwoofer's dynamic range. Better yet, consider adding a center speaker for realistic movie sound.)

In this arrangement, the audio interconnects from your A/V receiver's SUB(woofer) and CENTER line-level output jacks go to the external power amp's left and right inputs. Move the existing center-speaker cable from the receiver's CENTER terminals to the power amplifier's right-channel output terminals, and add a new speaker cable to run from the amp's left-channel terminals to the new subwoofer.

You'll need a different plan if you select a powered ("active") subwoofer with built-in amplification. These usually have their own custom-tailored electronic crossovers, so it's usually best *not* to use your receiver's (or surround processor's) line-level subwoofer output. Instead, feed the subwoofer the full-range signal from the receiver's main left/right line-level outputs. These signals must then be returned from the subwoofer's own line outputs back to the receiver's front-channel amplifier inputs. You'll need two pairs of audio interconnects for the subwoofer, probably of substantial length if, as is often the case, the subwoofer is located some distance from the main system.

Component Home Theater

More ambitious home-theater systems forgo the all-in-one convenience of an A/V receiver in favor of the greater power and flexibility afforded by a separate preamplifier, an out-

board surround-sound processor (or a combination preamp/processor), and several power amplifiers. The processor will almost surely include Dolby Pro Logic or a compatible system exploiting a center channel, and a subwoofer or two is probably also part of the picture. Thus, as many as six amplifier channels may be required.

The first consideration is placing the outboard processor in the overall wiring picture. In an all-separates system, the preferred chain is to connect the surround processor to the preamplifier's main output jacks, so that it becomes a sort of secondary preamplifier. The preamp itself still selects audio and video source components and handles overall volume adjustment, but each power amplifier, including the one driving the main front channels, receives its input signals from the appropriate line outputs of the processor, a layout that yields unified all-channel volume control and reasonable simplicity. (Several processors include a modest power amplifier for the surround speakers.)

Like A/V receivers, some audio-only integrated amplifiers and receivers provide PRE-OUT/MAIN-IN jacks that permit their preamp and power-amp sections to function independently. In these cases, connect the PRE-OUT jacks to the outboard processor and connect the MAIN-IN jacks as you would a separate power amp. Depending on the component's power rating, you might use its amplifier section for the surround channels rather than the main ones, reserving these for a more powerful separate amplifier. In this configuration, the processor's master volume control manages the setup's overall loudness.

Almost all receivers, integrated amps, and preamps provide one or more tape loops, pairs of input and output jacks intended for tape decks or external audio processors (such as an equalizer) that are selected by front-panel TAPE-MONITOR controls. A tape loop's outputs come before the volume control or any tone controls, and its return inputs are reintroduced at pretty much the same point—also before volume/tone adjustment. This arrangement enables tape decks to record signals as they come from the source, without volume or tone modification. Always connect tape recorders using one of those tape loops: A deck's *output* jacks go to inputs labeled TAPE IN or TAPE PLAY, while its *inputs* receive signals from jacks marked TAPE OUT or RECORD OUT.

Some components provide an addi-

tional PROCESSOR or EXTERNAL input/output loop, functionally identical to a tape loop. A tape or external-processor loop can be used for a surround processor, connecting the RECORD OUT or EXT. PROC. OUT signal to the processor's main inputs and the processor's front left/right signals back to the loop's input. But with this type of connection you'll have to use a master volume control on the processor or else set the center- and surround-channel volumes at the processor independently from the main channels, since each time you change the main volume control at the preamplifier or main control unit you'll have to rebalance the entire surround system. Connecting PRE-OUT jacks directly to the main inputs of the processor is almost always the best way to go. But if you're using a receiver or integrated amp that does not provide these, a tape or external-processor loop is your only alternative.

THE most elegant solution of all is a single component that incorporates a full A/V preamplifier, with all the necessary inputs and switching functions, and a surround-sound processor. In this case, both audio and video signals from A/V sources go directly to the preamp/processor, which supplies the monitor and the power amps.

A hypothetical system might incorporate three power amps—let's say two rated at 100 watts per channel and one at 50 watts. The first 100-watt amp receives audio interconnects carrying the surround processor's front left/right signals and drives the primary stereo speakers. The 50-watt amp handles the less demanding surround channel and is connected to the rear loudspeakers. The remaining 100-watt amp gets audio interconnects from the processor's center-channel and subwoofer outputs; its left and right channels drive the center speaker and the subwoofer.

As I said, the connections can become complex. But wiring even the most elaborate home-theater system can be done without an engineering degree. Perhaps the best piece of advice is to read your owner's manuals thoroughly before stringing the first piece of wire or cable. And it's not a bad idea to draw a simple plan. Take it one step at a time. Remember that outputs connect to inputs, *never* to other outputs, and always make your connections with everything switched off. And keep in mind the best part of home-theater setup: all the fun you'll have once you're done. □

CES

SHOWSTOPPERS



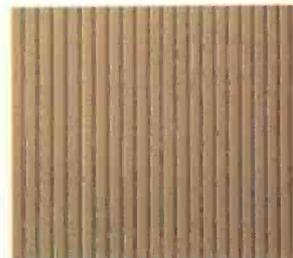
WHILE none of the attendees were inspired to do anything so extreme as to break out singing *Viva Las Vegas* on the Convention Center floor, the mood of the 1992 Winter Consumer Electronics Show in that Nevada city was far bubblier than it's been in years. The trade show, which highlights the newest audio and video products for the benefit of buyers, manufacturers, and journalists, boasted more than 78,000 attendees this year, a significant increase over last winter.



New technologies didn't exactly abound, but they were certainly in evidence, especially in the realm of home theater. One big attraction was Thomson Consumer Electronics' wide-screen (16 x 9 aspect ratio) television set, which will be brought to market under the RCA and ProScan brands late this year. In pure audio, Philips, with prominent support from Technics, Tandy, and Marantz, continued to herald the coming of the Digital Compact Cassette (DCC), announcing that its first DCC deck would be available this fall at a suggested retail price of \$700. BASF and several other manufacturers said they would introduce blank DCC tapes.



It was gratifying to see speaker manufacturers known for their high-price models, such as KEF and PSB, making forays into the inexpensive bookshelf category. PSB's Alpha speakers, for instance, list for only \$199 a pair. The show also brought a bumper crop of car audio innovations, some unexpected (Waverly's windshield tweeter) and some sorely needed (Pioneer's double-DIN head unit, an easy fit for Japanese cars).



In high-end audio there were several items of great interest, including a new loudspeaker system from Thiel and a prototype digital amplifier from Threshold. Although the overall number of new products wasn't as overwhelming as it's been in the past, the show floor yielded more than a few pieces of gear that intrigued and delighted us. On the pages that follow you'll see some new components we wouldn't mind owning ourselves.



BY GLENN KENNY



SHOWSTOPPERS



Sennheiser's limited-edition HEV 90 combines a tube amplifier, 1-bit D/A converter, and headphones for what could well be the ultimate in personal listening. Only 300 well-off people will get to have it, though: The price is \$13,000.

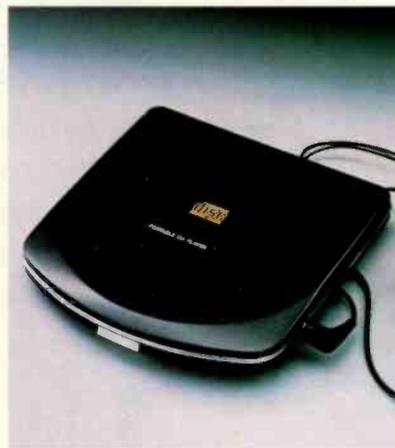
Until now all carousel CD changers held five discs. Onkyo's Integra DX-C909 (\$650) and two other new Onkyo models can hold six.



Fisher's PCD7 portable CD player (\$500) features a data buffer that keeps the music flowing even when the going gets bumpy.



The Altec Lansing ACS-300 three-piece speaker system (\$400) brings hi-fi audio to personal computers, including digital signal processing and a bass module.





Atlantic Technology's System 150 A (\$599) is a three-piece "power-directed" speaker system whose amplifier can deliver 70 watts to the subwoofer alone or 30 watts each to all three speakers.

The Rane THX 44 (\$1,299) is the first equalizer licensed for use in Home THX systems. It provides four channels of equalization: left, right, and center, and a specially designed two-band parametric section for use with a subwoofer.



The Philips digital speakers (\$1,200 each), with built-in amplification and D/A conversion, can be connected directly to the digital output of a CD player. Designed for easy use in multiroom setups, the speakers can be daisy-chained with single-wire connections.



RCA's five-piece surround-sound speaker system (under \$2,000) has several unique features, including a center-channel speaker with two bass/midrange drivers at 45-degree angles and a single-enclosure surround-channel module with six drivers, two radiating from opposite ends and four smaller ones firing upward.

SHOWSTOPPERS



The Kinergetics KMP-100 (\$4,200), part of the company's Platinum series of car stereo components, combines a 20-bit D/A converter with a preamplifier that accepts line-level analog, coaxial digital, and fiber-optic digital inputs.

Waverly's K-25 (\$125) mounts on a car's windshield and transforms the whole surface into a tweeter.



Billed as the first combination car stereo head unit and cellular telephone, Blaupunkt's Las Vegas is also voice activated. The price wasn't set by our press time.

Pioneer's double-DIN-size FH-M75 CD/cassette/receiver (\$1,200) has parametric EQ and a voice-cancellation feature for highway karaoke—no microphone, though.



Alpine's Model 7930 3D (\$900), the first in-dash CD changer, uses a three-disc loading magazine and includes an AM/FM tuner.

T H E V E R D I C T I S I N

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Two relatively new trends have created a universal need for sub-woofers—home theaters and smaller speakers. Surround sound decoders have a specific output for low frequencies which are specially equalized to simulate the rumble of thunder or the roar of a plane taking off. For this, and for adding the lower octaves of music to smaller speakers, a sub-woofer is an essential addition. Δ Within months of their introduction, there is general consensus that Melior Sub-woofers are better than any others in the market. Built-in high current Meitner amplifiers, negative impedance feed-back system, user adjustable damping controls and low pass filtered input with variable gain have earned the Melior Sub-woofers the reputation as the best performing sub-woofers available. Δ Decorators love the real wood and the lacquered finish of the Melior Sub-woofers. Δ Three models of Melior Sub-woofers are presently available, SW-24, SW-15 and SW-12.

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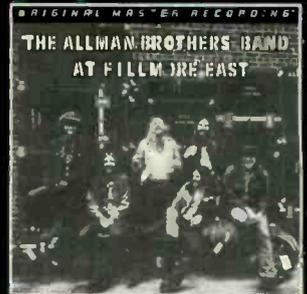
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UDCD 556

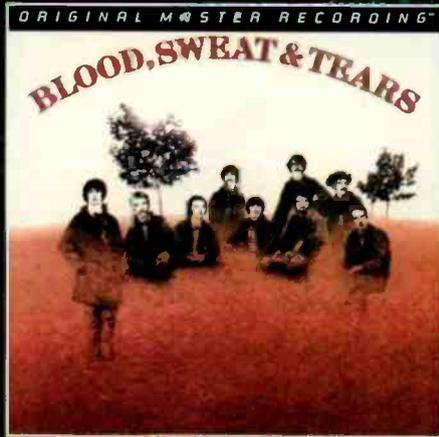


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Stereo Review's critics choose the



outstanding current releases

Marshall Chapman: Too Tall, That's All

MARSHALL Chapman was too cool and too real for Nashville when she first hit town in the Seventies. Not to mention too bluesy, too irreverent, too original, too powerhouse, and too tall for an industry that expected its "girl singers" to be complacent, subservient, and, of course, petite (the better for pushing around). Not surprisingly, she scared the hell out of folks, and her label (Epic) let her go. And so she continued to write songs that other people occasionally recorded, and after a while she started her own little record company, appropriately named Tall Girl Records. In 1987 she released "Dirty Linen," the record of her life.

Now comes yet another of Chapman's self-produced albums, and, like its predecessor, it's one of those records you'll carry around in your coat and pull out at parties, winking knowingly at anybody else who's heard it. For "Inside Job" will probably do much to enhance Chapman's cult following and little to enrich her bank account. That's the way it is with terrific music outside the mainstream.

