

Stereo Review

MARCH 1991 ● \$2.50

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LISTENING TESTS: DOLBY S VERSUS DAT

THE BIG BANDS

BUYING GUIDE TO TAPE AND TAPE DECKS

LAB TESTS: MAGNAVOX CD PLAYER,
CLEMENTS SPEAKERS,
YAMAHA CASSETTE DECK, MORE...



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MAR 92
MR DAVID S BUCHANAN
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LOUISVILLE KY
40242-7772





You may think you've heard it all

Basically, it means we put a computer inside a car stereo head unit. A



Of equal interest are the three modes of equal-

before. But we can assure you that you've never heard anything quite like this.

high-speed, special-purpose microprocessor, to be exact.

ization we give you to choose from. The 3-band parametric EQ gives you the freedom and versatility to recreate sounds with incomparable accuracy.

Unless, that is, you've ever had the opportunity to drive with a twelve-piece jazz

Then, because of the DSP chip's tiny size, we were able to load the unit with dozens of other features and components once considered

While the built-in 7-band graphic EQ features the convenience of six user presets.

ensemble playing in your car.

impossible to incorporate in the car-audio realm.

Additionally, the parametric bass and treble comes equipped with front and rear equaliza-

Introducing the Premier KEX-M900 from Pioneer Electronics.

NOW YOU'VE HEARD EVERYTHING.

An incredible 3-source unit that is,

Which is where things really begin to get interesting.

tion control for precise staging.

to put it quite simply, the most advanced car audio system ever created. And it's due to the way we've utilized a revolution-

The digital sound field control enables you to

With your multi-play CD controller, you can then enjoy complete command over your Pioneer 6-disc magazine

ary new technology known as Digital Signal Processing (or just DSP). A remarkable

transform your car into any one of four distinct music environments: studio, jazz club, concert hall or stadium. Each

changer, which is fully com-

development that provides

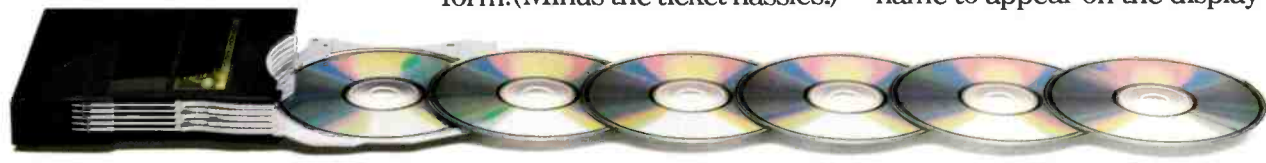
one possessing its own clear, unmistakable sound. So it's like

patible with your Pioneer home multi-play CD system.

complete digital audio control, totally altering the way you listen to music in a car.

going to one of your favorite venues to hear your favorite artist perform. (Minus the ticket hassles.)

There's also a brand-new disc title memory feature. So you can program the artist's name to appear on the display



when their disc is being played. Even the tuner we designed for this system is something out of the ordinary.

Our SUPERTUNER® IV™ is the very first to come along with single-digit sensitivity. Which means it can now pick up more stations from greater distances and hold



For safety and convenience, we've also added a wireless remote that lets you control the

entire system without ever taking your eyes off the road. And with the learn feature, you can then program the remote to learn and operate

Detachable Face Security.™ An industry first, this feature allows you to remove the faceplate and place it in an accompanying carrying case that fits easily in your pocket.



About the only thing more exclusive than this extraordinary system is



them longer than any other tuner on the market today.

And what about all your cassette tapes, you're asking?

Afraid you'll have to sacrifice them to get CD sound in your car?

Not true. A simple touch of a button and the faceplate flips down to reveal a cassette deck with full-logic control, auto-reverse and all the features you'd expect from Premier.



any one additional function appearing on the unit's face.

Now, at this point, you're probably wondering where you're going to find a security system sophisticated enough to protect your investment.

Well, you don't have to. The KEX-M900 comes with



our network of Premier Installation Specialists.

These expert craftsmen will design and install your system with the utmost care and attention to detail. For more information and the name of the Premier dealer nearest you, give us a call at 1-800-421-1601.

We could go on, of course. But we think you've probably heard enough.



The first CD Carousel with Denon sound quality.



The sound quality and performance features that have made Denon Single-play CD players widely regarded as the best sounding have now been incorporated in Denon's first Carousel CD player.

The 5-disc DCM-350 features the same 8X oversampling, 20-bit digital filter and dual Super Linear Converters found in Denon's top-rated models. Denon's dedication to performance means that each Super Linear Converter is hand-tuned for lowest noise and best linearity. This advanced digital signal processing and conversion system fully resolves musical detail and

accurately reproduces all the liveliness and air of the original recording.

In multi-disc players, the transport is an important key to performance. The superior transport technology which has made Denon famous in both CD and turntable categories is found in the DCM-350. Its integrated laser transport and disc carousel not only provides outstanding acoustic and mechanical isolation, it also allows uninterrupted play while two of the five discs are changed.

If the essence of a CD changer is convenience, the DCM-350 covers this base in

spades. It offers a 32 track memory plus programmable, disc sequential and full random play modes; all terrific features in a multi-disc machine. Plus, there is a full-function remote control with direct track selection from the remote's keypad. Recognizing that the DCM-350 will find its way into many of the most sophisticated systems, Denon has even provided a coaxial digital output.

Carousel CD changers have been out for a while now. But the DCM-350 is the first to carry the Denon name. Which again proves Denon's belief that being best is more important than being first.

For Product Information



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Cover: Sony's DTC-700 digital tape recorder and Harman Kardon's Dolby S-equipped TD4600 analog cassette deck (see page 46).
Design by Sue Llewellyn, photo by Jook P. Leung.

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SONY

THE LEADER IN DIGITAL AUDIO™

by Rebecca Day and
William Livingstone

PRECIOUS METALS

Among the first recordings whose sales have qualified them for 1991 certification as Gold albums by the Recording Industry Association of America are Julio Iglesias's "Starry Night" (Columbia) and Judas Priest's "Painkiller" (Columbia). The year's first Platinum albums include Phil Collins's "Serious Hits" (Atlantic), George Strait's "Livin' It Up" (MCA), and Queensrÿche's "Empire" (EMI). M.C. Hammer's "Please Hammer Don't Hurt 'Em" (Capitol) was certified multi-Platinum with sales of 9 million copies.

SURROUNDED

You don't have to rent a movie to experience the effects of surround sound at home. Several network television shows—*Twin Peaks*, *Star Trek: The Next Generation*, *The Arsenio Hall Show*, *Late Night with David Letterman*, *Saturday Night Live*, HBO's *Tales from the Crypt*, and PBS's *Austin City Limits*, among others—are encoded with Dolby Surround for playback through components equipped with Dolby Surround and MTS decoders. . . . Pioneer has published a brochure, "The Really Cool Guide to Building Your Very Own Home Theater," that helps a reader plan a combined audio/video system on one of three levels, "Just the Basics" to "The Ultimate" (all with Pioneer components, of course). It is available from local retailers.

ANNIVERSARIES

Kultur Video is celebrating its tenth anniversary, and the Juilliard School in New York is celebrating its eighty-fifth. . . . Marking fifty years of Texaco's underwriting of Metropolitan Opera radio broadcasts (the longest sponsorship in broadcasting history), the Texaco-Metropolitan Opera Radio Network is expanding this season to include seventeen countries in Europe. . . . The centennial of the birth of the Russian basso

Alexander Kipnis (1890-1978), the father of the harpsichordist and critic Igor Kipnis, is being celebrated in February and March with exhibitions and broadcasts and CD reissues of his recordings by Preiser (Austria), Pearl (England), and RCA/BMG. . . . This year the Magazine Publishers of America and the American Society of Magazine Editors are celebrating the 250th anniversary of magazines in America; STEREO REVIEW turned thirty-three in February.

COMPANY NOTES

The turntable and electronics maker Linn has begun distributing LP's on the Selekt label through its hi-fi dealers. The first ten of eighty LP's the company plans to make available this year include recordings by Elvis Costello, Nanci Griffith, and the Milcho Leviev Quartet. . . . Sony was given an Emmy award by the National Academy of Television Arts and Sciences for its advancements in metal-particle tape for both audio and video recording. . . . Hitachi, Matsushita, and Sony have put high-definition tv sets on sale in Japan for prices of approximately \$34,000 each. . . . Tandy Corporation, whose Radio Shack chain is said to make it the nation's largest consumer electronics retailer, has started a new chain of stores called The Edge in Electronics. Unlike Radio Shack stores, the new ones will feature such name brands as Aiwa, JVC, Memorex, Panasonic, Sharp, and Technics. The first Edge in Electronics stores were scheduled for several Texas cities and Washington, D.C.

MUSIC NOTES

The 1991 *Guinness Book of Records* cites Paul McCartney as the solo performer who attracted the largest paying audience in history, an estimated 180,000 to 184,000 in Rio de Janeiro, Brazil, April 21, 1990. . . . Coming from CBS in the style of its remixed/remastered Byrds box are "Artifacts, Volumes 1-4" (CBS singles from the late 1960's and early 1970's) as well as two-CD

sets devoted to the McCoy's and Kansas. . . . Following the lead of Carly Simon, Cher, Meryl Streep, and Natalia Makarova, the latest celebrity to make a children's record is Maria Muldaur. Her "On the Sunny Side" is available on CD or cassette from Music for Little People (800-346-4445). . . . BMG Classics has signed Pinchas Zukerman (violinist, violist, and conductor) to a long-term exclusive contract on the RCA Red Seal label. Due in March is Zukerman's first release under this contract, Volume 1 of a cycle of Mozart violin sonatas.



YOUNG ATTITUDES

The magnetic tape division of Fuji has released the results of a study of attitudes and opinions of young American adults (sixteen to twenty-four years old) conducted for Fuji tape by the Gallup Organization. More than three-quarters are in favor of the death penalty, of random drug testing, and of keeping marijuana illegal. Nearly two-thirds of those surveyed believe recorded music should carry warning labels about its lyrics.

Pop/rock was named by almost 40 percent of the sample group as their favorite type of music. Heavy metal and rap music tied for second place with 10 percent each. In a typical week the average participant in the survey spends 7 hours reading, 9 hours working out or engaging in sports, 12 hours studying, 14 hours watching television or videotapes, and 24 hours listening to music. □

Listening in the 90's

Today people have become more and more space conscious. Many apartment dwellers don't want to give up valuable floor space for large speaker systems. Others who are planning a surround sound or home theatre system simply don't have the room for more speakers in their listening rooms or hesitate to commit the floor or wall space to a good sounding pair of speakers.

Until now, serious music lovers have had little, if anything, to choose from that would produce a large, bigger-than-life sound in a small, compact size. Systems that fit one's space requirements have been woefully disappointing in sound quality.

The RM 3000 Three Piece System

Polk's engineers had determined long ago that there were indeed certain technical advantages in

sonic performance.

The small satellites can be located on shelves, mounted on a wall or placed on their own floor stands. They are very attractive and yet small enough to be hidden from view if desired.

The RM 3000 subwoofer is also small enough to sit behind your furniture and can be used on its side to fit into tight spaces. And since it is beautifully finished, it can be used as a piece of furniture.



The RM 3000's satellites measure 7"H x 4 1/4"W x 5 3/8"D and are available in black matrix, gloss black piano or paintable white. The subwoofer is 12 1/2"H x 20"W x 12 1/2"D and is available with black wood grain sides and a black, mar-resistant top.

The Legendary Sound of Polk

In the tradition of Polk Audio, Matthew Polk and his team of engineers were determined to make the RM 3000 sound better than any other speaker of its type.

Initial reactions have been filled with superlatives including Julian Hirsch of *Stereo Review* magazine who says, "...they sound excellent...spectral balance was excellent—smooth and seamless."

Sound as big as life from speakers

small speaker systems. Both high and mid frequencies could be faithfully reproduced with superior transient response and dispersion characteristics, and the convenient, more flexible placement of small enclosures within the listening area could create an ideal sound stage. Unfortunately, reproducing the life-like, full body of the lower frequencies could not be achieved in a truly compact enclosure.

Polk's RM 3000 replaces the traditional pair of speakers with three elements, two compact midrange/tweeter satellites and one low frequency subwoofer system. This configuration makes it easy to properly and inconspicuously place the system within your listening room while offering superior

Behind these accolades is an impressive technical story.

The Technical Side

The big sound of the RM 3000 is due, in part, to the unique arrangement of the tweeter and midrange elements. This "time aligned system" delivers the high and mid frequencies at precisely the same instant. The result is a clear, lifelike and expansive presentation.

The cabinet materials selected for the satellites are over four times as dense as typical enclosures. The black matrix finish is a non-resonant polymer aggregate (FOUNTAINHEAD®). The gloss black piano and paintable white finishes are rigid ABS

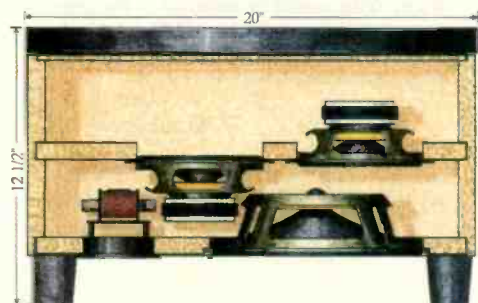


Polk's RM 3000 Three Piece Speaker System easily fits into any home decor.

small enough to live with.

surrounding a mineral filled polypropylene inner cabinet. Polk engineers have all but eliminated any "singing" or resonating of the satellite enclosure. You hear the effortless, free sound of a much larger system.

Most subwoofer systems look alike on the outside, but the Polk is worlds apart on the inside. Utilizing twin 6 1/2" drivers coupled to a 10 inch sub-bass



For deep, well defined bass, Polk uses twin drivers coupled to a sub-bass radiator. Normally, one subwoofer system is used for both channels. For those desiring even greater low frequency performance, a second subwoofer can be added, one fed by the left channel, the other by the right channel.

Where to buy Polk Speakers? For your nearest dealer, see page 98.

radiator, the bass is tight and well defined. There is no tuned port to create "whistling" or "boominess" of the bass frequencies.

You Have To Hear It To Believe It

You really won't believe how good the RM 3000 sounds until you hear it. We invite you to your nearest authorized Polk dealer for a demonstration. You'll hear sound as big as life...from a speaker you can live with.

You'll hear the next generation of loudspeakers.

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STEREO REVIEW is published by
Hachette Magazines, Inc.

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LETTERS

Digital Bias?

Over the past year STEREO REVIEW has seemed to be steering readers away from analog tapes, ranging from overt predictions that digital audio tape will make analog tape obsolete to statements that CD's are superior to analog cassettes. As an independent recording engineer with a considerable amount of equipment and experience, I find this trend to be perplexing as well as misguided. Analog tapes offer virtually endless recording possibilities and superior mixing results for the home recordist. In addition, they mean big savings when you're upgrading equipment.

W. E. JONES
Washington, DC

There's no doubt that digital media will eventually displace analog ones, but there's still a lot of life left in analog tape. See "Dolby S vs. DAT" in this issue.

Eugeny Kissin

Herbert Kupferberg's fine article about Evgeny Kissin in January presented the picture of a mature young man who has experienced a great deal of love in his life, which is evident in his musical performances. He is lucky to have been born when there is freedom in his country that allows him to perform throughout the world. He is also lucky that the recording medium has improved so greatly with the advent of digital sound.

I began listening to Mr. Kissin after his recording of the Rachmaninoff Concerto No. 2 and six *Études-Tableaux* was chosen as one of the "Best Recordings of the Month" in STEREO REVIEW. I was immediately impressed by his awesome technical ability and sensitivity. The promise of greatness on his earliest recordings has been fulfilled with the latest ones.

WILLIAM A. BUCHANAN
Livermore, CA

Cocteau Twins

I have purchased many recordings on the strength of your reviews. Generally I have been happy with them, but when I purchased the Cocteau Twins' "Heaven or Las Vegas" after reading Parke Puterbaugh's review in January "Best Recordings of the Month," it was a complete waste of \$15.99. Mr. Puterbaugh

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.

described Elizabeth Fraser's voice as "sensually sibilant." To me her electronically enhanced vocals came across as shrill and irritating. I have no idea what the songs are about, as I could not decipher any of the lyrics. If this record is a glimpse of the future, then I'll stop buying music.

TIM FORTE
Gansevoort, NY

Bouquets

I've been reading STEREO REVIEW now for more than a decade. I also subscribe to various other audio/electronics publications. Never before have I read anything like the series on "The Basics" by Ian Masters. It is the best feature of its kind that any publication of your type has ever done. Period.

SCOTT C. FLORENCE
Orem, UT

A bouquet of roses to Brad Meyer for his superb "Listening: Strategies for Choosing Speakers" in January. It is the best hands-on article I have ever read on the subject—no quagmire of technical specifications, just a few simple methods to test speakers with select CD's. Thanks to this article, three of my friends are on the road to purchasing new hi-fi systems.

CHARLES F. X. PERROTTA
Brooklyn, NY

Systems

Rebecca Day's "Systems" in January showed the stereo system of Susan and Daniel Darnel in Long Island. The text identified their turntable as a Technics SP-15, but the photo actually shows an Empire Troubadour, only the second one I have ever seen. The first one I saw I purchased in 1969. Its good looks and beautiful sound gave me great satisfaction for more than twenty years.

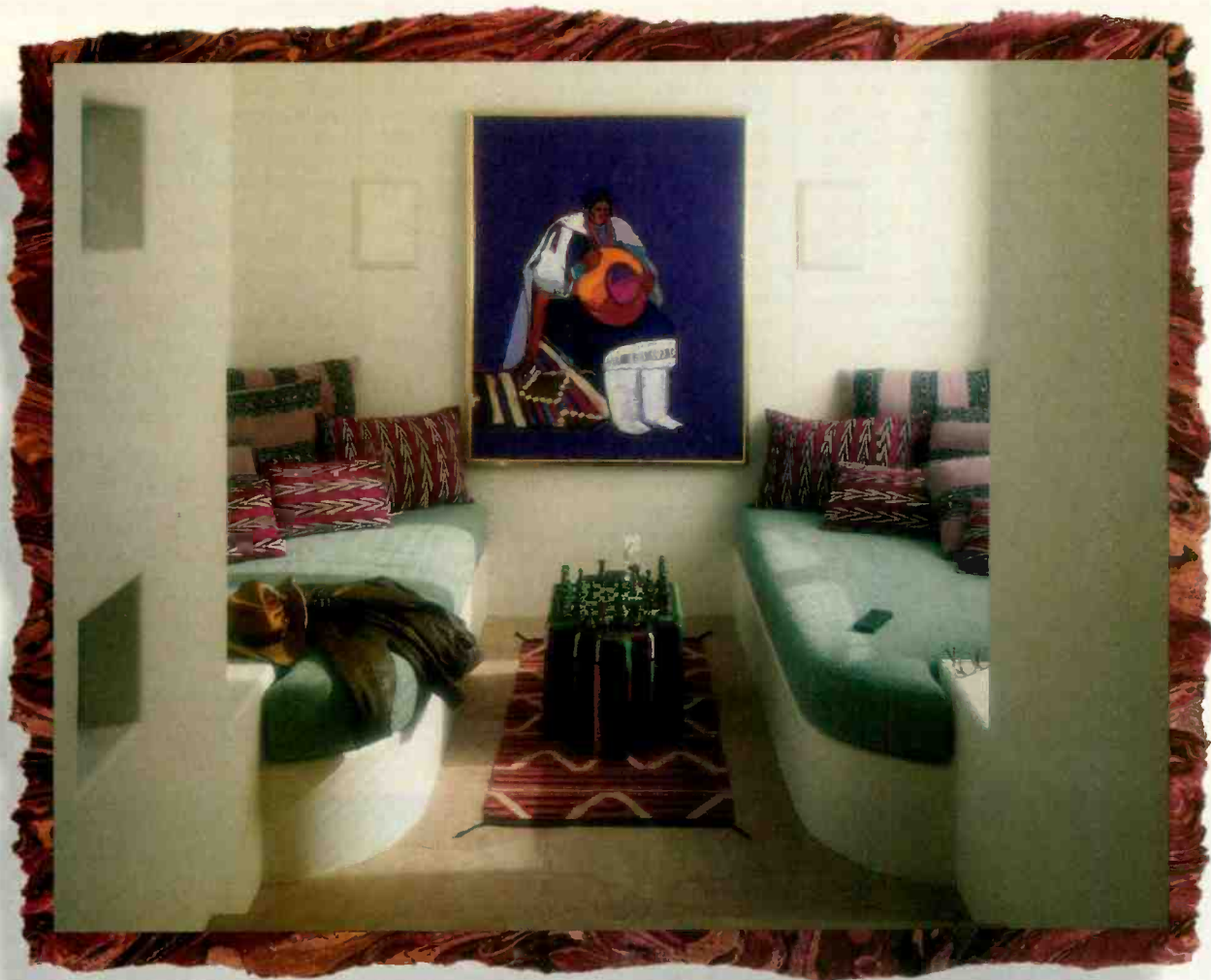
SCOTT SEABORNE
Neenah, WI

January's "Systems" mentions a pair of custom-made speakers using Solen crossover coils. How can I get a pair of these? I know crossover coils make a hell of a difference in the quality and liveliness of sound. I built my own speakers using a very simple two-way crossover with two capacitors and two coils of hand-wound insulated copper wires. You would be amazed at the deep bass and brilliant highs. I'd love to have a pair of Solen crossovers so that I could experience three-way sound.