To be fair, a couple of the tunes could use a little more fine-tuning. *Real Smart Man*, about a fella who values his money above anything else in his life, and *The 90's Is the 60's Turned Upside Down*, with its nose-tweaking sitar line, never quite deliver the punch they promise. But almost everything else here does, and even the weakest cuts work a wonderful groove as Chapman fronts her crackerjack little rock 'n' blues band, the Love Slaves (she wishes!).

Chapman's writing is sharpest when she looks in the mirror. What she sees is a woman who runs away from love one minute and makes a beeline for it the next. And that's the way she couples her songs. For example, *Girl in a Bubble*, a self-isolation boogie, precedes the rockabilly-flavored *Come Up and See Me*. And *Better Off Without You*, a straight-from-the-vein piece of songwriting about the emo-

tionally wrenching dissolution of a love affair, is followed by *I Must Be Missing You*, a kind of Maria Muldaur vocal set to a cinematic lyric: "There's a blue hound / Out my window / And a blue moon / In the sky / They are calling / To each other / Sending blue chills / Down my spine / I must be missing you."

If you're depressed yourself, you may think there's too much stuff here about truth in self-analysis and up-close-and-personal psychological unmasking, especially in the poignant and rejuvenating *It's Never Too Late to Have a Happy Childhood*. But along with the introspection, there's also a lot of humor, and a hell of a lot of fun. Chapman continues to be one of the

freshiest voices in Nashville. And, best of all, she's never forgotten which end of the guitar holds the medicine.

Alanna Nash

MARSHALL CHAPMAN: *Inside Job*. Marshall Chapman (vocals, guitar); the Love Slaves (instrumentals); vocal and instrumental accompaniment. *Real Smart Man*; *The 90's Is the 60's Turned Upside Down*; *Better Off Without You*; *I Must Be Missing You*; *Good-Bye Little Rock and Roller*; *Girl in a Bubble*; *Come Up and See Me*; *X-Ray Eyes*; *Looking for a Kiss*; *Can't Ever Run from Yourself*; *It's Never Too Late to Have a Happy Childhood*. TALL GIRL © MC 1091 (45 min), © MC 1091. Compact disc \$15, cassette \$10 by mail from Tall Girl Records, Suite 803, 900 19th Ave. S., Nashville, TN 37212.





Dvořák from an Old Master And a New Star

WOLFGANG SAWALLISCH has evidently enjoyed identifying himself with the music of Dvořák throughout his career. The music with which Angel introduced him, some thirty-seven years ago, was Dvořák's Eighth Symphony (then still called No. 4) and *Scherzo Capriccioso*. In the Sixties, in what may have been his first concerts with the Philadelphia Orchestra, he conducted Dvořák's set of three related overtures—*In Nature's Realm*, *Carnival*, and *Othello*—which have rarely been presented together since Dvořák himself conducted them in New York a hundred years ago. More recently, Sawallisch recorded the *Stabat Mater* and the Requiem with the Czech Philharmonic for Supraphon and began a Dvořák cycle for Angel/EMI with the Philadelphians, whose music director he is to become next year. With this background, his new recording of the Cello Concerto may be regarded as the high point of his cycle to date, as well as a stunning debut on the label for the Russian cellist Natalia Gutman.

Gutman is simply superb. Her play-

ing is beyond praise in terms of technical security, power, taste, emotional response, or any other likely consideration. But perhaps the most remarkable element in this performance is the way it impresses as a true partnership, fired by the productive and exhilarating give-and-take we can hardly take for granted in live performances, let alone recorded ones. The music goes forward with a bracing natural momentum: brisk enough to be invigorating, flexible enough to allow for all the warmth one might wish. It is, in a word, *noble*—musicmaking on that exalted level at which comparative evaluation becomes quite beside the point. The recording itself is exemplary, not only in its overall richness and detail, but with respect particularly to the beautifully judged balance between soloist and orchestra.

And Sawallisch's performance of the Symphonic Variations is every bit as stunning: It is far and away the finest ever preserved in a recording. Sawallisch's reading manages to be at once breezy and affectionate, robust and elegant. It is more conspicuously animated than any other I've heard,



Sawallisch and Gutman

and more brilliantly detailed as well, the conductor and orchestra exulting in the colors Dvořák provided for them. With the sonic advantage already cited, the whole really does exceed the sum of its wonderful parts.

Richard Freed

DVOŘÁK: *Cello Concerto in B Minor, Op. 104; Symphonic Variations, Op. 78.* Natalia Gutman (cello); Philadelphia Orchestra, Wolfgang Sawallisch cond. EMI © CDC 54320 (60 min).

PHOTO: BONNIE WEST/EMI

Lou Reed: "Magic and Loss"



WELL, here's another brilliant Lou Reed album—so what's new? Reed reigns virtually unchallenged as the poet laureate of rock, respecting the language, writing without compromise for an adult audience, and honoring his muse with hard work. His new "Magic and Loss," on Sire, is a difficult but rewarding album in which he comes to terms with the deaths of two people close to him and tackles some of the fundamental riddles of existence along the way.

"Magic and Loss" is also Reed's most programmatic album since 1973's "Berlin." Its fourteen songs are linked, tracking a process of illness, death, grief, and acceptance from a survivor's perspective. The album unfolds like a play depicting the

PHOTO: DIEGO UCHITEL/SIRE



ebb and flow of emotions surrounding the two deaths. This is not fable or parable; the songs are about real people, songwriter Doc Pomus (*This Magic Moment, Save the Last Dance for Me*) and someone named Rita, both close friends of Reed's. The qualities attributed to them—bravery, wit, and irreverence in the face of death, along with great suffering—are not invented but observed, which lends an inescapable air of *audio verité* to the album. Reed is a master lyricist, able to write in a comprehensible vernacular while conveying weighty thoughts. He integrates his friends' suffering with his own observation of it, animating the science that went into trying to save their lives as well as the rituals that followed their passing away.

"Magic and Loss" is not for the squeamish, and there's no denying that songs like *Magician* and *Sword of*

Damocles, with their graphic descriptions of bodies withering and spirits in distress, are disturbing to listen to. But Reed's intensely focused realism becomes its own reward as he works his way through longing, regret, anger (in *Warrior King* he imagines himself challenging and beating back death in a righteous rage), black humor (in the smoldering, bluesy *Gassed and Stoked* he sings, "Sometimes I dial your phone number by mistake and this is what I hear: 'This is no longer a working number, baby'"), and, finally, transformation. Reed and the band play with economy, empathy, and taste throughout, and the production, by Reed and Mike Rathke, leaves the guitars and vocals dry, untreated, and as real as the flow of conversation.

The title track, which concludes the album, may be the best song he's ever written, ending with this epigraph:

"There's a bit of magic in everything, and then some loss to even things out." To call this album "entertaining" would be to miss the point. It is not suited for casual listening, and it won't exactly leave you feeling good. But it may well leave you able to cope with human loss in the age of AIDS, cancer, and so on, which is a remarkable claim to make for a piece of music in these escapist times.

Parke Puterbaugh

LOU REED: *Magic and Loss*. Lou Reed (vocals, guitar); Mike Rathke (guitar); Rob Wasserman (bass); Michael Blair (drums); other musicians. *Dorita; What's Good; Power and Glory; Magician; Sword of Damocles; Goodby Mass; Cremation; Dreamin'; No Chance; Warrior King; Harry's Circumcision; Gassed and Stoked; Power and Glory, Part II; Magic and Loss*. SIRE/WARNER BROS. © 26662-2 (58 min), © 26662-4.

Cheryl Studer Sings Schubert

THE irresistible *Im Frühling*, with which Cheryl Studer's new Schubert recital opens, focuses on the elements that make this an exceptional release. Above all, the listener is captivated by the soprano's warm and purely focused tones and by her lovingly formed phrases. She projects her text in a leisurely and unaffected manner, with perfectly judged rubatos, and is outstandingly supported by her alert and assertive pianist partner, Irwin Gage.

The succeeding songs in the recital reveal other virtues as well: a fine sense of dynamics and a vocal security that allows Studer to spin phrases across the register break with complete smoothness. She triumphs over the danger of monotony in dealing with *Das Lied im Grünen*, a lovely but potentially repetitious song, and brings out all the beauty in the long-breathed phrases of the ethereal *Nacht und Träume*.

In planning this program, too, Studer showed excellent judgment. The fifteen songs—all concerned with different aspects of nature—range over Schubert's entire creative life, combining the familiar with little-known choices. I suppose that *Der Fluss* belongs to the latter category; Studer captures its magic simplicity to

perfection. While *Klage der Ceres*, one of the young Schubert's settings of Schiller's narrative ballads, is not lacking in beautiful moments, it is still extremely long (almost 18 minutes), and not even Studer's art can keep the attention from wandering. Throughout the disc, the recorded sound is excellent.

Cheryl Studer's extraordinary operatic versatility is already documented. Mozart, Verdi, Wagner, and Gounod

all seem to find her in her element. We can now add Schubert to the list.

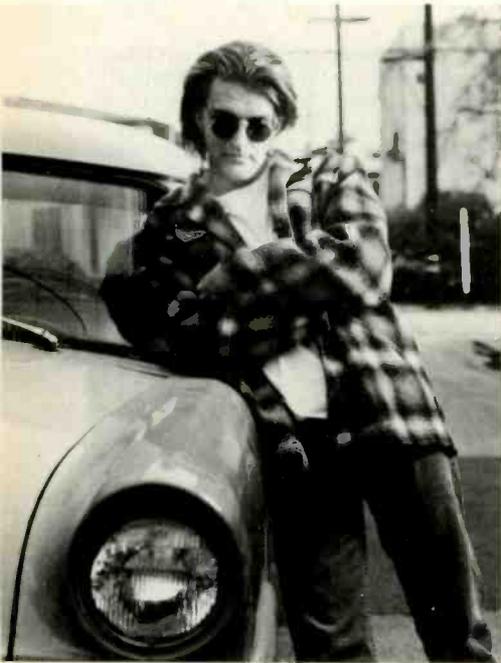
George Jellinek

SCHUBERT: *Lieder. Im Frühling; Gany-med; Auflösung; Die Rose; Das Lied im Grünen; Wehmut; Der Fluss; Die Forelle; Auf dem Wasser zu Singen; Im Abendrot; Am See; Die Vögel; Die Gebüsche; Nacht und Träume; Klage der Ceres*. Cheryl Studer (soprano); Irwin Gage (piano). DEUTSCHE GRAMMOPHONE © 431 773-2 (65 min).



PHOTO: JÖRG REICHARDT/DTG

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



Peter Case: beyond the blues

MARTY BALIN: *Better Generation*. Marty Balin (vocals, guitar, percussion); other musicians. *Skydiver*; *Mercy of the Moon*; *Green Light*; *Let It Live*; *Wish I Were*; *Don't Change on Me*; *Let's Go*; *See the Light*; and nine others. GWE © 002 (68 min). \$12.99 postpaid from GWE Records, 70 Rt. 202N, Peterborough, NH 03458.

Performance: *Strained*
Recording: *Good enough*

Marty Balin's name drifted out of the shadows a couple of years ago when the re-formed Jefferson Airplane made another national voyage and again in 1991 when Rickie Lee Jones included his *Comin' Back to Me* in her album of jazz and popular standards, "Pop Pop." Unfortunately, "Better Generation" suggests Balin misinterpreted all that atten-

tion to mean the world was eagerly awaiting the philosophical musings of an aged hippie. His voice, simultaneously soothing and scratchy, shows little signs of wear from the years, but to say that his work seems caught in a time warp is gross understatement.

The album opens with the title song, *Better Generation*, a mishmash of self-congratulatory rhetoric of how Sixties kids, all grown up in the Nineties ("our time has come today"), won't make the same mistakes their parents did, and it closes with *Summer of Love*, about how those balmy months of 1967 changed the world and how "we can do it again." Right on, man. Groovy.

Balin fills the space between those songs with two old Jefferson Airplane numbers, *It's No Secret* and *Volunteers*, and a shockingly mediocre selection of midtempo rockers. *Skydiver*, for example, an original song about freefalling, is little more than a wash of New Age synthesizer sounds accompanied by such lyrics as, "There's only one thing better than sex." Along the way there's the occasional gem, such as *Mercy of the Moon*, a memorable love ballad with a winsome guitar-and-harmonica instrumental break. All too often, though, it's psychedelic lyrics, feedback guitar, and the pathetic time-tripping of a once-eloquent spokesman for an era. A.N.