JASON S. NG
Sugar Land, TX

Rebecca Day replies: We regret the misidentification of the turntable in the photo. It is indeed an Empire Troubadour 598, as

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LETTERS

several readers pointed out. The Darnels prefer the looks of this classic record player to their modern Technics machine and changed to it (using the same Shure cartridge) once the acoustically isolated turntable platform was built. The speaker crossovers came from Solen Electronics, Inc., 4470 Avenue Thibault, St. Hubert, Quebec J3Y 7T9, Canada. And for those who wonder about the open-wire record shelves, they were purchased several years ago in Bloomingdale's.

Digital Audio and the VCR

Whatever happened to 8mm VCR's that could record up to 24 hours of PCM digital audio without video? I've seen nothing about this technology in the past two years. Are 8mm decks with this capability still being produced?

MIKE PICKERING
Alexandria, VA

The digital audio recording system incorporated in the 8mm video standard is based on 8-bit PCM encoding with a combination of digital and analog compression, yielding a dynamic range approximately equivalent to that of 13-bit linear encod-

ing, and a sampling rate of 32 kHz. Its performance is good overall but poorer in terms of distortion, dynamic range, and bandwidth than the 16-bit linear system used for CD's and DAT's. This discrepancy, together with scarce supply and relatively high prices, seems to have limited the appeal of 8mm VCR's as audio decks, despite the very long recording times that are possible. As far as we know, the only current 8mm VCR's with digital audio recording capabilities are Sony's EV-S550, Hi8 EV-S900, and portable EV-S1, ranging from \$1,000 to \$2,000.

At Random

I recently purchased a Technics top-loading five-CD changer. I've noticed that the random-play feature has no memory or delete function, so songs are often repeated. This makes sense, since I might swap any disc at any time. But a "no repeat" option would be nice for when I know I'm sticking to five specific discs. Are all top-loading changers like this, or do some manufacturers provide this option?

DAVID LASALA
Cedar Grove, NJ

Different changers handle random play in different ways. Some models do truly random playback, which means that a track can repeat before all the other tracks have been played. Others will not repeat a track until all the rest have been played.

Corrections

January "Record Makers" referred to "Polish-born pianist and conductor Christoph Eschenbach." Mr. Eschenbach was born in Breslau in 1940, when it was part of Germany's province of Silesia. After World War II, Silesia, Pomerania, and East Prussia were ceded to Poland.

The January review of Boris Berman's Chandos recording of Prokofiev's Piano Concertos Nos. 1, 4, and 5 stated incorrectly that Chandos would record Mr. Berman in the same composer's Concertos 2 and 3. Chandos has recorded those concertos with Horacio Gutiérrez.

The Cello company was inadvertently omitted from the "Directory of Manufacturers" in the February issue. The company's address is 315 Peck St., Bldg. 23, New Haven, CT 06513, and the telephone is (203) 865-1237. □

A More Perfect 10.

Over the years, the Design Acoustics PS•10 loudspeaker system has garnered enthusiastic reviews from some of the most respected critics in audio. *High Fidelity* said, "The overall sound is smooth, clean, and detailed." *Rolling Stone* concluded, "...the PS•10 loudspeakers could be the last pair you'll ever buy." *Ovation* noted that the PS•10 "...provided a very open and transparent sound with excellent and stable stereo imaging." And *Stereo Review* concluded that, "...the PS•10s delivered a smooth balanced sound...enabling them to fit almost anywhere both aesthetically and acoustically."

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NEW PRODUCTS



FUJI

Fuji's new blank digital audio tapes feature the company's Super-Fine Metallix formulation, a highly resilient base film, a super-calendared surface, and a 3-D Network binder. Benefits are said to be high output across the entire frequency range, minimal errors and dropouts, minimal flaking caused by friction, and outstanding durability. About half the size of an analog cassette, the precise, rigid shell features a new rib guide to insure correct tape position. Prices: R-60, \$10.95; R-90, \$11.95; R-120, \$12.95. Fuji, Dept. SR, 555 Taxter Rd., Elmsford, NY 10523.

Circle 120 on reader service card

STUDIOTECH

StudioTech's speaker stands are made of steel tubing coated with a durable, textured black or white paint. The S-1 stand is designed for most satellite and surround-sound speakers. Its flat speaker mount employs a reusable adhesive that won't damage the speaker's finish. Height is 34 inches, the base 13½ x 12½ inches; the speaker mount measures 2¾ x 2 inches. The S-2 stand (shown) is for speakers heavier than 12 pounds as well as for TV sets and video equipment. Its mount, which uses the same adhesive system as the S-1, is 5½ x 4 inches; the height is 28 inches, base size 15 x 12½ inches. The S-5, specially designed for Bose AM-5 and Lifestyle satellite speakers, is adjustable from 21½ to 31 inches high. Base size is 14½ x 12½ inches. The bases of all the stands are weighted for stability. Prices: S-1 and S-5, \$90 a pair; S-2, \$120 a pair. StudioTech, Dept. SR, 201 E. Sandpointe, #450, Santa Ana, CA 92707.

Circle 121 on reader service card



THRESHOLD

The Threshold S/160 and S/250 Stasis power amplifiers are rated at 80 and 125 watts per channel, respectively. These high-bias Class AB amplifiers are said to produce 20 percent of their rated power in pure Class A mode. They have high-current capability and can easily drive difficult, reactive, or low-impedance loads, the company says. The S/160 has a 400-watt toroidal transformer and eight output transistors per channel; the S/250 has a 600-watt toroidal transformer and twelve output transistors per channel. Current capability is given as 16 amperes per channel continuous, 60 amperes peak for the S/160, and 20 amperes continuous, 75 peak for the S/250. Prices: S/160, \$2,250; S/250, \$2,800. Threshold Corp., Dept. SR, 12919 Earhart Ave., Auburn, CA 95603.

Circle 123 on reader service card

AUDIO ACCENTS

Audio Accents CD storage racks from Wnek Design are available in three sizes, holding forty, eighty, or two hundred discs. Racks are made of brass, stainless steel, and anodized aluminum in white, black, or brushed metal. Larger units come with mounting hardware. Dimensions range from 5½ x 16½ x 6 inches to 22 x 22 x 5½ inches. Prices: \$79, \$109, and \$159. Wnek Design, Dept. SR, 528 N. 26th St., Allentown, PA 18104.

Circle 122 on reader service card



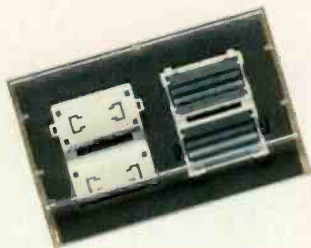
CARVER

Carver's SD/A-490t CD player has a vacuum-tube output section incorporating two 6DJ8 tubes. The player uses a 1-bit MASH digital-to-analog converter for its fixed-gain analog output; it also has optical and coaxial digital outputs. Operating features include twenty-four-track programming, random play, four-way repeat, variable-length fade (from 2

to 10 seconds), a tape-edit function, and index programming. The remote control is compatible with Carver's HR-722 and HR-752 receivers and CM-1090 integrated amplifier. The very similar SD/A-450 has a solid-state output stage. Prices: SD/A-490t, \$700; SD/A-450, \$520. Carver, Dept. SR, 20121 48th Ave. W., Lynnwood, WA 98036.



NEW PRODUCTS



TDK

The TDK NF-C09 Digital Noise Absorbers are ferrite filters that clamp onto interconnect cables, power cords, and speaker cables to eliminate electromagnetic interference from a CD player's digital circuits. Sonic benefits are said to include increased clarity and reduced high-frequency distortion. TDK recommends installing the filters as close to the CD player as possible for maximum benefit. Price: \$10 each. TDK, Dept. SR, 12 Harbor Park Dr., Port Washington, NY 11050.

Circle 124 on reader service card



MILLER & KREISEL

M&K's V-100 powered subwoofer incorporates dual voice coils and a 200-watt amplifier. A low-pass filter adjustment enables the user to set the crossover point at any frequency between 50 and 125 Hz. A separate 36-dB-per-octave filter cuts off frequencies above 125 Hz, which M&K says makes the V-100 truly nonlocalizable, unlike subwoofers with shallower crossover slopes whose locations can be detected by the reproduction of mid-bass and midrange signals. The V-100 is available finished in walnut, natural oak, or painted black-oak veneer, and its dimensions are 16 x 15¼ x 18¼ inches. Price: \$995. Miller & Kreisel Sound Corp., Dept. SR, 10391 Jefferson Blvd., Culver City, CA 90232.