SAMM BENNETT & CHUNK: *Life of Crime*. Samm Bennett (vocals, electronics); dog (guitar); Oren Bloedow (bass); Tim Spelios (drums); other musicians. *Life of Crime*; *Demolition*; *Come and Gone*; *Maddalena OK*; *Killer Road*; *Business as Usual*; *Hell Outta Bessemer*; *Shut Up*; and seven others. KNITTING FACTORY WORKS © KFWCD-1110 (54 min).

Performance: *Off the deep end*
Recording: *Fine*

"Life of Crime" is an oddly compelling little record, a seamless combination of so many off-kilter tangents you might as well call it whatchamacallit music. It's a pastiche of pop songs moving to the beat of trancelike African rhythms, exotic modalities, and sounds played on found instruments (like the weird, wobbly noisemaker that becomes part of the rhythmic fabric of *Come and Gone*). Woody Allen-lookalike Samm Bennett handles lead vocals and electric and acoustic percussion, and according to the credits "is responsible for various difficult to describe sounds," among them "atmospherics, fake strings, what sounds like barking but it's not" (all these in the enchanting, Afro-Irish *Maddalena OK*).

Bennett has a smooth voice that belies the darker subjects explored in his songs, including such unnerving, New York City-inspired nut-case narratives

as *Transit Cop* and *Life of Crime*. An undertow of violent unease also infiltrates other songs (*Demolition*, *Killer Road*, *Shut Up*, *Welcome to the War*), making "Life of Crime" a lot like New York City itself: a crazy quilt of disparate elements that shouldn't work together but do, maintaining poise and eloquence even in an environment of chaos and disorder. An intriguing record if you're up for adventure. P.P.

PETER CASE. Peter Case (vocals, guitar); other musicians. *Vanishing Act*; *Deja Blues*; *Dream About You*; *When You Don't Come*; *Never Comin' Home*; *It's All Mine*; *Why Don't We Give It a Go?*; and six others. GEFFEN © GHS-24466-2 (43 min), © GHS-24466-4.

Performance: *Hitting his stride*
Recording: *Good*

"I see the world and sing my song/Take whatever comes along," Peter Case sings in *Never Comin' Home*. True to those words, he has pursued the life of a wandering minstrel since jettisoning the hard-rocking Plimsouls back in the mid-1980's. If he hasn't forged an indelible image with the public, that's probably the way he wants it. Averting his eyes from the starmaking machinery, he makes an honest living at music rather than allowing himself to become a marketable parody of a pop star. His work doesn't come freighted with hype, so you have nothing to go on but the songs—which are quite enough, because he is a wonderful songwriter.

"Peter Case," his third solo album, offers a dozen solid numbers, each with its own personality and all expertly produced by Mitchell Froom. The care that went into the arrangements is evident. In *Never Comin' Home*, for instance, a bass line bubbles under the countryish, arpeggiated guitar intro, then there's a pause and a tack piano falls in, doubling the guitar part. Finally, Case's voice enters, singing a melody reminiscent of the Rolling Stones' folk-rockish "Between the Buttons" period.

Case's garage-rock tendencies emerge in screamers like *It's All Mine*, a song about the way greed is rationalized in America, and *Why?*, in which he screams himself hoarse on the out-chorus. *When You Don't Come* is as wrenching a miss-you blues as you'll ever hear. Missed connections seems to be its central theme, as in *I've Been Looking for You*, with its affable, Everly Brothers-style lilt. Nearly every song has something to recommend it, but Case really gets down to serious business with the album closers, *Beyond the Blues*, where he reaches for a meaningful, life-sustaining truth and "something beyond the blues," and *It Don't Matter What the People Say*, a chunky rocker

Explanation of Symbols

- Ⓢ = Compact disc
- ⓐ = Tape cassette

with a shuffle beat, great guitar, and lyrics that make Case's case in plain terms: "I don't care what everybody knows/I'm gonna stick with the path I chose/And everything's gonna be okay/It don't matter what the people say." P.P.

MARSHALL CHAPMAN: *Inside Job* (see Best of the Month, page 63)

CLOCKHAMMER: *Klinefelter*. Clockhammer (vocals and instrumentals); other musicians. *Greying Out; Bluest Eyes; Standing By; Nullify; Away; Hollows; Years of Days*; and four others. FIRST WARNING © 72705-75705-2 (45 min), © 72705-75705-4.

Performance: *Shifty*
Recording: *Murky*

How many times has this happened to you: The band sounds really sharp, the singer has all the fire and sass you could hope for, but you can't understand the words. Maybe you even try tweaking your tone controls, or equalizer if you've got one, but you still get only a phrase here or there. Well, as much as I like the instrumental portion of Clockhammer's album "Klinefelter," I couldn't begin to tell you what lead vocalist Byron Bailey is singing about with such passion and urgency. But I can tell you that his guitar work helps to punch the band through a compelling, ever-changing mix of rock styles, from pounding metal struts to snappy collegiate sprints to swirling psychedelic runs. It's like the weather: If you don't like what you hear, wait a minute and you'll get something else.

Probably it doesn't matter whether the lyrics in "Klinefelter" are good or bad. I enjoy the pure sound of this album, a bizarre cross between alternative rock and New Age. It keeps my head banging and my toe tapping—and I don't have to think at all. Sometimes that's exactly what I want. I still wonder, though, what the hell the singing is about. R.G.

COWBOY JUNKIES: *Black-Eyed Man*. Cowboy Junkies (vocals and instrumentals); other musicians. *Southern Rain; Oregon Hill; This Street, That Man, This Life; A Horse in the Country; If You Were the Woman and I Was the Man; Murder in the Trailer Park Tonight*; and six others. RCA © 61049-2 (47 min), © 61049-4.

Performance: *Branching out*
Recording: *Very good*

In their latest album, the Cowboy Junkies break the coma-inducing formula of their previous work by adding a surprising variety of instruments—accordion, brass, and woodwinds—and stepping away from their usual minimalist approach. While the instrumental touches work to make songwriter Michael Timmins's dreamy lyrics and ethereal melo-

dies move along at a brisker pace—adding a little swingy comic relief in the gender-switching duet with John Prine, *If You Were the Woman and I Was the Man*—the more important change is that the Junkies offer something resembling true narratives. That shouldn't rattle fans who may prefer their old vagueness, since there's still plenty of room for interpretation. *This Street, That Man, This Life*, for instance, is a veritable existential feast, as are the two covers by Townes Van Zant, *Cowboy Junkies Lament* and *To Live Is to Fly*.

Elsewhere, however, especially in *A Horse in the Country*, lead vocalist Margo Timmins has a definite idea of what ails her: her job, her life, her lover, and her friends who have settled down and "become their mothers and their fathers without a sound." Along with such specifics, there's still plenty of irony and social commentary, as in the lover's revenge of the title song and in the dark *Murder in the Trailer Park Tonight*.

Otherwise, things are mainly as before. Although the recording was made in a studio instead of a drafty Toronto church with the band huddled around one microphone, Margo clings to her persona of a professional waif, slurring her words in a fairly unintelligible, "My dress is on fire but I don't care because I'm practicing my art just now" fashion. And, Canadians that they are, the Junkies still celebrate and fantasize about the American South without the faintest nod to reality. *Southern Rain*, with its images of brewing calamities and inherent laziness, makes all of Dixie look shiftless, mindless, and lethargic. That's sort of the way the Junkies themselves might sound to the inattentive—or maybe the prejudiced—ear. A.N.

DRY BRANCH FIRE SQUAD: *Long Journey*. Dry Branch Fire Squad (vocals and instrumentals). *Long Journey; Orphan Child; Rain and Snow; I'd Rather Be the Girl You Left Behind; Oak Grove Church; I've Always Been a Rambler*; and six others. ROUNDER © CD 0289 (34 min), © C 0289.

Performance: *Timeless*
Recording: *Good*

Listening to the Dry Branch Fire Squad, you hear what country music used to sound like back in smoky hollows before people began to "improve" on it. The approach of this Ohio quintet is as basic as it is timeless: simple stories, packed with emotion, sung from the heels. When Suzanne Thomas hurls her rich soprano at you in the title song, for instance, you can almost see, as well as hear, the sorrow of a woman whose husband is about to die. Even if some of the vintage bluegrass and gospel tunes in "Long Journey" seem a little stiff-

backed when it comes to the ways of the world and of the spirit, Dry Branch Fire Squad makes you feel their passion and resolve. In fact, the old songs sound just as fresh as the new ones the band wrote themselves. The uncluttered accompaniment of mandolin, guitar, banjo, and bass—in various combinations—adds just the right amount of sweetness or melancholy or zest to these crisp tunes. The album is an authentic treasure. R.G.

GENESIS: *We Can't Dance*. Genesis (vocals and instrumentals). *No Son of Mine; Jesus He Knows Me; Driving the Last Spike; I Can't Dance; Dreaming While You Sleep*; and seven others. ATLANTIC © 82344-2 (72 min), © 82344-4.

Performance: *Mixed*
Recording: *Very good*

Good ol' Genesis. They're the Charlie Brown of rock: nice guys, but not much personality—especially since they've limited themselves to recording during the down time in Phil Collins's solo career. "We Can't Dance," their first album in half a decade, starts off with four well-composed songs. *No Son of Mine* is a rather dramatic (for Genesis) song about a father-son rift. *Jesus He Knows Me* has a great, uptempo pop tune that's wasted on a too-easy putdown of televangelism (that issue played itself out a few years back, guys). *Driving the Last Spike*, an elegy for lives lost during the building of the English railways, is complete with sweeping art-rock reminiscent of the band's Peter Gabriel era,



Margo Timmins: New Waif rock



Little Village: supergroup du jour

and *I Can't Dance* is an amusing novelty about a guy who's aged out of the pickup scene but still gets off on looking. After those four cuts, though, "We Can't Dance" takes a downturn into the kind of amorphous mush one suspects was written in the studio, inspired by little more than the need to fill out the album. Except for Mike Rutherford's twelve-string tag line in *Tell Me Why*, which is a joy, the band shifts into neutral. P.P.

JONATHAN GREGG AND THE LONESOME DEBONAIREs: *Blue on Blonde*. Jonathan Gregg (vocals, guitar); the Lonesome Debonaires (vocals and instrumentals); John Linnell (accordion). *Girl About a Song; Blue on Blonde; By Heart Again; Empty Rooms; White Picket Fence Life; Heartache 109; All Byones*; and six others. JAGDISC © JAG 007 (49 min). \$12.25 postpaid from Jagdisc, 304 Mulberry St., New York, NY 10012.

Performance: *Major debut*
Recording: *Good*

Talk about unexpected. Here's an album that suggests—no kidding—an adrenaline-stoked Dire Straits playing a heretofore unimaginable pop-rock/metal/country hybrid. The songs are rife with quirky lyrics and even quirkier chord changes, and yet they're still instantly accessible, even hummable. The work of a highly regarded New York City band—Living Color's Vernon Reid has called frontman Jonathan Gregg his favorite guitarist—that's unaccountably without a major-label record deal, "Blue on Blonde" is not just terrific, it's resolutely unique. You've never heard, really, anything quite like its mix of emotionally acute word play, unconventional melodic structures, and neotraditionalist-on-acid guitar textures.

True, Gregg's singing is vaguely reminiscent of John Hiatt, there's a hint of Richard Thompson or Tom Verlaine in his guitar playing both in tone and in the sense that every solo serves the song above all, and he's obviously listened to a lot of Elvis Costello records (the dominant lyrical stance here being Bruised Romantic Ironist). But since it all adds up to something quite minty fresh, as they used to say in the mouthwash ads, I'm at a loss how to describe "Blue on Blonde" beyond saying that it rocks like mad and features songs that instantly echo in your brain like classics you've heard for the last twenty years. I know that's vague, but trust me on this one, folks. I can't recommend it highly enough. S.S.

LITTLE VILLAGE. Little Village (vocals and instrumentals). *Solar Sex Panel; Action; Inside Job; Big Love; Take Another Look; Do You Want My Job*; and five others. REPRISE © 26713-2 (46 min), © 26713-4.