Circle 126 on reader service card

SONY

Sony's CDX-7580 removable car CD receiver has a built-in four-channel power amplifier. The CD section incorporates an eight-times-oversampling digital filter and dual D/A converters. Operating features include shuffle play, repeat, and intro scan. The tuner section has eighteen FM and six AM presets as well as

auto-seek and manual tuning. Also included are a preamp fader, two preamp outputs, and an auxiliary input. Rated output is 25 watts each into two channels or 8 watts each into four. Price: \$600. Sony Corp. of America, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

Circle 125 on reader service card



AUDIO CONCEPTS

Audio Concepts, best known for its speaker kits, has introduced an assembled system, called the Premier System One, that consists of two satellite speakers and accompanying stands, two outboard crossovers, and two woofer modules. All the drivers and crossover components are in matched stereo pairs. Frequency response of the system is rated as 34 to 20,000 Hz ± 2 dB and sensitivity as 88.5 dB. Impedance is 8 ohms nominal, 6 ohms minimum. The System One is recommended for use

with amplifiers rated at 50 to 200 watts per channel. The enclosures are constructed of cross-braced medium-density fiberboard covered with oak veneer and finished in clear, black, or white lacquer. The satellites measure 13 x 7 x 13 inches; height on the supplied stands is 44 inches. The woofer modules are 24 x 13½ x 14½ inches. Price: \$1,999 complete, including shipping. Audio Concepts, Dept. SR, 901 S. 4th St., La Crosse, WI 54601.

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NEW PRODUCTS



SPARKOMATIC

The Sparkomatic AMP7000 car power amplifier is rated to deliver 20 watts each into two channels at 10 percent distortion or 15 watts per channel at 1 percent distortion. Features include adjustable input sensitivity, automatic remote turn-on, and speaker/amplifier protection circuitry. Signal-to-noise ratio is rated as 80 db and frequency response as 20 to 20,000 Hz. Price: \$54.99. Sparkomatic, Dept. SR, Milford, PA 18337. *Circle 128 on reader service card*

ALPINE

Alpine's Model 7294 car AM/FM cassette receiver has built-in controls for an outboard CD changer. The tuner's automatic-preset feature finds the six strongest stations and stores them in memory, and there are also twenty-four user-programmable presets. The cassette section features a full-logic transport mechanism, Dolby B and Dolby C noise reduction, a music sensor, and blank skip. The CD controls include direct disc selection,

random play, and repeat. The Source Tone Memory feature stores different control and balance settings for CD, cassette, FM, and AM. The Dual Bass control enables users to boost or cut response at 75 or 30 Hz. Rated power output is 16 watts per channel into two channels. Price: \$550. Alpine Electronics of America, Dept. SR, P.O. Box 2859, Torrance, CA 90501.

Circle 129 on reader service card



HITACHI

Hitachi's VIP-RX6 combi-player incorporates an eight-times-oversampling digital filter, a 20-bit signal-processing circuit with a low-pass filter, and a 1-bit digital-to-analog converter with two-step noise shaping. The player can automatically determine how many tracks on a CD will fit on each side of a tape cassette. Operating features include direct program search, CD Quick Mode, random play, intro scan, variable-speed search, and still-frame. Price: \$630. Hitachi Home Electronics, Dept. SR, 401 W. Artesia Blvd., Compton, CA 90220. *Circle 130 on reader service card*

ACOUSTIC ARTS

The Acoustic Arts Model 003 preamplifier and power amplifier are housed in glazed ceramic cylinders, split on two sides to accommodate gold-anodized heat-sink fins (purely decorative on the preamp). Maximum output of the power amp is rated as 105 watts per channel into 8 ohms. The preamp has three line inputs and one tape input, and there's a CD-direct switch. The phono input is switchable for a moving-magnet or moving-coil cartridge. Both enclosures are available finished in black, green, blue, or white. Dimensions are 16½ inches tall and 8¼ inches in diameter. Weight is about 20 pounds each. Prices: power amplifier, \$3,300; preamplifier, \$3,150. Acoustic Arts, Dept. SR, P.O. Box 1096, La Quinta, CA 92253.

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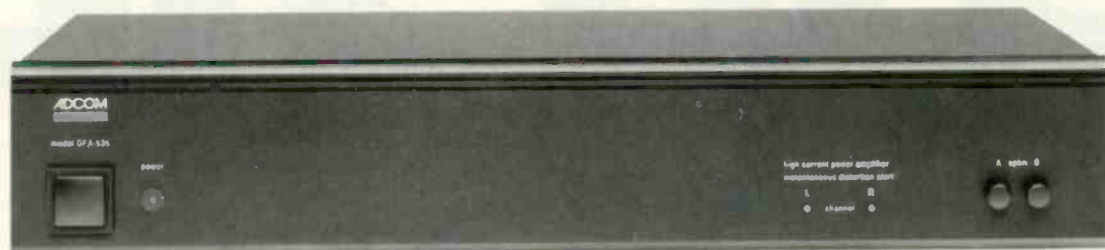
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"In its price category, the Adcom GFA-535 is not only an excellent choice; it's the only choice"

Sam Tellig, The Audio Cheapskate

stereophile

Vol. 10 No. November 1987



Adcom GFA-535 power amplifier.

The complete report:

Sometimes products are too cheap for their own good, and people don't take them seriously: the Superphon Revelation Basic Dual Mono preamp, Rega RB300 arm, AR ES-1 turntable, Shure V15-V MR cartridge, and the B&K ST-140 power amp. They can't be any good because they cost so little, right?

Wrong, of course.

Adcom appears to be having the same problem with their \$299.95 GFA-535 amp. Credibility.

Now if this amplifier were imported from England and sold for \$599.95, then maybe it would be taken seriously. And highly praised, no doubt.

For the baby Adcom is one of the finest solid-state amps I have heard. No, not the best; I'm not sure what *is* the best. But it's an amplifier that is so good for so little money as to be practically a gift.

Actually, when Rob Ain from Adcom called, I was about as enthusiastic about the GFA-535 as you were before you finish reading this piece. But Rob insisted, "You've gotta hear this amp."

He brought it over the next day, along with the GFP-555 preamp (\$499.95), and we put both pieces into the rest of the system: a Shure Ultra 500 in a Rega RB300 arm on an AR ES-1 table, with Quad ESL-63 speakers on Arcici stands. Then we chatted for a half hour or so while the electronics warmed up.

And then, simultaneously, the two of us decided to shut up and listen.

"I've never heard the Quad ESL-63 sound better," Rob said. Of course, he was hardly an impartial observer, but the sound was extraordinarily clean, detailed, and musical. If it wasn't the best sound I have ever heard from Quads, it was pretty close.

This humble \$300 amplifier was driving a pair of very revealing \$3000 speakers and giving a very good account of itself. (We listened first to some Goran Sollscher classical guitar.)

"So how come this product isn't flying off the dealers' shelves?" I asked Rob.

"I don't know. Everyone wants the GFA-555 with 200 watts per channel. Including people who don't need it."

"Does the GFA-555 sound any better?" I asked.

"It's our aim to have all our amps sound pretty much the same. You pay more money, you get more power."

Rob pointed out that while the GFA-535 is rated at 60Wpc, it puts out more like 80. And while I did not do any measurements, my experience with other amps tells me Rob's right. I suppose Adcom doesn't want to steal sales from its GFA-545, rated at 100Wpc and selling for \$200 more.

After a couple of hours, Rob left, grinning from ear to ear, and I later sat down to listen alone. True, when I tried certain Telarcs and pushed hard I could get the amplifier to clip—two LEDs quickly light up (very useful). But the Quads were running out of the ability to use the power anyway. My first impressions

were confirmed: the GFA-535 is one of the best amplifiers around for driving Quads. Spondor SP-1s, too.

Suddenly, it hit me what this meant. Conventional wisdom had been dealt a severe blow. You know, the old saw that you should never power a good pair of speakers with a

“The GFA-535 reminds me of... amplifiers that sell... for about three and five times the price.”

cheap amplifier. Here was a cheap amp—one of the cheapest on the market—that sounded good with Quads, Spondors, later Vandersteens. Probably Thiels, too—at least the CSI. What it means is you can stretch your speaker budget a bit and get the speakers you really want, then economize by buying an Adcom GFA-535 for \$299.95. True, you may be a little power shy, but probably not much. And to say the least, the GFA-535 would make a decent interim amp.

What does the GFA-535 sound like? (You thought I'd forget that part, right?) Well, this is one of the most neutral amps I've heard.

“... the baby Adcom is one of the finest solid-state amps I have heard... so good for so little money as to be practically a gift.”

While it doesn't sound particularly tubelike, it avoids the typical transistor nasties through the midrange and into the treble. I wouldn't call it sweet—there's no euphonic coloring—but it isn't cold or sterile. What it is, is smooth. And detailed. Far more detailed than I would ever imagine a \$300 amplifier could be. The GFA-535 reminds me of the Eagle 2A and PS Audio 200C, amplifiers that sell, respectively, for about three and five times the price. Of course, they have more power. And they *are* more detailed. The point is, the Adcom comes close. Very close.

The bass, like everything else, is neutral, certainly not fat and overdone. But it's here where

you notice that this amp is not a powerhouse. You just don't get the solidity and extension you get with a very powerful (and expensive) solid-state amp. Nor do you get the breadth and depth of soundstage that you often find with a very powerful amp. The Adcom GFA-535 sounds a wee bit small, which it is.

My only criticism, and it's more of a quibble, is that the speaker connectors are non-standard and unique (so far as I know). You insert bared speaker wire into a hole and twist the connector tight a quarter turn. Most speaker cables will fit, but some will not. Certainly MIT won't. Neither will the best Kimber, the kind with eight clumps of strands. The less costly four-clump Kimber will, and proved an excellent choice. My sample amp was quiet—

“This amplifier is so good and so cheap that I think any CD owner who buys an integrated amp is nuts.”

no hum—and ran cool. There are selectors for two sets of speakers. And the 535 looks nice.

And talk about economy: If you're not into LPs anymore, you could buy a Mod Squad, dbx, or Old Colony line-level switching box—or possibly a B&K Pro 5 preamp, with its switchable line amp section (only \$350), or the Adcom SLC-505 passive preamp (\$150)—and run it with a CD player. In fact, if you are into CD only (no tape, no tuner, no phono), you could buy a CD player with a variable volume output and run it directly into the Adcom. This amplifier is so good and so cheap that I think any CD owner who buys an integrated amp is nuts.

In its price category, the Adcom GFA-535 is not only an excellent choice; it's the only choice. The real question is whether you should buy one even if \$299.95 is much *less* than you planned to spend for an amp—*ie*, whether you should put the money into a better CD player or pair of speakers instead.

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by Ian G. Masters



Sound Leaks

Q I live in a house built in 1905, on a fairly busy street. My listening room is at the front of the house on the second floor, with a single large window facing the road. Is there an effective and inexpensive way to keep exterior noise out of the room and to prevent the music from escaping into the rest of the house?