Performance: *Loose as a goose*
Recording: *Good*

Little Village is the latest example of Wilburyization, or what twenty years ago might have been called supergrouping. This quartet consists of three men who have major solo careers—John Hiatt, Ry Cooder, and Nick Lowe—and a very fine drummer, Jim Keltner. A record-company executive suggested that they band together for fun and profit, probably because they had played together for Hiatt's superb 1987 album, "Bring the Family." So here they are, delivering their first album into a strong headwind of expectations.

And how is it? Very nice, if not transcendent. The songs, written by all four

artists, are wondrously quirky. For wackiness, you've got *Solar Sex Panel*, about futuristic making-out ("My solar-powered loving burns clean"). For understated psychoanalysis, you've got *Inside Job*, about reaching deep down to be able to express love. For simmering regret, you've got *Fool Who Knows*, about a guy who screwed up and lost the woman in his life. What you've got, overall, is a lot of good music, but not, unfortunately, any genuine killer songs. I don't mind that Little Village sounds mostly like a blend of Hiatt and Cooder; I'm a fan of both. But the album seems to emphasize their lighter sides. I wish "Little Village" seemed less like these guys' idea of a good time. R.G.

P.M. DAWN: *Of the Heart, of the Soul and of the Cross: The Utopian Experience*. P.M. Dawn (vocals); vocal and instrumental accompaniment. *Intro; Reality Used to Be a Friend of Mine; Paper Doll; Comatose; A Watcher's Point of View (Don't 'Cha Think); Even After I Die*; and seven others. GEE STREET © 314-510 276-2 (55 min), © 314-510 276-4.

Performance: *Dazzling*
Recording: *Good*

Should we call P.M. Dawn a rap group? This New Jersey duo certainly considers their music hip-hop, but what they've created in this debut album is light years beyond anything else in the genre. First of all, unlike other rap groups, P.M. Dawn doesn't reflect on the gritty, day-to-day lives of urban youth. The sort of reality these guys care about most exists on a higher plane. "Eternity is holding a Rubik's Cube," murmurs Prince Be, the group's lead rapper. "Everything inside it seems to be me." Pretty obscure stuff, sure, but the musings of P.M. Dawn have a fanciful quality that keeps them from becoming overbearing.

When Prince Be says, "Reality used to be a friend of mine," he doesn't come off like Jean-Paul Sartre but as a charming hippie. He delivers his lyrics with a quiet, self-effacing suppleness that couldn't be farther from the percussive, in-your-face work of most rappers. His mild-mannered approach has an ego-less quality that pushes his trippy, slightly surreal meditations—not his persona—into the foreground. This vocal style fits beautifully with the genial, low-key music. Most of the tunes use an easy shuffle as a rhythmic foundation and tiny keyboard and guitar riffs for splashy bits of melodic color. Washing over everything, and holding it all together in a free-floating way, are pillowy synthesizers and the kind of lush vocal harmonizing that made the Beach Boys famous. For those who don't mind reliving the Sixties with a Nineties twist, "Of the Heart, of the Soul and of the Cross" can be an intoxicating experience. You might even call it a head trip. R.G.

LOU REED: *Magic and Loss* (see Best of the Month, page 64)

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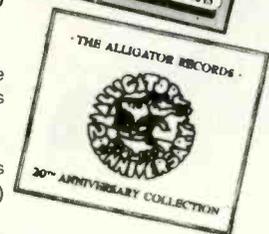
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SR04

THE REMINGTONS: *Blue Frontier*. The Remingtons (vocals and instrumentals); other musicians. *Everything to Lose*; *A Long Time Ago*; *Eternally Blue*; *I Could Love You (With My Eyes Closed)*; *Two-Timin' Me*; and five others. BNA © 07863 61045-2 (29 min), © 07863 61045-4.

Performance: *Light*
Recording: *Good*

Yes, first impressions can be misleading. Take the first cut in "Blue Frontier," the first album by the Remingtons. When you hear the plush harmonies of *Everything to Lose*, you can't help but think of Crosby, Stills & Nash. The breezy coun-

Mariquita; *Gritenne Piedras del Campo*; *Siempre Hace Frio*; *El Crucifijo de Piedra*; and five others. ELEKTRA © 61239-2 (41 min), © 61239-4.

Performance: *Heartfelt, but . . .*
Recording: *Excellent*

"Mas Canciones," Linda Ronstadt's second collection of traditional Mexican songs, is yet another attempt to make the mariachi music that she loves so well a vibrant and contemporary musical form. But although her ringing falsetto, pure chest tones, and thrillingly potent vocal performances are a pleasure to hear, these presentations often fall flat.

certainly no rushing of the beat or racing the orchestra home for a dramatic end. In short, Ronstadt may have Mexican blood in her veins, but it took a siesta when she recorded this album. She has made ranchera music into an antique, as colorful and quaint as Tiffany glass and about as relevant today as a souvenir sombrero. A.N.

BILLY STRITCH. Billy Stritch (vocals, piano); Liza Minnelli (vocal); Chip Jackson (acoustic bass); Terry Clarke (drums). *Night and Day/One Note Sam-ba*; *Let's Misbehave*; *It Amazes Me*; *No Moon at All*; *You Stepped Out of a Dream/Dream Dancing*; *Up Is Down*; *Mountain Greenery*; and nine others. DRG © 5215 (52 min).

Performance: *Exciting*
Recording: *Bright and close*

Move over, Harry Connick, Jr. and Michael Feinstein. Make way for Billy Stritch, the freshest young singer-pianist to take the New York City cabaret scene by storm. His approach to Gershwin, Porter, Arlen, Rodgers, Jobim, and other classic pop songwriters is more jazz-inflected than Feinstein's and less derivative than Connick's.

There's a driving, swinging energy to most of the songs in this debut recording, yet Stritch also shows how beautifully he can get inside the lyrics of a quiet ballad. Most of all, what shines through every selection is the pure, twinkle-in-the-eye joy he seems to get from the act of performing—and the respect he shows for both the letter and spirit of what the composers and lyricists have written (an increasing rarity among young performers of standards).

Liza Minnelli joins Stritch in a buoyant medley of *Come Rain or Come Shine* and *As Long as I Live*, and (through overdubbing) he becomes his own ten-voice back-up group in *Up Is Down*. Wondering how he's going to top this album should keep him (and Connick and Feinstein, for that matter) awake nights. R.H.

SWEETHEARTS OF THE RODEO: *Sisters*. Sweethearts of the Rodeo (vocals); Vince Gill (guitar, harmony vocals); other musicians. *Why Should I Stay Blue*; *Hard Headed Man*; *I Don't Stay Down for Long*; *Man of My Dreams*; *A Woman Can Tell*; and six others. COLUMBIA © CK 47358 (34 min), © CT 47358.

Performance: *Great blend*
Recording: *Very good*

In *Sisters*, the title song of this new Sweethearts of the Rodeo album, real-life siblings Kristine Arnold and Janis Gill sing, "Together we will find/That we'll stand the test of time." Let's hope it's true as far as their personal relationship goes, because professionally these sisters need all the support they can get.

Once one of the most exciting of country's progressive new acts, the Sweethearts lost their momentum long ago. In



Sweethearts of the Rodeo: sisterhood is . . . bland?

try charm of the tune bolsters that impression as well. But the more you listen to this album, the more you realize that the Remingtons make pleasant music but don't have the sense of purpose or emotional depth of CSN. The stories told here, all about the ups and downs of love, lack the kind of specific detail or clever wordplay that would make them snap to life.

The three members of the Remingtons—James Griffin (who was in the soft-rock group Bread), Richard Mainegra, and Rick Yancey—all had a fair amount of success before coming together recently. Maybe with a little time they'll bring their material into sharper focus. If they do, their soaring harmonies just might take us with them. R.G.

LINDA RONSTADT: *Mas Canciones*. Linda Ronstadt (vocals); Mike Ronstadt, Pete Ronstadt (harmony vocals); Flaco Jimenez (accordion); vocal and instrumental accompaniment. *Tata Dios*; *El Toro Relajo*; *Mi Ranchito*; *La*

The album begins with *Tata Dios (Father God)*, a stark and harrowing song in which a dying woman tells her husband to waste no time with medicine, to hurry and dress her in her wedding gown for her imminent meeting with God. Ronstadt gives it a fine, spine-tingling rise, and the mood for the album seems to be set. But from there on, she settles for mere prettiness backed by formal orchestral arrangements and by the adequate, if not remarkable, ensemble singing of her brothers Pete and Mike. In a couple of songs, *Gritenne Piedras del Campo (Scream to Me Stones in the Field)* and *El Crucifijo de Piedra (The Crucifix of Stone)*, she does indulge in an outpouring of emotion and grandstanding vocal leaps (so much that you want to yell, "Get a grip, girl! There's plenty of horny señoras out there!"), but most of the time there's a guidebook quality about her deliveries. One imagines her standing stock still in front of the microphone, with no ruffling of her petticoats or stamping of her feet in anger, and

a sense, the record itself tells the tale. Both Mike Reid's *Why Should I Stay Blue* and Gill's *Man of My Dreams*, a loving ode to her husband, Vince Gill, preserve the Sweethearts' engaging Everly Brothers harmonies and instrumental riffs. Throughout, Arnold's lead vocals are commanding, passionate, and often gritty. Yet, despite all the infectious grooves and marvelous mandolin and fiddle bluegrass lacerations, too few of the songs here go anywhere or make a lasting impression. Only the ballad *Silver and Gold*, which intelligently compares a devoted but sometimes warring couple to the two precious metals, has any staying power.

The Sweethearts are smart women who could cut their own niche as voices for the questioning and perhaps confused women of contemporary society. Instead, for whatever reason, they've opted for commercial blandness. *A.N.*

Jazz

ALBERT AYLER: *Love Cry*. Albert Ayler (alto and tenor saxophones, vocals); Donald Ayler (trumpet); Call Cobbs (harpichord); Alan Silva (bass); Milford Graves (drums). *Omega; Ghosts; Universal Indians; Bells; Love Flower; Dancing Flowers*; and five others. IMPULSE © GRD-108 (54 min), © GRC-108.

Performance: *Chaotic*
Recording: *Good*

Saxophonist Albert Ayler's undisciplined performances made him a prominent figure in the avant-garde jazz of the Sixties. Many critics banded about words like "spiritual" and "haunting" to describe what was essentially a display of mediocre musicianship. I always had the feeling that Ayler laughed at them, and since his death in 1970 his music has been largely forgotten.

"Love Cry" is a reissue of Ayler's second Impulse album, and to hear it is to understand why Ayler's sound does not live on. I know that there are people who even today will find profundity in this concoction, but—although I have become far more open-minded than I was in Ayler's heyday—I still regard it as the jazz equivalent of the chimpanzee paintings that are said to have fooled some art critics many years ago. Ayler's squeaks, yodeling, and carryings-on (much of this sounds like New Year's Eve in Times Square) are either the work of a dastardly clever joker or a lucky amateur. Only the work of bassist Alan Silva and drummer Milford Graves lends credibility to this audio nightmare. *C.A.*

MACEO PARKER: *Mo' Roots*. Maceo Parker (alto saxophone); Fred Wesley (trombone); Pee Wee Ellis (tenor saxophone); other musicians. *Hallelujah, I Love Her So; Chicken; Let's Get It On; Hamp's Boogie Woogie; Fa Fa Fa (Sad*

Song); and five others. VERVE © 314 511 068-2 (64 min), © 314 511 068-4.

Performance: *Gritty*
Recording: *Satisfactory*

Maceo Parker's aggressively gritty alto-saxophone style is a throwback to the post-World War II years, when rhythm-and-blues was the music of choice for most black Americans. The classic r-&-b of Louis Jordan, Earl Bostic, and King Curtis was tailored to let the good times roll in smoky bars and uptown after-hours joints. Parker served as a bridge between that style and the soul explosion of the late Sixties and early Seventies through his work with the irrepressible James Brown. Now that the popularity of those earlier styles has ebbed, Parker has re-emerged to remind us how much fun they were.

In "Mo' Roots" Parker reels through a set of soul standards. His horn sometimes veers dangerously close to being out of tune, but he leaps into each song with enthusiasm. If you loved the original renditions of such hits as Ray Charles's *Hallelujah, I Love Her So*, Otis Redding's *Fa Fa Fa (Sad Song)*, Horace Silver's *Sister Sadie*, and Marvin Gaye's *Let's Get It On*, you'll probably enjoy Parker's rollicking remakes. *P.G.*

LENNIE TRISTANO: *Wow*. Lennie Tristano (piano); Warne Marsh (tenor saxophone); Lee Konitz (alto saxophone); Billy Bauer (guitar); other musicians. *No Figs; Rememberance; April Fool; Sound-Lee*; and five others. JAZZ RECORDS © JR-9 CD (47 min).

Performance: *The original cool*
Recording: *Muffled remotes*

No liner notes accompany "Wow," a new release featuring the late pianist Lennie Tristano, but the smothered sound quality and occasional applause suggest that these are private recordings, some of which capture club performances. Further to mystify us, only four members of the sextet are credited, with no mention of the bassist or drummer. The music is not in any way impaired, however. Tristano and his regulars—guitarist Billy Bauer and saxophonists Warne Marsh and Lee Konitz—developed a unique style, swathed in a frosty veil. If the birth of the cool took place in California, its conception was certainly a New York event. Having had my ears opened to jazz by Bessie Smith, Jelly Roll Morton, and Louis Armstrong, I happened across some of Tristano's Keynote records around 1949, and they opened up a whole new world. His music has held up remarkably well, sounding as fresh to me today as it did forty-three years ago. I recommend this album to Tristano fans who yearn for more, but if you are starting your Tristano trek—and it is a journey well worth taking—I suggest you look for his better-sounding recordings, such as those he did for Keynote (reissued in a Mercury CD set), Capitol, Prestige, and Atlantic. *C.A.*

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R · E · C · O · R · D

by Robert Ripps,
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Concrete Blonde has returned to its original lineup with "Walking in London," its latest I.R.S. release. Rejoining vocalist/bassist **Johnette Napolitano** and guitarist **James Mankey** is original drummer **Harry Rushakoff**, busy for the past eighteen months working with a band in Nashville. Rushakoff, who began with the band when it was known as Dream 6, appeared on its debut album, "Concrete Blonde," and the following one, "Free." He was replaced by **Paul Thompson** for 1990's "Bloodletting" (just certified Gold) and subsequent live performances. According to Rushakoff, it's as if he'd never left. "Johnette, Jim, and I talked one day, and all the good feelings came back, so we have picked up where we left off." Cheap Trick's bassist, **Tom Peterson**, also appears in "Walking in London." Tour dates have not yet been announced.

RCA Victor Red Seal has been the recording company of some of the greatest musicians of the twentieth



Concrete Blonde

century—**Caruso**, **Heifetz**, and **Rubenstein**, to name a few. So when a young artist is signed to an exclusive contract with this label, it's reason enough to take notice. The twenty-one-year-old violinist **Anne Akiko Meyers**'s debut album on Red Seal, scheduled for April release, features perfor-



Anne Akiko Meyers and Strad

mances of Lalo's *Symphonie Espagnole* and Bruch's *Scottish Fantasy* with the Royal Philharmonic conducted by **Jesús López-Cobos**. A San Diego native, Meyers made her debut with a local orchestra at the age of seven. Now that she's grown she performs around the world on her very mature 1718 Stradivarius.

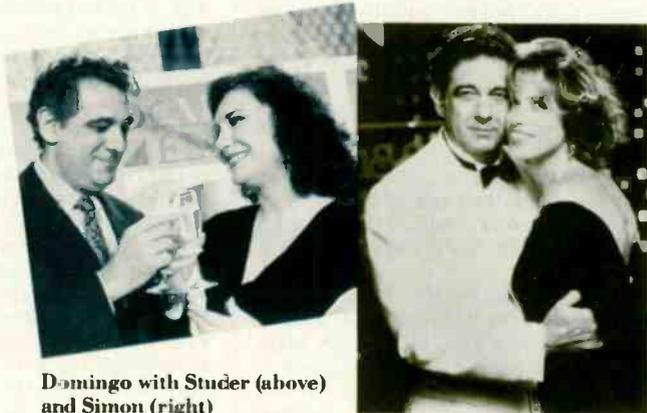
Plácido Domingo, one of the world's greatest operatic tenors, celebrated the twenty-fifth anniversary of his European stage debut in January. Colleagues gathered in Hamburg to help him celebrate, and Deutsche Grammophon used the occasion to launch its new Domingo Edition. The first volume, a two-CD set titled "Arias, Songs and Tangos," will be released in the U.S. in April. Highlight

with the American soprano **Cheryl Studer**.

Last year Domingo took some time off from classical-music performing to record "The Broadway I Love," a collection on Atlantic of fourteen popular and enduring show tunes by such Broadway greats as Rodgers & Hammerstein, Cole Porter, Stephen Sondheim, and Andrew Lloyd Webber. "These are wonderful melodies," Domingo said. "This record is very important to me, and I prepared myself for it as I do for the most difficult opera productions." He is accompanied by the London Symphony Orchestra conducted by **Eugene Kohn**, and guest vocalists include **Carly Simon** (in a duet version of *The Last Night of the World from Miss Saigon*).

OVERLOOKED amidst last Christmas's boxed-set mania was perhaps the mother of all boxed sets, "The Complete Capitol Recordings of the Nat King Cole Trio." A limited edition (10,000 copies) from jazz-reissue specialists Mosaic Records, it covers every phase of the great pianist and singer's career from 1942 to 1961 and contains an astonishing eighteen CD's, making it to our knowledge the biggest set of its kind ever. You can order the set directly from Mosaic by calling (203) 327-7111 between 10 a.m. and 5 p.m. Eastern time, Monday to Friday; the price is \$270 plus \$12 for shipping.

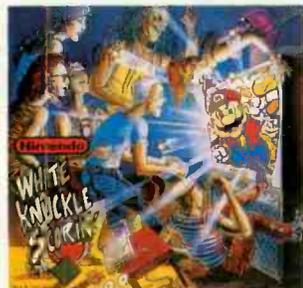
CD's and compilations from Domingo's nearly thirty complete opera recordings will be issued throughout the year, and the celebration will culminate with two new full-length sets, *Tosca* with **Mirella Freni** and *Lucia di Lammermoor*



Domingo with Studer (above) and Simon (right)

M · A · K · E · R · S

A POSTHUMOUS Roy Orbison single (*I Drove All Night*) is just one of the heretofore unreleased tracks in MCA's new "White Knuckle Scorin'" album. Inspired by the characters in Nintendo's Super Mario Bros. video games, the album is designed to promote the importance of reading to young game fans and will help raise funds for a literacy foundation established in the memory of Bobby Brooks. A talent agent and an avid Nintendo player, Brooks died in the helicopter crash that took the life of guitarist



Mario Bros.: awesome

Stevie Ray Vaughan; many of the artists who donated songs to the album were among his clients. Along with the Orbison single, the album includes new songs by Crosby, Stills & Nash, Dire Straits, Sheena Easton, Flesh for Lulu, Trixter, and the neopsychedelic rockers Jellyfish.

JAZZ isn't the only thing on Wynton Marsalis's mind (or chops). A few years back he offered up some dazzling performances of Baroque music on CBS, and now Sony Classical has scheduled for May release a new recording, "Baroque Duet," in which he joins the soprano Kathleen Battle in songs and cantatas by J. S. Bach, Handel, and Alessandro Scarlatti. Marsalis and Battle have also been seen together recently on two PBS specials. February's "Baroque Duet" featured the music from their new CD, and last December they starred in a Christmas concert from Carnegie Hall along with Fred-

erica von Stade and André Previn. Leaping from the Baroque era back to the twentieth century, Marsalis has also recorded an album of works for trumpet and piano by Hindemith, Poulenc, Enesco, and Honegger, among others, with pianist Judith Stillman. It's scheduled for release next January.

MEMPHIS pop/rock legend Big Star only recorded as a unit for two years in the early Seventies, but its impact on other groups—R.E.M., the Replacements, the Bangles—has been enormous. Still, one of the reasons Big Star has been called "the most influential obscure band in the world" is that its albums have always been hard to find, especially in America. Now that's finally about to change, as Rykodisc is releasing a re-sequenced CD version (with bonus tracks) of the group's legendary 1974 LP "Third," which is essentially a solo album by Big Star's co-founder and post-punk darling Alex Chilton. Also due from Ryko is the never-before-released

Marsalis: going for Baroque



"Big Star Live" (from a 1974 radio broadcast concert) and the solo album, "I Am the Cosmos," that Big Star's other co-founder, Chris Bell, completed just before his death in 1978.

THE American Composers Orchestra and its newly appointed music director, Dennis Russell Davies, have signed a new three-year agreement with London Records' Argo label. Their first Argo recording, released in February, features three works by William Bolcom. In addition to its recently expanded five-concert subscription series at Carnegie Hall, the ACO broadcasts over the American Public Radio network. Since its founding in 1977, the orchestra has programmed over three hundred works by over two hundred American composers and awarded sixty-seven commissions.

GRACENOTES. Only two years after its first release, Koch International Classics has gone big-league with an album by the Chicago



Big Star

Symphony Chorus and Orchestra. The disc contains Samuel Barber's *The Lovers* (a world-première recording) and *Prayers of Kierkegaard*. . . . Following Elektra's successful reissue of "Kick Out the Jams," the classic debut album of the Sixties metal pioneers MC5, Atlantic will release on CD later this year the group's "Back in the USA" (produced by Jon Landau, who later became Bruce Springsteen's manager) and "High Time." . . . The composer and pianist Craig Urquhart, who was Leonard Bernstein's musical assistant for five years, has made a recording of his own solo-piano music. Entitled "Songs Without Words," the collection has been released on the Compose label. Bernstein described Urquhart's music as having "a deceptive simplicity and honesty rarely heard in contemporary songwriting." . . . In the wake of the death from AIDS of Queen's lead singer, Freddie Mercury, *The Show Must Go On* from the band's final album (last year's "Innuendo") has been released as a benefit single. All proceeds will go to the Magic Johnson Foundation for AIDS research and education. . . . Vanguard Classics continues to release CD versions of LP favorites. Recent issues include Leopold Stokowski conducting Bloch's *America* and Vol. 3 of Willi Boskovsky's "Creampuffs from Vienna." □

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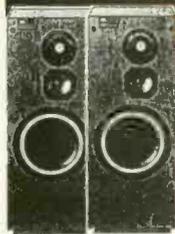
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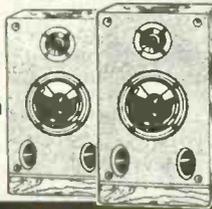
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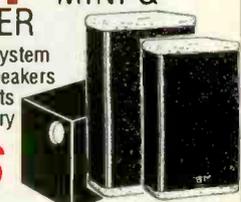
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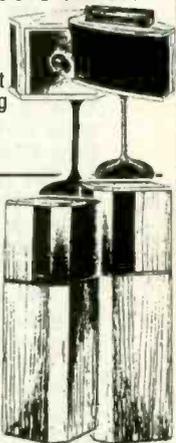
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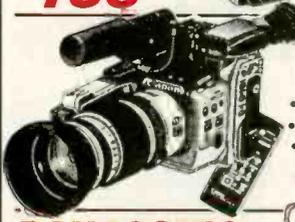
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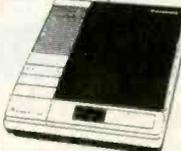
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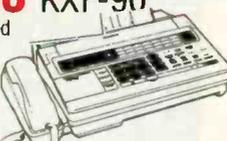
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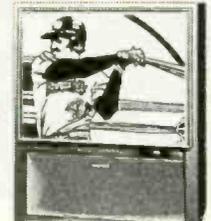
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GOING ON RECORD

by William Livingstone



Heitor Villa-Lobos

MANY admirers of the Brazilian Heitor Villa-Lobos (1887-1959) consider him to be the most original composer this hemisphere has ever produced. In 1987 the one-hundredth anniversary of his birth was overshadowed in the United States by observances of the fiftieth anniversary of the death of George Gershwin (1898-1937). Nevertheless, some fine new recordings of the music of Villa-Lobos were made during his centennial year, and these, along with some older ones recently transferred to CD, give us excellent opportunities to hear and enjoy the work of this phenomenal Latin American.

Villa-Lobos was largely self-taught. His father, an amateur musician, gave him instruction on the cello, which remained his favorite instrument, and he became a virtuoso guitarist in the popular style of street musicians in Rio de Janeiro.