DARREL BENNETT
Louisville, KY

A Exterior noise shouldn't be too much of a problem. Houses of that vintage were pretty solid, and so it's likely that street noise is effectively blocked by the walls. Any you can hear is probably coming through the window, and this can be reduced very effectively by double-glazing (as long as the window frame is built well enough to keep the sound from getting in around the glass; if not, try some weather stripping). Replacing the window with thermal glass that has a vacuum between panes would probably do the best job, but simply adding a conventional storm window might work almost as well.

Keeping the music in the room is a different matter. The high frequencies probably don't penetrate the walls to any great degree, but if they do they can be absorbed fairly easily by dense material applied to the wall. The best solution would be to fill the spaces in the wall with fiberglass insulation, although this is not likely to be cheap.

The low frequencies are much harder to cope with because they contain lots of energy and have wavelengths that make absorption difficult. What is needed is mass: A heavy wall will soak up a lot of

energy as the sound tries to move it. An extra layer or two of drywall affixed to surfaces that communicate with other parts of the house can work wonders in containing bass (and that would handle the treble, too).

Equalizer Hookup

Q I recently bought an equalizer, but my receiver doesn't seem capable of accepting such an external component. Could I feed the signal from a preamplifier through the equalizer and then to the "main in" jacks on my receiver, or should I just buy new equipment that will accommodate the equalizer?

KEITH D. HESSLER
West Lawn, PA

A Although your equipment may not have a front-panel control specifically labeled "equalizer" or "processor," if it has main-in jacks, it is almost certain to have preamp-out jacks as well. A good place to insert an equalizer is between these two sets of jacks. Or you could put it in a tape-monitor loop (receiver's tape output to equalizer's input, equalizer's output to receiver's tape input), which might also enable you to record a signal after processing. You could also feed the output from a separate preamplifier through the equalizer to the receiver's main-in jacks, as you suggest, but either of the above arrangements should work at least as well and be less cumbersome.

Erasing Library Tapes

Q Our public library has one of those walk-through antitheft systems, but both computer discs and videocassettes are allowed to bypass the system. Only in my high-school library is there any suggestion that people should not walk through with audio cassettes. Could a security system harm music tapes?

PHIL LUEBKE
Iowa City, IA

A I'm not really sure what level of magnetic field those devices produce, but it can't be much. Given the amount of force you need to erase a tape completely, it's likely that you'd have to go through the antitheft device hundreds of times before ruining a tape. Still, even tiny amounts of magnetism can cause audible degradation under the right circumstances, so why take a chance?

Digital Mono

Q I have been reading with interest about the various forthcoming digital recording media and wonder how they will compare with open-reel tape in terms of flexibility. For instance, will DAT decks or recordable CD machines allow you to

lay down separate mono tracks, as you can with open-reel, or will they be strictly stereo?

CLIFFORD A. SMALES
Bloomfield, CT

A Digital audio recording systems available to consumers use a single output bit stream that contains information for both stereo channels, making it virtually impossible to alter one channel only. For most of us this doesn't matter; after all, you can't add a second mono track to a hi-fi video recording, or even to a standard audio cassette, and few people find that a drawback.

That's not to suggest that the technology doesn't exist to do what you want. Before the current rotating-head R-DAT standard was adopted, there was a rival S-DAT format, which used a stationary head and recorded the data in a series of parallel tracks rather like an open-reel analog recorder, except that it used many more tracks. This format would have permitted left and right channels to be recorded separately. A similar system is used professionally for digital multitracking, but the demand for such a device at the consumer level is small. The recently announced Philips Digital Compact Cassette format derives from S-DAT, but it is like R-DAT in making no provision for single-channel recording.

Upgraded Tape

Q It seems to me that the "normal," Type I cassettes I have bought over the past months have better response than those I bought a few years ago. Do they, or am I kidding myself?

PAUL S. GUNDLACH
Fallsington, PA

A Tape formulations have certainly improved over the years, and today's midprice tapes are often more than a match for the premium cassettes of yesteryear, even though both may carry the same type designation. The improvement has sometimes been at the expense of compatibility, however, and a perfect match between your cassette deck and a particular tape a couple of years ago may not be repeated with today's equivalent tape. Depending on the nature of the mismatch, a new tape may be under-biased when recorded on a deck adjusted for an older formulation, and this would result in boosted highs, which some might interpret as improved high-frequency response.

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



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by Ken C. Pohlmann



WALL AND CEILING

THE passage of time is inexorable. Each of us is born into this world, struggles mightily against its slings and arrows, then retires and buys a condo in Florida. Similarly, the great works that men leave behind also feel the passage of time. Almost immediately after it was completed in 1512, the ceiling in the Sistine Chapel began deteriorating. Numerous attempts at preservation—for example, painting varnish and glue over the fresco—increasingly obscured Michelangelo's masterpiece. Today, thanks to modern technology, the ceiling has been both preserved and restored.

The same is true with works of recorded music. Whether archived on disc or tape, whether analog or digital, a recorded signal eventually deteriorates, and without proper measures it can be lost. Fortunately, we possess ways to restore this legacy. In one celebrated experiment, Thomas Stockham digitally recorded playbacks of Caruso recordings from 1906, then applied a digital signal processing (DSP) technique known as homomorphic deconvolution to remove undesired artifacts. By this means he produced recordings that were actually better than the originals. Today, thanks to the proliferation of DSP chips, companies such as Sonic Solu-

tions routinely remove clicks and noise from old recordings.

In some cases, restoration involves much more than signal processing. Rather, the entire post-production and manufacturing process is scrutinized. The work of the record label Mobile Fidelity Sound Lab is a great example of what extra time and care can do for a recording. Whereas most major record labels produce a large number of recordings inexpensively and quickly, Mobile Fidelity licenses and produces only a few, carefully executed, expensive recordings. Its CD's are pressed in small runs with very tight quality control; discs that are off-center or have other defects such as pinholes never leave the factory. In addition, Mobile Fidelity uses a gold metal layer instead of aluminum on its CD's to provide increased resistance to oxidation. (No one can know the life expectancy of a CD, but accelerated aging tests indicate that gold-metalized CD's may last longer than aluminum ones.)

Of course, even the most careful disc mastering and the most stable pressings are wasted if the source material isn't of the highest quality. Every recording starts with a master tape, from which are made copies that are used for manufacturing. With analog tapes, this presents a real problem since noise is doubled (increased by 3 dB) with each copy generation. In some cases, tape recorders are not properly aligned, and replication copies suffer even more. Some Beatles albums suffered from these sorts of problems—the LP's released in the U.K. sounded much better than the U.S. LP's. Even digital recordings aren't completely free from production dangers; there are stories about how tapes equalized for LP production were mistakenly forwarded to CD pressing plants, resulting in some terrible-sounding CD's.

In other words, in the world of mass-produced records, mistakes do happen, and sometimes they wind up in your collection. Mobile Fidelity takes an alternate route. First, the company absolutely insists on access to a first-generation stereo master tape. It will not pursue a project unless it can work with an original master as it left the studio under the arm of a producer or artist. For example, in rereleasing the Who's *Tommy*, Mobile Fidelity used Pete Townshend's personal master—

which differs slightly from the original commercial version.

The master tape is played on a recorder that is carefully aligned specifically to that tape, even if the original recorder was misaligned. A heavily modified digital audio processor is used to bring the signal into the digital domain. The sound of the recording is cleaned up as required using a digital editing and processing system. In some cases, entirely new technology has had to be developed specifically to address a problem. This careful, craftsmanlike approach to music post-production, coupled with very high-quality manufacturing, brings the listener as close as he'll ever get to the sound in the recording studio.

Case in point is Mobile Fidelity's

The work of the record label Mobile Fidelity Sound Lab is a great example of what extra time and care can do for a recording.

new release of Pink Floyd's *The Wall*. This 1979 epic was hailed as a musical masterpiece, and CBS did an outstanding technical job in recording and manufacturing the album; it sounded great. Still, Mobile Fidelity suspected that there was more on the master tape than met the ear. Its engineers dedicated seven months of studio time to capturing every bit of sound on the master and transferring it to the digital domain.


Thanks to their patience and expertise, the music and sound effects on the Mobile Fidelity rerelease of *The Wall* are outstanding. Definition is precise, and the sense of space is superbly conveyed. Although the Vatican might cringe at the comparison, this version of *The Wall* sounds clean and new, much as the ceiling in the Sistine Chapel now looks.

Clearly, extra care in production pays off. But if you're thinking of buying this new *Wall*, don't wait too long; Mobile Fidelity's licensing agreement expires in September 1991. Then its gold-plated CD's will become collectors' items. Even when you're in the business of restoring the past, the clock is ticking. □



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by Julian Hirsch



LOUDSPEAKER TESTING, PART II

LAST month I described how we measure the frequency response of a loudspeaker. Though frequency response is probably the most important *single* measurement, it falls far short of fully defining a speaker's performance. Actually, my *first* step in testing a speaker is to set it up, adhering as closely as possible to the manufacturer's recommendations, and listen to it for an extended period. I prefer not to make any measurements on any product until I have used it for a few days or, if possible, weeks.

Listening first and measuring second is especially important in the case of a speaker, since it is all too easy to convince yourself that you are hearing what your measurements indicate. By listening first, I can make a guess as to the properties of the speaker, secure in the knowledge that our test instruments have no emotional bias and are not influenced by a listener's preconceptions. After the measurements, I try to hear what the test instruments have "heard," but this can be difficult since many measurements have little correlation with the sound of a speaker (because of differences in program content, for example).

We usually measure a speaker's *im-*

pedance after the response tests, since its value plays a part in some subsequent measurements. We pass a known signal current through the system and measure the voltage across the speaker terminals as a function of frequency. Our Audio Precision System One test equipment does this automatically in a few seconds, supplying a highly accurate current that steps in frequency across the audio range and plotting the voltage on a scale related to the magnitude of the impedance in ohms. It also plots the phase difference between the source signal and the voltage across the speaker (the "phase angle" of the speaker's impedance).

A speaker's *sensitivity* is defined as the sound-pressure level (SPL) measured 1 meter in front of the speaker with an input of 2.83 volts of pink noise. Pink noise is a random sound ("hiss") having the same amount of energy in each octave of frequency. The standard voltage corresponds to a 1-watt input into an 8-ohm resistive impedance. We measure a speaker's voltage sensitivity rather than efficiency of power conversion, since amplifiers are normally voltage sources and deliver nearly the same voltage into different load resistances for the same input level.

There are no universal standards for measuring speaker *distortion*. As a practical matter, harmonic distortion is meaningful only in the bass region, where a speaker cone may be required to move out of its linear range of operation. At higher frequencies, cone excursion is insignificant as a source of distortion, and harmonic-distortion measurements become unreliable because of the effects of frequency-response variations. We measure the distortion with the microphone close to the woofer cone—and separately at any port or passive radiator, which is usually responsible for most of the

bass output at frequencies below 50 to 100 Hz, depending on the specific design of the system.

In the past, we used point-by-point measurements, every 10 Hz from 100 down to 20 Hz (or until the distortion readings exceeded about 20 percent). Although this procedure was not particularly laborious, the Audio Precision system now does the same measurements over a wider range (including plotting the curve) in less than a minute. The readings are valid, however, only at frequencies less than one-half to one-third of the woofer crossover frequency.

As with amplifiers, speaker distortion is a function of signal level as well as frequency. Lacking standards, I decided some years ago to use the voltage corresponding to a 90-dB SPL in the sensitivity measurement as the driving signal for bass distortion tests. As an example, if 2.83 volts generated an 88-dB SPL, we would measure bass distortion with a constant 3.5-volt input (a sine wave). This method enables us to compare different speakers at approximately the same listening level.

Power-handling ability is one of the few specifications that most speaker manufacturers publish, though it is usually so broad as to be meaningless (20 to 100 watts, for example). We try to measure the limits of a speaker's endurance in a nondestructive manner. A tweeter can be burned out in moments by a few watts of continuous high-frequency input, although most can accommodate prodigious power levels for a fraction of a second without damage. A few years ago we started testing speakers with short-duty-cycle tone bursts, applying one cycle of a signal followed by a 128-cycle "off" time.

Again, to test all speakers in the same manner, I chose three test frequencies, selected to fall in the typical range of most drivers. A 100-Hz test signal is certain to drive the woofer of any speaker, and 10,000 Hz is always in the tweeter range. I chose 1,000 Hz as a typical midrange frequency, although it is usually handled by the woofer in two-way systems.

At each frequency we drive the speaker with the single-cycle tone-burst signal, viewing the electrical output of the amplifier and the output of the measurement microphone (placed close to the driver) simultaneously on

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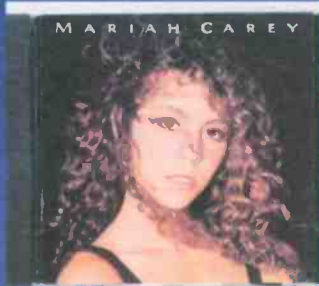
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TECHNICAL TALK

a dual-channel oscilloscope. The drive level is increased until one of the two waveforms on the scope is distorted. At that point, we measure the peak-to-peak voltage from the scope display, convert it to the equivalent rms voltage of a continuous signal, square that value, and divide by the impedance actually measured at that frequency. The result is a measure of the power delivered into that impedance at the overload point.

As a practical matter, in almost every case the amplifier clips first at 1,000 and 10,000 Hz. As a result, I expect to omit mention of those frequencies in future reports. (Incidentally, the Carver Mono-Bloc amplifier we use for this test is the only power amp I know of that can deliver single-cycle outputs of 600 to 2,000 watts at the clipping point into speaker impedances at those frequencies, yet is light enough for me to pick up.)

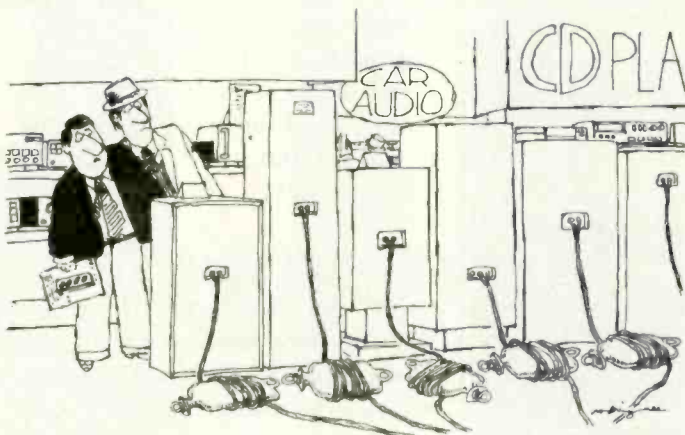
At 100 Hz, almost every woofer can be driven to the point where its cone suspension reaches its limits or the voice coil strikes some part of the magnetic structure. When this happens, the woofer emits a loud, unmistakable sound as well as a visibly distorted waveform, and we measure the maximum power in the same manner as for higher frequencies. It would be all too easy to destroy a speaker by driving it in this way with a continuous signal, but I have yet to damage one with the burst signal.

We measure the *horizontal dispersion*, or *directivity*, of a speaker with the IQS FFT analyzer. Positioning the microphone 1 meter from the tweeter,

on its axis, we measure the speaker's frequency response. Then we turn the cabinet by 45 degrees and repeat the measurement, keeping all other conditions constant (the room influence can be excluded in the FFT measurement). The IQS system can plot both response curves on the same graph, and it is easy to see at what frequency, and by how much, the two curves diverge. Although vertical dispersion is also a factor, it is less important to the sound quality than the horizontal dispersion (as well as being considerably more difficult to measure under the conditions of our tests).

Finally, there is the *group delay*, which is the rate of change (slope) of the speaker's phase shift over a range of frequencies. Although this is probably not a very important factor in determining a speaker's sound quality, it is easy to measure with the FFT analyzer. Expressed in milliseconds, group delay is a measure of the time difference between different frequencies in the speaker's output when it reaches the microphone (or a listener). If the speaker drivers are not in the same effective plane relative to the listener, there will be a time difference between the portions of the frequency range handled by each driver, and this shows up on the group-delay plot.

Although our test results may differ from those of the manufacturer, because of different test conditions, sometimes they are surprisingly similar. In any case, we try to test all speakers under identical conditions so that some sort of comparison will be possible. □



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MAGNAVOX CDB624 COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

THE Magnavox CDB624 is an inexpensive and versatile CD player featuring parent company Philips's Bitstream 1-bit digital-to-analog (D/A) converter technology and Favorite Track Selection (FTS) system. The FTS system enables a user to store the specific track numbers to be played from a disc in a nonvolatile memory. Whenever the disc is loaded, its FTS program can be recalled and played at the touch of a button. The enhanced version of the system used in the CDB624 can store two independent programs for each disc.

The CDB624's basic operating controls are conventional flat pushbuttons whose functions are identified by standard symbols and words. The stop control is also labeled CM (for "clear memory"), and the track-skipping buttons are clearly marked PREVIOUS and NEXT. A button marked PROG/PLAY selects the operating mode.

A numerical keypad to the left of the transport controls provides direct access to any numbered track for playing or programming. The keypad also contains the FTS buttons and others for storing, reviewing, or erasing programmed selections. The CDB624 is

unusual in allowing the user to program by selecting either the tracks to be played or those to be excluded.

The display window, to the left of the keypad, normally shows the current track's number and remaining time in large numerals. The status of other operating controls appears in smaller letters, and the numbers of all unplayed tracks (to a maximum of twenty) form a line across the bottom of the display.

Most of the other control buttons are aligned across the panel below the display and transport controls. The time display can be set to show remaining time on the track or disc or elapsed time on the track. The scan function plays the first 10 seconds of each track on the disc. The fast-search buttons are also located in this group of controls. Normally, the program is audible during a fast search, but first pressing the FAST button (located between the search buttons) increases the speed and mutes the sound. An edit feature simplifies recording from a CD to a cassette deck. After the recording time of the tape (46, 60, or 90 minutes) is keyed in, the CDB624 will automatically play the tracks that will most efficiently fit onto one side, then enter

pause. If the remaining tracks on the disc are too long for Side 2 of the tape, the CDB624 plays those that will fit, inserts another pause, and shows the numbers of the remaining tracks.

The disc drawer, which slides out when you press the button on its front, is designed to accept either 5-inch or 3-inch CD's, and a symbol in the display shows which size is being played. There is no close control; pushing the drawer inward or pressing the play button initiates the process and automatically puts the CDB624 into play mode.

The player has a front-panel headphone jack with its own volume control. The rear apron has phono-jack outputs for analog and digital signals (a front-panel button turns the digital output on and off) as well as for linking the CDB624 and its remote control with compatible Magnavox components using the company's RC5 integrated control system.

The wireless remote control supplied with the CDB624 has only the buttons required to control its basic playback and transport functions, not programming. It also has an open/close button, which may be more convenient than pressing the drawer by hand and does not automatically put the machine into play mode.

The Magnavox CDB624 measures 16½ inches wide, 10¾ inches deep, and 3¼ inches high and weighs 10 pounds. Price: \$300. Magnavox, Dept. SR, One Philips Dr., Box 14810, Knoxville, TN 37914-1810.

TEST REPORTS

Lab Tests

The CDB624 met or surpassed all of its published performance specifications except for channel separation. Rated at 95 dB, the separation measured 65 dB from 100 to 1,000 Hz and fell to 60 dB at 10,000 Hz and 55 dB at 20,000 Hz. The difference between the specified and measured separation is of no audible significance, however.

The player's frequency response was flat within 0.1 dB from 10 to 20,000 Hz, with a channel imbalance of 0.08 dB. The de-emphasis response error was less than 0.25 dB from 1,000 to 16,000 Hz. Interchannel phase shift was less than 0.2 degree up to 20,000 Hz. At a 0-dB (maximum) level, the total harmonic distortion plus noise (THD + N) was 0.005 percent from 20 to 2,000 Hz, 0.01 percent at 10,000 Hz, and 0.035 percent at 20,000 Hz.

The output noise spectrum from a silent (unmodulated) test track was between -103 and -118 dB from 30 to 20,000 Hz. The only measurable hum component was 60 Hz, at -106 dB. The A-weighted noise level was -96

and -100 dB in the two channels. Quantization noise was -92 dB, and the dynamic range (EIAJ) was 100 dB. Although the frequency (speed or pitch) error of any properly functioning CD player is far below audible limits, this one was the first we have tested on which we could measure *no* error at all, to four decimal places.