In his youth he traveled widely in the backwoods of Brazil, and he used to say that he learned music not in an academy, but from a bird in the jungle. On these trips he heard folk songs and

dances from Indian and African sources that he wove into his art music throughout his career.

In the 1920's he went to Paris, where he had great success and absorbed lasting influences from French Impressionist music. After the mid-1940's he had similar successes in the United States. Always prolific, at his death he left a body of work estimated at over 1,000 compositions.

For someone just beginning to explore the music of Villa-Lobos I recommend his five preludes and twelve etudes for solo guitar in a centennial-year recording by Eduardo Fernández (London 414 616-2). These works suggest in the most beguiling way

the languorous quality of life in the Latin American tropics. A 1987 recital of his Impressionistic piano music performed by the Brazilian pianist Cristina Ortiz (London 417 650-2) is equally accessible and appealing.

More exotic is *Xangô*, a selection of chamber music and choral works performed by the Quintet of the Americas and the Sine Nomine Singers (Newport Classic NPD 85518). It contains five of the composer's *Chôros*, pieces in a loosely defined popular Brazilian form written for different combinations of instruments ranging from solo guitar to full orchestra. The *Quinteto em Forma de Chôros* seems to describe the lush Brazilian landscape not with ooga-booga jungle sound effects but with real Impressionistic tone painting.

"Brazilian Festival '88" (Delos DE 1017) includes the virtuosic *Fantasia for Cello and Orchestra* played by Janos Starker with the Orquestra Sinfônica da Paraíba conducted by Eleazar de Carvalho. Also on the disc is the colorful score of Villa-Lobos's first ballet, *Uirapurú* (the name of a Brazilian Indian chief).

A recent recording of *Magdalena*, an ambitious folk operetta (CBS MK 44945), features Judy Kaye, Faith Esham, and Jerry Hadley. It gives a tantalizing hint of what Villa-Lobos's five operas might sound like.

Robert Bonfiglio is the soloist in a remarkable recording of the Villa-Lobos *Concerto for Harmonica* (RCA Victor 7986) with the New York Chamber Symphony under Gerard Schwarz. In the transcriptions of shorter pieces that fill out the disc, the harmonica perfectly captures the melancholy strain characteristic of a lot of Latin American music, such as the Argentine tango.

Villa-Lobos's favorite composer was Bach, to whom he paid tribute with a series of *Bachianas Brasileiras*, ingenious compositions that put American musical materials into Baroque form. The hauntingly beautiful *Bachianas Brasileiras* No. 5 for soprano and eight cellos is Villa-Lobos's most famous composition. Barbara Hendricks gives it a warm, lyrical performance with the cellos of the Royal Philharmonic Orchestra (EMI CDC 47433). The disc also includes strong performances of *Bachianas Brasileiras* No. 1 (also for eight cellos) and No. 7 for full orchestra with the RPO conducted by Enrique Bátiz.

If you're really interested in this composer, you will want "*Villa-Lobos par Lui-Même*," a six-CD set imported from EMI France (CDZF 67229). Here Villa-Lobos conducts authoritative performances of his own compositions. (The mono sound from the 1950's is decent.) Besides major works for piano and orchestra, the *Symphony* No. 4, all nine *Bachianas Brasileiras*, and five *Chôros*, it includes four suites from his little-known film score *Descobrimiento do Brasil* (*The Discovery of Brazil*).

Since we neglected Villa-Lobos in 1987, perhaps we can honor him in 1992 during the observances of the quincentenary of Columbus's discovery of America. Public scolds tell us that it's politically incorrect to celebrate Columbus's voyage, but this composer's artful synthesis of European, Indian, and African music is one reason to be glad the Admiral of the Ocean Sea set sail in the *Niña*, the *Pinta*, and the *Santa María*. □

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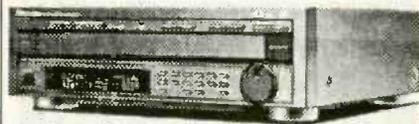


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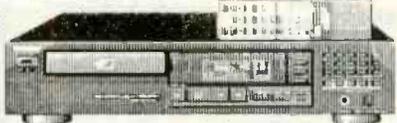
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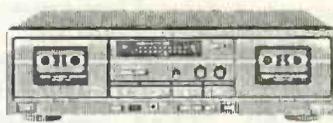
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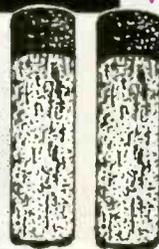
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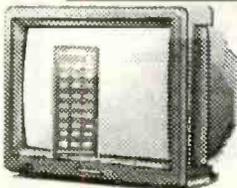
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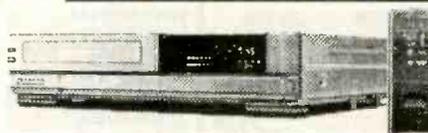
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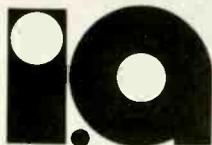
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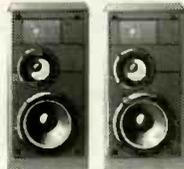


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Discs and tapes
reviewed by Robert Ackart,
Richard Freed, David Hall,
George Jellinek, Eric Salzman, and
David Patrick Stearns

BACH: Magnificat (BWV 243). VIVALDI: Gloria (RV 589). Barbara Hendricks (soprano); Ann Murray (mezzo-soprano); Jean Rigby (alto); Uwe Heilmann (tenor); Jorma Hynninen (baritone); Academy and Chorus of St. Martin in the Fields, Neville Marriner cond. EMI CLASSICS © CDC 54283-2 (56 min).

Performance: *Upbeat*
Recording: *Strong*

These are strong, lively, upbeat recordings of two of the great favorites of Baroque choral music. The tempo of the opening chorus of Bach's *Magnificat* is hair-raising—but it works. The spirit of the rest is equally strenuous: energy, drama, earnestness, not high polish. The solo singing is of consistently high quality. If there are such things as Baroque choral warhorses, these pieces qualify, but there isn't a trace of performed-once-too-often quality about the readings. There are more intimate, rococo versions and fatter, more romantic interpretations of these works. But why would anyone want a *Magnificat* and *Gloria* to do anything but storm the heavens with aplomb? *E.S.*

BEETHOVEN: Piano Sonatas, Op. 10: No. 5, in C Minor; No. 6, in F Major; No. 7, in D Major. Richard Goode (piano). ELEKTRA NONESUCH © 79213-2 (54 min).

Performance: *Excellent*
Recording: *Lifelike*

All the virtues we've come to associate with Richard Goode's Beethoven performances are happily in evidence here. One does not carry away impressions of brilliant pianism but of how rich these works are. The D Major Sonata, probably everybody's favorite in this set, is properly rambunctious yet never hints at untidiness. This is not, after all, the unbuttoned kind of humor Beethoven would throw at us in later works; the work is simply very alert and good-humored, an apt contrast here to the

earnest drama of the C Minor Sonata and the more grandly proportioned, more forward-looking D Major. Goode tells us exactly what we need to know about each work, and he does it so straightforwardly and free of fuss that one would hardly think of using such a term as "revelation," but it could hardly be more suitably applied. Exceptionally lifelike piano sound, too. *R.F.*

BRAHMS: Cello Sonata in G Minor (see RACHMANINOFF)

DVOŘÁK: Cello Concerto in B Minor; Symphonic Variations (see Best of the Month, page 82)

DVOŘÁK: String Quartet No. 12, in F Major, Op. 96 ("American"); Quartet No. 14, in A-flat Major, Op. 105. Cleveland Quartet. TELARC © CD-80283 (57 min).

Performance: *Polished*
Recording: *Very realistic*

The well-loved F Major Quartet was a product of Dvořák's 1893 summer holiday in Spillville, Iowa. While the A-flat was begun in America, it was completed only when he was back home in Bohemia. The last of his string quartets, it shows the composer in peak form and makes a good foil for the much more familiar "American" Quartet. The first movement begins in slow and intense fashion. The second movement, a scherzo based on the Czech *furiant* dance, is one of Dvořák's prime essays in the genre. Following a lengthy and lovely slow movement, there's a dashing and dynamic finale.

The Cleveland Quartet's performances here are endowed with a verve and high polish that show to best advantage in the A-flat Quartet. The middle movements of the "American" make for gratifying listening, but the outer movements are a bit brisk for my taste. The recording is an extraordinarily realistic presentation of a chamber ensemble under ideal acoustic conditions. *D.H.*

GOUNOD: Faust. Richard Leech (tenor), Faust; Cheryl Studer (soprano), Marguerite; José Van Dam (bass), Méphistophélès; Thomas Hampson (baritone), Valentin; others. French Army Chorus; Chorus and Orchestra of the Capitol of Toulouse, Michel Plasson cond. EMI CLASSICS © CDCC 54228-2 three CD's (204 min).

Performance: *Unusually satisfying*
Recording: *Excellent*

This new recording of *Faust* re-establishes the familiar work as the essence of French grand opera—urbane, elegant, skillfully constructed, and dramatically trenchant. If the plot lacks inexorable logic, the music and pageantry carry us

along. Michel Plasson's direction inspires the performers and imbues the opera with new life.

Tenor Richard Leech has the proper voice for Faust; essentially lyric, it is nonetheless strong enough to achieve musical climaxes without loss of focus or quality. His dramatic interpretation is entirely credible, as complete a realization as we are likely to hear. Cheryl Studer's Marguerite is a total conception, musically and dramatically. Her two big numbers, "Le roi de Thulé," frequently a crashing bore, and the "Jewel Song," too often a showpiece for the prima donna, are both sung in character. Studer's Marguerite grows: The credulous girl in the garden, freshly awakened to love, is then betrayed; fearful, lonely, and desolate, she descends into shame, despair, and, finally, madness. Studer conveys all these moods with her voice—and a beautiful voice it is.



Richard Goode: no-fuss Beethoven

José Van Dam's Méphistophélès is a worldly, polished *grand seigneur*. Like his colleagues, he uses his voice as a medium of characterization as well as of musical communication, recalling with his rich, limpid bass the graceful villainy of a Pinza or London or Siepi. Thomas Hampson, as Valentin, sings his celebrated farewell richly and movingly. More important, he affectingly unfolds the personality of a zealot whose "moral" conviction inhibits his humanity. The rest of the cast sing well, articulate the text clearly, and make their roles dramatically believable.

Altogether, the combination here of masterly musicmaking and sensitive awareness to underlying dramatic values have yielded one of this opera's finest recorded realizations. *R.A.*

HAYDN: Die Jahreszeiten (The Seasons). Arleen Augér (soprano); John Aler (tenor)

Explanation of Symbols

- Ⓢ = Compact disc
- ⓐ = Tape cassette

or); Håkan Hagegård (baritone); Minnesota Chorale; Saint Paul Chamber Orchestra, Joel Revzen cond. KOCH INTERNATIONAL CLASSICS © 3-7065-2 (two CD's (136 min)).

Performance: *Low-key, refined*
Recording: *Very good*

Following the overwhelming success of *The Creation* in 1798, and urged by the enthusiastic art patron and avid Handelian Gottfried van Swieten (who provided the libretto), Haydn wrote his second oratorio, *The Seasons*, soon thereafter (1801). While *The Creation* is an imposing and uplifting work on a cosmic subject, *The Seasons* offers a bucolic slice of Austrian country life with *singspiel* overtones.

Conductor Joel Revzen and his fine Saint Paul players give us a leisurely and jovial *Seasons* here, and it may be a valid

over Band, Roy Goodman cond. NIMBUS © NI 5318 (57 min).

Performance: *Electric*
Recording: *Resonant*

The Hanover Band and its director, Roy Goodman, have never been media darlings like Christopher Hogwood and his Academy of Ancient Music or Roger Norrington and his London Classical Players. Their recordings have been uneven, but some eclipse those of their more celebrated rivals, and this is one of them. As much as I like Norrington's recording of Mendelssohn's "Scottish" Symphony on EMI/Angel, this one has more of a period flavor, stronger rhythmic propulsion, and more of a sense of live performance. In fact, it's the first recording in years that made me hear this warhorse with fresh ears.