The linearity of the player's D/A converters was very good down to -70 dB but rose somewhat at lower levels. From an insignificant -1.4-dB error at -80 dB, the nonlinearity increased to almost -3 dB at -90 dB and to about -7 dB at -100 dB. None of these readings would be unusual for a CD player using conventional ladder-type D/A converters, but one of the principal advantages of 1-bit converters, such as those used in this player, is typically excellent linearity at the lowest levels. Nonetheless, the CDB624's low-level nonlinearities were not great enough to cause audible distortion in normal music playback.

The CDB624 had adequate, though not exceptional, error-correcting ability. It was able to play through the

1,000-micrometer errors of the Pierre Verany #2 test disc without audible flaws, but it occasionally mistracked at the 1,250-micrometer level. Its resistance to physical shock was reasonably good, requiring a distinct slap with an open palm to induce skipping. The tracking servo required from 3 to 5 seconds to make the transition between Tracks 1 and 15 of the Philips TS4 test disc. The listening volume through AKG K340 headphones was very good, allowing the headphone level control to be kept at or below its midpoint most of the time.

Comments

The Magnavox CDB624 provides an above-average combination of versatility and performance for its price. Such useful features as Favorite Track Selection and tape-edit capability are not commonly found in budget-price CD players.

The CDB624's relatively low price may in some measure result from its extensive use of plastic moldings. Not only the transport assembly but also the entire case and front panel (except for the top cover) are made of plastic, with no detectable impairment of overall performance.

Actually, one of the CDB624's most unconventional features is not anything about the player itself but rather its instruction manual. With so many multipage, multilanguage manuals being supplied with CD players and other audio components these days, it was surprising in this case to find a slim booklet with only eight pages, all in English (presumably each market is provided with a version in the appropriate language). Despite the skimpy appearance, the instructions are both complete and unusually comprehensible, without an excess word. For every control, there is a clear statement of what it does, when it should be used, and the possible error signals resulting from incorrect operation.

Although a basic CD player is a very simple product to use, the Magnavox CDB624 has just enough unusual features to require a clear manual, and the manual's logical structure gives one confidence that things have been done correctly throughout the player's design and manufacture. Nothing in our subsequent experience with it modified that impression.

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FEATURES

- Dual Bitstream 1-bit D/A converters
- Plays 5-inch and 3-inch discs
- Programmable to play or exclude any or all tracks on a disc
- Random-play mode
- Dual Favorite Track Selection system can store two separate programs per disc
- Repeat of track, entire disc, or user-defined segment of disc (A-B repeat)
- Scan mode for audition of first 10 seconds of each track
- Track skipping in either direction
- Two-speed fast search in either direction; audible program at slower speed
- Display indicates status of operating controls, current track number and remaining time on track, numbers of unplayed tracks on disc; time display can also show remaining time on disc or elapsed time on track
- Direct keypad access to numbered tracks
- Digital and analog coaxial outputs
- Magnavox RC5 connector for unified system control
- Headphone jack with volume control
- Supplied remote control for all basic functions


LABORATORY MEASUREMENTS

- Maximum output level:** 1.93 volts
- Distortion (THD + N) at 1,000 Hz:** 0.004% at 0 dB, 0.0027% at -20 dB, 0.0029% at -40 dB
- Signal-to-noise ratio (A-weighted):** left channel, -100 dB; right channel, -96 dB
- Dynamic range:** 100 dB
- Channel separation:** 65 dB at 100 and 1,000 Hz, 55 dB at 20,000 Hz
- Maximum interchannel phase shift:** 0.2 degree at 20,000 Hz
- Frequency response:** +0.1, -0.01 dB from 10 to 20,000 Hz
- Low-level linearity error:** -0.6 dB at -70 dB, -1.4 dB at -80 dB, -3 dB at -90 dB, -7 dB at -100 dB
- Speed error:** none
- Slewing time:** 3 to 5 seconds
- Impact resistance:** top and sides, B
- Defect tracking:** tracked 1,000-micrometer defects on Pierre Verany #2 test disc

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CLEMENTS RB 8.0 MARK II SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

THE loudspeakers manufactured by Clements Audio of Canada, which vary widely in price and size, are all based on proprietary ribbon tweeters and polypropylene woofers. Next to the top of the Clements line is the RB 8.0 Mark II, a two-way floor-standing system using a 7-inch ribbon tweeter and an 8-inch cone woofer whose Kapton voice coil is designed to withstand very high temperatures. The speaker, which weighs about 65 pounds, measures 35½ inches high, 13½ inches wide, and 13 inches deep. The cabinet, made of high-density fiberboard, is

available in oak, walnut, or black woodgrain finishes.

Both drivers are located, side by side, at the top of the front panel. The speakers are constructed in mirror-image pairs, to be installed with the tweeters toward the center of the room. The woofer enclosure features Clements's "transmission-line" filter. The acoustic output from the back of the woofer cone passes through a large rectangular tube extending diagonally to the bottom rear of the enclosure, where it joins a smaller forward-facing tube terminating in a 2 x 8-inch rectangular port on the front of the cabinet.

This portion of the duct also opens internally to a separate compartment filled with fiberglass that traps unwanted resonances. Port radiation is limited to the range below 80 Hz.

The crossover to the tweeter is at 1,575 Hz. The vertical aluminum ribbon of the Clements tweeter is suspended in a powerful magnetic field derived from ceramic magnets. The audio signal is applied across the width of the ribbon, which is oriented so that the positive sides of the left and right tweeters face toward each other, which the manufacturer claims provides superior stereo imaging. A vertical divider panel, described as an "acoustic lens," that is placed slightly ahead of the ribbon and extends down its center line is said to contribute to the speaker's phase accuracy.

The RB 8.0 Mark II system has a rated frequency response of 32 to 40,000 Hz \pm 3 dB and a sensitivity of 88 dB sound-pressure level (SPL) at 1 meter with a 1-watt input of full-range pink noise. The speaker is designed for use with amplifiers rated between 20 and 200 watts per channel. Its nominal impedance is 6.5 ohms.

The front of the cabinet is covered by two removable black cloth grilles. The upper one covers the drivers, while the lower grille covers only the woofer port. The rear of the cabinet has a three-position toggle switch with FLAT, TWEETER BOOST, and FULL BASS settings for making slight modifications in the overall frequency response. Gold-plated multiway input terminals are recessed into the rear panel. The RB 8.0 Mark II is also available in a special SE version that has separate tweeter and woofer inputs for biwiring or biampification.

Clements recommends that the speakers be placed well away from walls and angled toward the listening position. They are furnished with adjustable spikes designed to tilt the cabinet a few degrees backward for improved imaging. Price: \$1,695 a pair in all three finishes. Clements, Dept. SR, 76 Clair Ave. W., Toronto, Ontario M4V 1N2.

Lab Tests

Except for a dip of 4 to 5 dB at about 2,000 Hz, the room response of the Clements RB 8.0 Mark II was quite uniform over the tweeter's range. The woofer response was exceptionally

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Don Henley: The End Of The Innocence (Geffen) 01064

Eagles: Greatest Hits, Vol. 1 (Asylum) 23481

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TEST REPORTS

flat and smooth from 100 to about 1,300 Hz (within ± 0.5 dB over most of that range) and was slightly emphasized between 40 and 100 Hz. The close-miked woofer curve spliced neatly to the averaged room response of the left and right speakers, forming a composite response within ± 5 dB from 25 to 20,000 Hz.

The tweeter-boost switch setting increased the output through most of the tweeter's range by about 3 dB, resulting in a system response of ± 3 dB from 150 to 20,000 Hz and an increase of about 2.5 to 3 dB between 100 and 35 Hz. Inexplicably, the full-bass switch setting actually *decreased* the woofer's output by about 1 dB. Listening tests confirmed these results; the treble boost produced the most pleasing sound, and the full-bass setting had no audible effect.

The system's impedance was about 8 ohms through the lower midrange and decreased to a minimum of 3.2 ohms between 5,000 and 20,000 Hz. The two resonances of the vented bass enclosure were at 29 and 60 Hz, with impedances of 30 and 20 ohms. The system's sensitivity was 86 dB SPL at 1 meter with a 2.83-volt input of pink noise, slightly less than rated. With a drive level of 4.5 volts, equivalent to a 90-dB SPL in the sensitivity measurement, the distortion from the woofer cone was between 0.35 and 1.1 percent from 80 to 2,000 Hz. The acoustic crossover from the cone to the port was at 75 Hz, and the distortion readings in the port output rose from 0.8 percent at that frequency to 2 percent at 40 Hz and 5 percent at 35 Hz.

Group delay (a measure of phase linearity) varied over a 0.3-millisecond range from 2,000 to 23,000 Hz. The system's horizontal directivity was unusual. Measured 45 degrees off-axis to either side, the response was very similar to that of the on-axis measurement but 6 to 8 dB lower over most of the tweeter's range. There was a dip in the output at 1,500 or 1,800 Hz (depending on which way the cabinet was rotated from the forward axis) with an amplitude of 6 to 9 dB. Measured on-axis, there was a 5-dB dip at 2,300 Hz.

These effects, evidently related to the dip in the room-response curve at 2,000 Hz, appeared to be the result of interference between the drivers in the crossover range. They were not audi-

ble in any identifiable way during listening tests, however.

The RB 8.0 Mark II speakers were able to handle the highest power levels we could apply without damage or obvious distortion. Our Carver Mono-Block amplifier clipped at each test frequency before there were any signs of overload from the speaker (770 watts into 8.2 ohms at 100 Hz, 1,470 watts into 4.7 ohms at 1,000 Hz, and 1,640 watts into 3.2 ohms at 10,000 Hz).

Comments

For listening tests, we installed the Clements RB 8.0 Mark II as recommended by the manufacturer, angled slightly inward and about 2 feet in front of a wall. Our initial reaction (before making any measurements) was that the sound was very smooth, with clean, deep bass and a slightly soft top end. We soon established that the treble-boost setting produced the most satisfactory overall sound, and we used it for most listening.

More than most speakers, the Clements RB 8.0 Mark II sounded very much the way its measured response curve looked. Although its deep bass was quite remarkable for a single 8-inch driver, there was not a trace of tubbiness on male voices, probably because the modest bass rise was limited to frequencies below 100 Hz. The highs were sweet and smooth, never shrill. Altogether, it was an exceptionally listenable speaker.