While Norrington blends the music's

RACHMANINOFF: *Cello Sonata in G Minor, Op. 19*. PROKOFIEV: *Cello Sonata in C Major, Op. 119*. Yo-Yo Ma (cello); Emanuel Ax (piano). SONY CLASSICAL © SK 46496 (64 min), © ST 46486.

Performance: *Sumptuous*
Recording: *Superb*

RACHMANINOFF: *Cello Sonata in G Minor, Op. 19*. BRAHMS: *Cello Sonata in D Major*. SCHUMANN: *Fantasiestücke, Op. 78*. Janos Starker (cello); Shigeo Neriki (piano). RCA VICTOR © 60598-2 (70 min).

Performance: *Aristocratic*
Recording: *Good*

The performances of the Rachmaninoff Cello Sonata on these two discs offer a wonderful study in contrast between two of the finest cello virtuosos of our time, Yo-Yo Ma and Janos Starker. Ma and Emanuel Ax make an ideal chamber-music team, and here they function as virtually a single organism, responding wholeheartedly to the emotionality and drama of the lush, lyrical 1901 sonata. They extend their expansive treatment by giving us the first-movement exposition repeat. For his part, Starker is cool, aristocratic, and never less than the complete musician. He forgoes the first-movement repeat and in general, expertly accompanied by Shigeo Neriki, comes up with a much tauter reading.

Starker's CD includes the lovely Brahms G Major Violin Sonata in a cello version that the annotation credits to Brahms himself. That may or may not be accurate, but whatever its provenance, Starker makes a good case for it here. Nevertheless, I'm not about to give up my treasured Szeryng-Rubinstein recording of the original. The other coupler, Schumann's *Fantasiestücke*, is a set of brief and typical character pieces, contrastingly lyrical and impulsive. Schumann scored them originally for clarinet but with the performance option of viola or cello. Again, Starker offers an elegant and precise reading, but I still prefer the lighter-textured clarinet version over the cello.

The late (1950) Prokofiev sonata that fills out the Ma-Ax CD is beautifully written for the instrument, but it is typical of the composer's output after he was beset by Soviet bureaucrats. Ma and Ax no doubt give the best possible performance, but it amounts to three movements of pleasing but bland fare.

The Starker-Neriki disc was well and cleanly recorded in New York's Manhattan Center. Ma and Ax used Mechanics Hall in Worcester, Massachusetts, and the sonics are simply magnificent—some of the best chamber recording with piano that has ever come my way. D.H.

RAVEL: *La Valse; Boléro* (see ROUSSEL)

ROUSSEL: *Symphony No. 3, in G Minor, Op. 42; Bacchus et Ariane, Op. 43, Suite*



Emanuel Ax and Yo-Yo Ma: an ideal chamber-music team

approach to an oratorio that is domestic and not heaven-storming in character. The orchestral tone is warmly transparent, but certainly not big. The chorus is properly attuned to the overall view, and the balances are right; choral definition becomes cloudy in climactic passages, but no more so than in rival versions.

The three soloists deliver their recitatives with clarity and sensitivity. Håkan Hagegård puts too much pressure on his voice for his opening recitative but soon settles down to deliver a smooth and warm-toned account of his music. John Aler's tone is attractive, and Arleen Augér's exquisite sound and phrasing are particularly delightful in her lightly floated cavatina, "Licht und Leben" (No. 30). Sonically, the new set scores strongly. Warmly recommended. G.J.

MENDELSSOHN: *Symphony No. 3, in A Minor, Op. 56 ("Scottish"); Hebrides Overture, Op. 26 ("Fingal's Cave"); Calm Sea and Prosperous Voyage, Op. 27*. Han-

textures into a homogeneous dark hue that makes the sound remarkably similar to that of modern orchestras, Goodman's textures are more layered, lean, and transparent, revealing many more details. Norrington takes a more Classical approach, with minimal tempo variation; Goodman uses a greater variety of tempos and yet, with his lively sense of rhythm, achieves more overall cohesion.

The *Hebrides Overture* is a bit ragged, but even this performance has its revelations in the ethereal sound of the string figures, and a somewhat more successful performance of the infrequently heard *Calm Sea and Prosperous Voyage* rounds out the disc. This recording is further evidence that the quest for authenticity needn't lead to standardization. D.P.S.

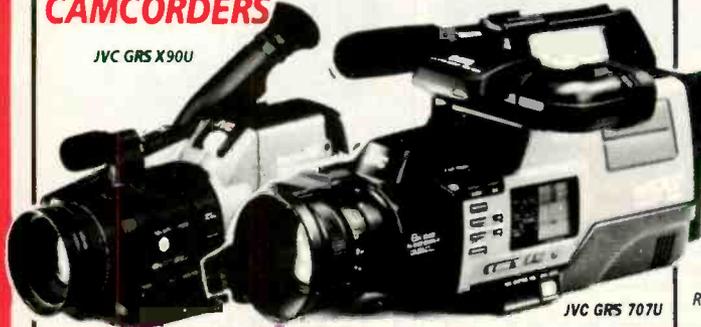
PROKOFIEV: *Cello Sonata in C Major* (see RACHMANINOFF)

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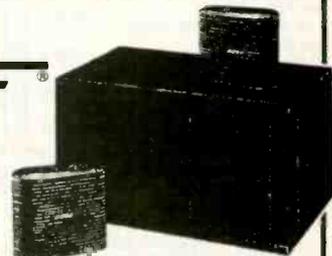
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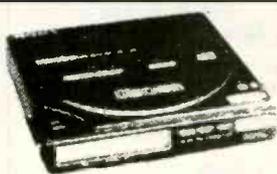
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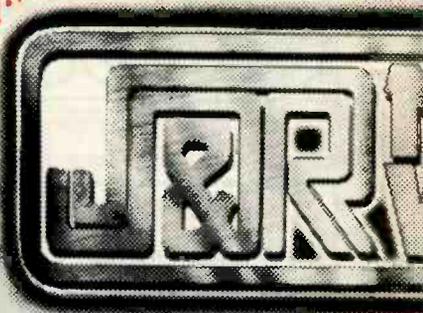


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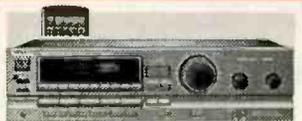
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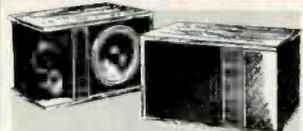
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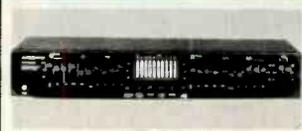
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Electronic Reference

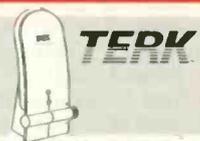


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Audio/Video Accessories

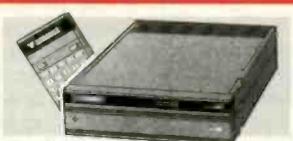


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CIRCLE NO. 19 ON READER SERVICE CARD



No. 2. RAVEL: *La Valse*; *Boléro*. Detroit Symphony Orchestra, Neeme Järvi cond. CHANDOS © CHAN 8996 (68 min).

Performance: *Fine Roussel*
Recording: *Excellent*

If French music has been overlooked in Neeme Järvi's recording activity until now, apparently it was not for lack of interest or of sympathetic response on his part. He seems to relish the unique rhythms and colors of the two Roussel works here; he catches their spirit splendidly, and—by no means incidentally—he has the Detroit Symphony playing like a true virtuoso ensemble. The textures are marvelously achieved: just dry enough in the symphony's remarkable scherzo, ablaze without passing into neon in the starry climax of *Bacchus*.

The Ravel pieces strike me as somewhat less successful. *La Valse*, in which Järvi makes not the slightest concession toward voluptuousness, is enjoyable for its brilliance and drive, but it's surprising to find a conductor so attuned to both the wit and the compassion in the Roussel scores who is so unwilling to probe below the surface in this work. The *Boléro* is downright perfunctory, with some of the wind players not quite prepared to make the most of their solo passages. What is entirely consistent throughout this disc is the sound quality, which represents Chandos at or near its formidable best in respect to both richness and definition. R.F.

SCHUBERT: *Lieder* (see Best of the Month, page 65)

SCHUMANN: *Fantasiestücke*, Op. 78 (see RACHMANINOFF)

SIBELIUS: *Symphony No. 1, in E Minor*, Op. 39; *Finlandia*, Op. 26; *Karelia Suite*, Op. 11. Oslo Philharmonic Orchestra, Mariss Jansons cond. EMI CLASSICS © CDC 54273-2 (62 min).

Performance: *Highly charged*
Recording: *Very good*

Mariss Jansons brings to these youthful Sibelius scores much of the passion and brilliance that made his Tchaikovsky symphony series for Chandos something of a landmark. The disc actually leads off with the *Karelia Suite*. There is a superbly atmospheric treatment of the Intermezzo with its echoing horns, a near-perfect realization of the poignant Ballade, and a smart and snappy performance of the *Alla marcia* concluding movement. The reading of *Finlandia* conveys a fierceness that makes one realize what the piece must have meant to the defiant Finns at the turn of the century when Tsarist Russia was bearing down relentlessly on their national aspirations.

The First Symphony here is in much the same vein. The opening movement is unusually rich in its illumination of inner detail, and the execution of the tricky woodwind work in the scherzo is bril-



Kyoko Takezawa: impressive debut

liant. The finale has the Oslo players on their toes all the way. Throughout the performance I sensed the conductor's keen awareness of the Finnish speech rhythms that underlie much of the thematic material. Except for some lack of definition in the choral tympani figures in the first movement, this recording rates among the best EMI has given us from Oslo. D.H.

TCHAIKOVSKY: *Violin Concerto in D Major*, Op. 35. PROKOFIEV: *Violin Concerto No. 2, in G Minor*, Op. 63. Kyoko Takezawa (violin); Moscow Radio Symphony Orchestra, Vladimir Fedoseyev cond. RCA VICTOR © 60759-2-RC (63 min).

Performance: *Big, warm tone*
Recording: *Close-up*

When Kyoko Takezawa won first prize in the Indianapolis International Violin Competition six years ago she was still a teenager, but she had already won a prestigious competition in Japan in 1982. Now she is well launched on her career: She has appeared with both the New York Philharmonic and the touring Royal Liverpool Philharmonic, and RCA Victor has brought out her first recording. Made in Frankfurt in September 1990 and issued in Japan nearly a year ago, it is an impressive debut. Takezawa draws a big, warm sound from her superb Strad, and she appears to be a musician of innate taste and refinement as well as unwavering technical assurance. She is genuinely musical and obviously deeply committed to the idea of bringing out each work's individual character. Her phrasing and the application of color seem always to be intuitively adjusted to that end.

Some listeners, conditioned by a more traditional approach to concerto playing, may find these technically stunning

and unarguably warmhearted performances wanting in personal intensity, or "personality." Others, I imagine, will welcome Takezawa's willingness to let the music come to life on its own terms rather than in some homogenized blend with her own personality dominant.

The partnership with Vladimir Fedoseyev works well, though one cannot fail to notice the gap between Takezawa's unselfconscious elegance and the somewhat less distinguished level of orchestral playing. Moreover, while it is unusual to complain about the orchestra being too far forward in a concerto recording, the woodwinds in particular are too closely miked. In general, though, the sound is bright, powerful, ample in range, and rich in detail, and the disc is definitely worth hearing even though it may not dislodge existing favorites. R.F.

VIVALDI: *Gloria* (see BACH)

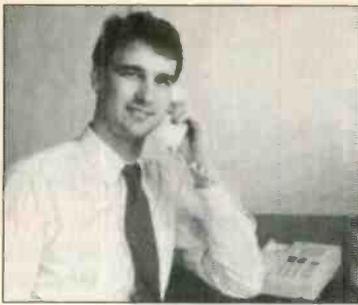
Collection

GÜNTER WAND: *Modern Pictures*. Stravinsky: *Concerto in E-flat* ("Dumbarton Oaks"). Fortner: *Bluthochzeit*, *Interludes*. Webern: *Five Pieces for Orchestra*, Op. 10. Martin: *Petite Symphonie Concertante*. NDR Symphony Orchestra, Günter Wand cond. RCA VICTOR © 60827-2 (55 min).

Performance: *Superb*
Recording: *Excellent*

Günter Wand has been so strongly identified with the music of Beethoven, Brahms, and Bruckner that it's a bit of a jolt to find him recording music of our own century. But it is a very stimulating and enjoyable jolt, for these performances, recorded live in 1984 and 1985, all reflect the same level of commitment, conviction, and happy discovery that informs Wand's readings of the familiar symphonies. The sequence itself shows exceptional thoughtfulness in respect to the most effective contrasts, building from Stravinsky's relatively familiar "Dumbarton Oaks" Concerto to the intriguingly colored chain of orchestral interludes from Wolfgang Fortner's operatic treatment of García Lorca's *Blood Wedding* (whose première Wand conducted in 1957) to the commandingly pithy Webern pieces to the expansive and ingratiating orchestral masterwork of the Swiss composer Frank Martin. The playing is superb, the sound is excellent—but the packaging is a disgrace.

None of the four works here is exactly "basic repertory" stuff, and the labeling fails to identify any of them at all adequately. Each is simply listed by its title and laid out in a single track regardless of musical divisions. This kind of treatment is by no means characteristic of RCA Victor, which has generally been meticulous in its documentation. However the lapse may have occurred, the musical content is too valuable to be lost—or allowed to go undefined. R.F.



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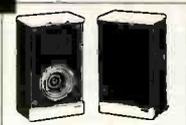
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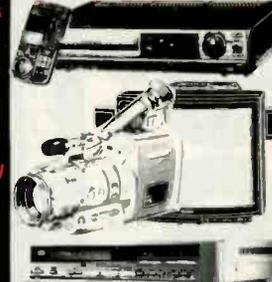
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Extending the Liszt

LISZT'S Concerto in E-flat, Op. posth., or "Concerto No. 3," probably composed about 1839, came to light about three years ago when a reconstruction by the musicologist Jay Rosenblatt was published in Budapest. It is a cohesive single movement running about 15 minutes, more concise in its gestures than either of Liszt's well-known concertos, if without themes as memorable as theirs.

Rosenblatt also prepared a performing edition of Liszt's *De Profundis*, an utterly different kind of concerted work, which had not been entirely unknown. Its existence is noted in catalogs of Liszt's works, but he never completed it and almost certainly never performed it in its unfinished state. He composed it in 1834-1835, taking as his basic material a plainchant setting of the Psalm 129 ("Out of the depths I call to Thee") and a theme he used also in his piano piece *Pensée des Morts*. It is in two sections: an expansive Andante longer than either of the two familiar concertos and an *Allegro moderato* that brings the total to about 35 minutes. Rosenblatt's edition of this work has been recorded, together with the Concerto No. 3 and a version of the famous *Totentanz* different in many respects from the one we know, by the American pianist Steven Mayer with the London Symphony Orchestra under Tamás Vásáry on an ASV disc.

At the same time Rosenblatt was working on his version of *De Profundis*, the Canadian composer and arranger Michael Maxwell undertook one of his own. Maxwell's is performed by his compatriots Philip Thomson (pianist) and Kerry Stratton (conductor) with the Hungarian State Orchestra on a recent Hungaroton CD, together with Liszt's by no means unknown arrangement of Schubert's "Wanderer" Fantasy and his neglected but delicious little Fantasy on Themes from Beethoven's *Ruins of Athens*.

On another Hungaroton disc, Jenő Jandó plays the Concerto No. 3 with the same orchestra under Lamberto Gardelli and follows it with some rarities for piano solo: Liszt's arrangements of six of his own songs and three extended pieces based on marches by Schubert.

The ASV disc has the apparent advantage of offering both "rediscoveries" in a single package, but stronger cases are made for both works on Hungaroton. In the first place, Maxwell's is the more effective edition of *De Profundis*; he shows a greater feeling for orchestral color and for contrast than Rosenblatt does, and he has created an ending that works very well. In the ASV recording the work just dies away at the point where Liszt left off.

Apart from the differences in the two editions of *De Profundis*, both that work and the concerto are simply played better on Hungaroton. Thomson and Stratton respond more alertly than Mayer and Vásáry to the brighter opportunities Maxwell created for them in *De Profundis*, and in the concerto Jandó seems much more inside the music than Mayer, making it seem a work of real substance.

The filler pieces on Thomson and Stratton's disc are brought off enjoyably enough, and neither seems to be otherwise available on CD at present. The



Philip Thomson

solo pieces on the Jandó disc are more in the nature of further discoveries, simply because they are so seldom performed. And the version of *Totentanz* that Mayer and Vásáry perform is also not available elsewhere. Truly committed Lisztians will want all three of these discs. For those less committed, every musical consideration favors one or both of the Hungaroton recordings. *Richard Freed*

LISZT: *De Profundis*; Piano Concerto No. 3, in E-flat Major; Totentanz (1853 version). Steven Mayer (piano); London Symphony Orchestra, Tamás Vásáry cond. ASV © CD DCA 778 (67 min).

LISZT: *De Profundis*; Fantasy on Beethoven's "The Ruins of Athens." SCHUBERT (arr. Liszt): *Wanderer-Fantasia*. Philip Thomson (piano); Hungarian State Orchestra, Kerry Stratton cond. HUNGAROTON © HCD 31525 (68 min).

LISZT: *Piano Concerto No. 3, in E-flat Major*; *Book of Songs for Piano Solo, Vol. 2*; *Franz Schubert's Marches*. Jenő Jandó (piano); Hungarian State Orchestra, Lamberto Gardelli cond. HUNGAROTON © HCD 31396 (73 min).

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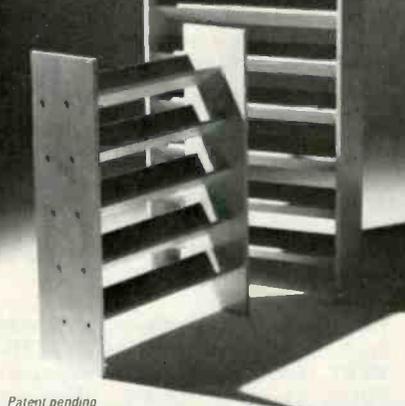
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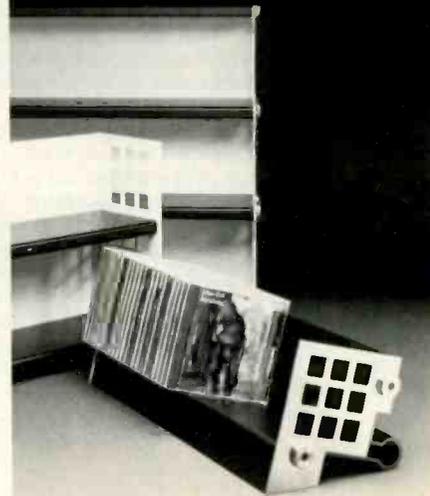
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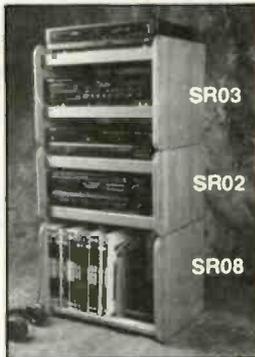
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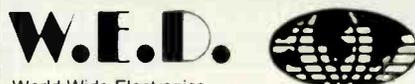
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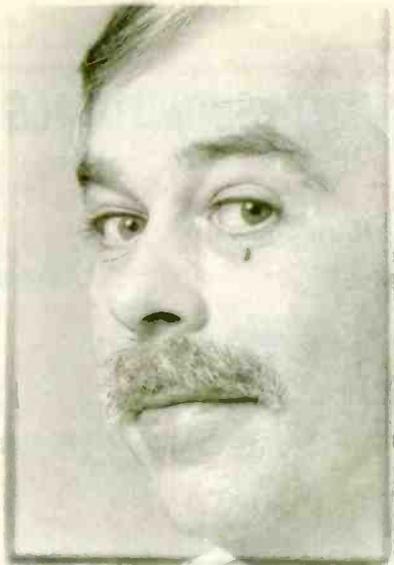
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THE HIGH END

by Ralph Hodges



Small, Hot Potatoes

WE are often told that all competently designed power amplifiers sound identical before clipping (provided some relatively mundane performance requirements are met), and that should be true. I may believe I hear a difference when I receive some new design for examination, but I'm always aware that it could just be my mood after dealing with a maelstrom of packing materials and perhaps 60 pounds of dead weight. Recently, however, there has passed through my listening room a host of audio innocents who have commented, favorably and otherwise, on amplifier changes they had not been told about beforehand. "I kind of liked it better the last time," was a typical remark when an alternative power amplifier, but no other change, was involved.

When the naïve or uninformed start expressing preferences for amplifiers they don't even know exist, there must be some explanation. So I organized a group of listeners to wade through this quicksand of controversy.

Considering what has befallen "sounds different" advocates who regularly fail rigorous double-blind listening tests, I decided on a different mode of inquiry. First, my wife, several knowledgeable visitors, and I did our best to characterize, in words, the differences we experienced (there was good agreement). Then I went looking for measurable confirmation.

What we were listening to was, after all, not just an amplifier, but an entire system, from (most often) a CD player on through to loudspeakers. I therefore elected to test the system almost as a whole, except that for the initial measurements I replaced the speakers with standard 8-ohm load resistors.

At the time I had on hand two "guest" amplifiers—Carver Silver Nine-t's and Adcom GFA-565's, both monoblock designs—and the host Dynaco Stereo 400 "reference" amplifier (much modified, mostly by Frank Van Alstine) that normally powers the system. Investigation of distortion and noise turned up nothing of interest, so I decided to look at minutiae of frequency response to see if there were trends that spanned enough bandwidth (an octave or more) to support our conclusions.

With the Carver amplifiers installed, the system had a way of sounding powerful even when it wasn't *being* powerful, which I could attribute to a 1-dB rise in response (system response, remember, including that of the CD player and preamplifier) below 300 Hz. It also sounded somewhat hard and aggressive, for no obvious reason. We'll get back to that.

With the Adcom amps in place, we felt the system sounded attractive at first, but later on we thought we noticed a sort of stuffiness and congestion in the midrange, impairing the clarity of vocal and string passages. Measurements showed a response that was typically 0.1 dB down above 1,000 Hz relative to the frequencies below—not much to speak of, but the bandwidth of the disparity was large (more than four octaves).

We found the system most pleasing when the modified Dynaco amplifier was in use, with a clear, liquid midrange, but a trace of anemia at the top end. Measured system response into the load resistors was dead flat to beyond 1,000 Hz, descending to -0.1 dB at 4,000 Hz and -0.4 dB at 10,000 Hz before recovering to -0.2 dB at 20,000 Hz.

All these numbers are small potatoes, indeed, compared with the response variations introduced by the speakers and room. I decided to look deeper by including the effect of the loudspeaker load on the system re-

sponse. This was achieved by reading each amplifier's output voltage across the input terminals of the Ohm Walsh 5 loudspeakers instead of across the load resistors. And, as sometimes happens, most of the response aberrations increased when the amplifiers were confronted with a complex load.

The Carver and Adcom amps stood up quite well under the changed load conditions, but there were important deviations. With the Carver amplifier, which has an exceptionally high output impedance (low damping factor), the system's bass response peaked at 250 Hz into the speaker (instead of peaking at 120 Hz, as it did when the load was a simple resistor), and the response above 4,000 Hz remained especially strong, perhaps accounting for the slightly "forward" sound we noted with this amp in the system. With the Adcom amplifier, the response developed a rise at 250 Hz that defined a broad hump below 1,000 Hz in the lower midrange, and it dropped by about 0.1 dB above 8,000 Hz. These results agreed well with what the listeners thought they heard from the system with those two amplifiers. Response with the modified Dynaco amplifier in the system was down somewhat above 3,000 Hz (about -0.3 dB at maximum), but it remained well disciplined below that frequency.

I don't know what the results would have been if the listening comparisons had been more rigorous or if different amplifiers or speakers had been used (response changes created by amp/speaker interactions, when they occur at all, depend heavily on the exact equipment employed). The point of this exercise was to show that, even amidst a vast array of equipment offerings, there can still be rational bases for choice and quite simple criteria that can be applied—if the entire system is taken into account. The high quality of all the amplifiers in this small survey is not to be doubted. That one seems to work out best (if not ideally) with the associated equipment—including the listening room—is not surprising, however. Just remember that the preferred amplifier could be completely different with different loudspeakers or in a different room, or there might be no preference (or difference) at all. □



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