Despite the designers' obvious efforts to give these speakers outstand-

ing imaging qualities, imaging was the only respect in which they fell short during our evaluation. The Chesky JD37 CD (a jazz sampler and test disc) has a left-right and up-down imaging test that can produce some impressive effects on certain speakers, but not on the RB 8.0 Mark II. In our listening room, the sound did not move smoothly and convincingly from one speaker up to the ceiling and over to the other speaker. Although the sound did pan from speaker to speaker, it lacked a clear sense of vertical position.

Admittedly, imaging is a special quality and one that not all listeners care about equally. Personally, while I appreciate it when a speaker can demonstrate these spatial effects, I do not find it an indispensable quality.

There is another and, to me, more important quality of a speaker, and the RB 8.0 Mark II has this in full measure. This is the smoothness, the seamless character, of its reproduction of the audible frequencies. The sound of the Clements RB 8.0 Mark II was outstanding in its frequency range, smoothness, and effortless quality. Even when we were aware that the sound was coming from the vicinity of the enclosures, it did not appear to originate from the actual drivers. People sounded like people, and musical instruments sounded like instruments, not like loudspeakers. In sum, this Clements speaker system was one of the most listenable speakers we have used in some time.

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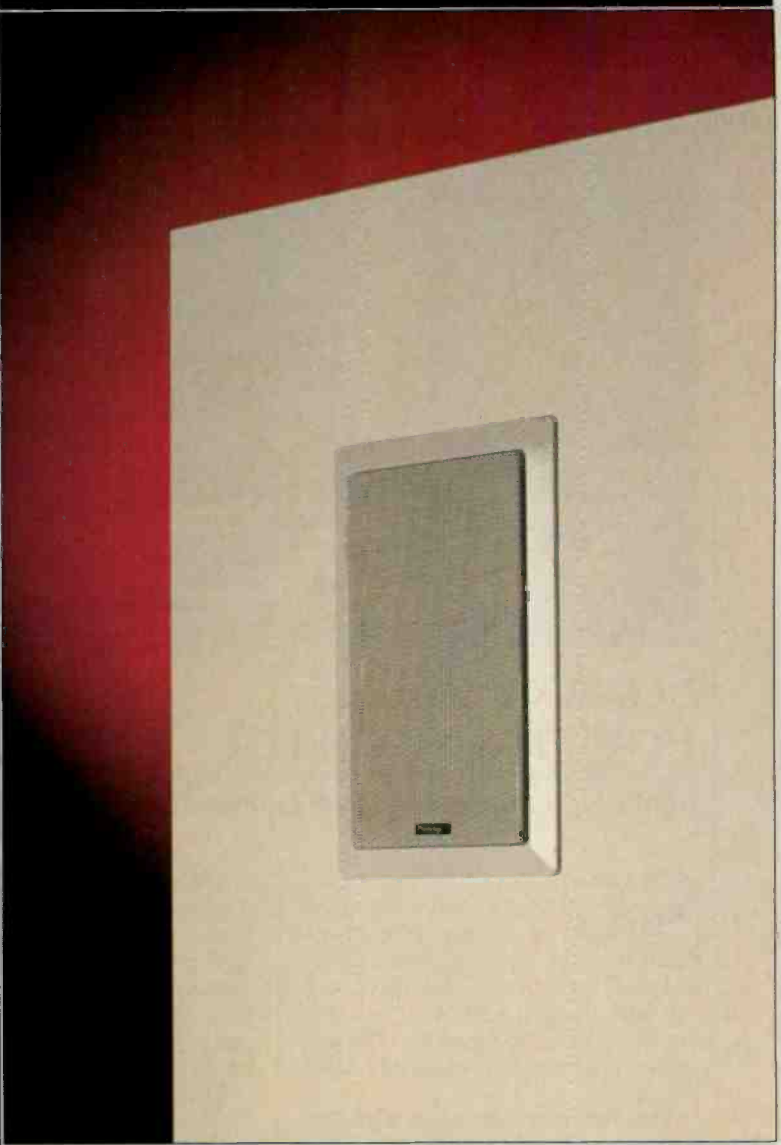
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JOCK P. LEUNG

SONAMP 260x3 POWER AMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

SONANCE, one of the pioneers of in-wall loudspeakers for multiroom installations, also manufactures amplifiers specifically designed for the requirements of such installations but (like the speakers) not limited to those applications. The amplifiers are marketed under the name Sonamp.

The Sonamp 260x3 is a high-current, 60-watt-per-channel stereo amplifier with a number of features that make it well suited for custom installations. It is designed to drive difficult loads, particularly the low impedances presented by multiple parallel-connected remote speakers. For convenience in operating multizone systems, the 260x3 has pushbuttons on its front panel for individual activation of its three pairs of speaker outputs. And the stereo line-input jacks on the rear apron are paralleled with a second pair for linking ("daisy-chaining") additional amplifiers.

The Sonamp 260x3 is designed to drive 2-ohm loads without overheating or distortion (three paralleled 8-ohm speakers represent a load of 2.7 ohms). Its discrete output transistors are mounted on heat sinks, convection-cooled by air entering holes in the bottom plate and exiting through holes in the top cover.

The power supply uses a heavy toroidal transformer with 30,000 microfarads (μF) of filter capacitance. Several protection circuits and a relay safeguard the amplifier against overload, overheating, or output short circuits. The AC-line fuse on the rear apron is readily accessible to the user.

The Sonamp 260x3, finished in black, measures a compact 16 $\frac{1}{4}$ inches wide, 12 $\frac{1}{2}$ inches deep, and 3 $\frac{1}{2}$ inches high. It weighs about 16 $\frac{1}{4}$ pounds. In addition to the pushbutton power switch, the front panel has three speaker-selector buttons, two status-indicator lights, and individual channel-level controls that can be adjusted with a screwdriver through small holes in the panel.

The red power LED (marked A.C. ON) shows that the amplifier is plugged into a live outlet but not necessarily that it is turned on. The green LED (marked ACTIVE) indicates that the amplifier is switched on and operating.

A somewhat unusual (and useful) feature of the 260x3 is its Auto-On mode. If the small AUTO-ON slide switch on the rear apron is set to on and the red power lamp is lit, the amplifier will turn on automatically within 1.5 seconds after a signal reaches its input connectors, lighting the green LED. About 2 minutes after all input signals

are removed, the amplifier automatically shuts down and returns to its stand-by mode.

The Auto-On feature is particularly useful in multiroom installations, in which an amplifier may be located at some distance from the control center and signal source, since it eliminates the need for a remote power-switching system. But it is also handy in a single-room installation, especially when the control unit doesn't have enough switched outlets to handle the rest of the system.

The Sonamp 260x3 is rated for outputs of 60, 100, and 125 watts per channel into 8, 4, and 2 ohms, respectively, from 20 to 20,000 Hz at respective distortion levels of 0.05, 0.1, and 0.2 percent. The respective dynamic powers into those impedances are given as 85, 120, and 140 watts per channel. A-weighted signal-to-noise ratio (S/N) is 100 dB referred to rated output. Input sensitivity for rated output is 0.625 volt at maximum gain.

The Sonamp 260x3's list price is \$375. It is also available without the speaker switches, as the Model 260, for \$325. Sonance, Dept. SR, 961 Calle Negocio, San Clemente, CA 92672.

Lab Tests

The Sonamp 260x3's input sensitivity was 80 millivolts (mv) for a 1-watt reference output at 1,000 Hz (0.62 volt for 60 watts). At the reference gain setting, the A-weighted noise level was -87.5 dB referred to 1 watt (-105 dB referred to 60 watts). The noise was mostly hum, with the 120-Hz component in one channel measuring -89 dB

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referred to 1 watt; the other channel's hum was about 11 dB lower. Random noise was typically -100 to -110 dB.

Preconditioning the amplifier at one-third rated power (20 watts into 8 ohms) for an hour left the top cover quite hot over the heat sinks, though not dangerous to the touch. At 1,000 Hz, the amplifier clipped at 94.5 watts per channel into 8-ohm loads, 144 watts into 4 ohms, and 208 watts into 2 ohms, corresponding to clipping-headroom figures of 2.0, 1.6, and 2.2 dB, respectively.

In dynamic power measurements, the maximum output was 115 watts per channel into 8 ohms, 190 watts per channel into 4 ohms, and 272 watts into 2 ohms, corresponding to dynamic headrooms of 2.8, 2.8, and 3.4 dB.

Frequency response was flat from 20 to 2,000 Hz, down 0.25 dB at 10,000 Hz, and down 0.76 dB at 20,000 Hz. At the amplifier's rated output or less, distortion into 8 ohms was about 0.012 percent over most of the frequency range and a maximum of 0.058 percent at 60 watts and 20,000 Hz. The distortion at 1,000 Hz into 8 ohms was about 0.01 percent from less than 1 watt up to 90 watts. Into 4-ohm loads, it was about 0.02 percent up to 100 watts and just under 0.1 percent at 140 watts. The distortion into a 2-ohm load was less than 0.05 percent up to 200 watts.

We also made power-bandwidth measurements into each load impedance. This is a measurement of the maximum power available as a function of frequency without exceeding a given amount of distortion. With 8-ohm loads, the available power at 0.1 percent distortion was about 90 watts from 20 to 12,000 Hz, falling to 68 watts at 20,000 Hz. Into 4-ohm loads, the power at 0.2 percent distortion was 138 watts from 70 to 2,000 Hz, decreasing to 126 watts at 20 and 20,000 Hz.

Into 2 ohms, the power at 0.2 percent distortion was 230 watts from 80 to 2,000 Hz and 221 watts at 20 Hz, and it fell steeply above 12,000 Hz to 110 watts at 20,000 Hz.

Comments

We used the Sonamp 260x3 as a conventional single-output stereo amplifier. The Auto-On feature worked flawlessly and was so convenient that we wish it were available on other amplifiers.

The amplifier sounded as clean and free of noise and distortion as any of the conventional home amplifiers we have used. Although its *measured* distortion was somewhat higher than that of some other products, it was still far below the threshold of audibility.

The most notable aspect of the Sonamp 260x3's performance was its ability to drive low load impedances without damage or degradation of performance (the increased distortion under those conditions is normal and characteristic of almost all amplifiers). The amplifier never shut down, overheated, or suffered any damage under our most severe test conditions.

In all fairness, most standard home amplifiers that have difficulties under similar conditions are not rated for 2-ohm operation (and sometimes not even for 4 ohms). Nevertheless, it is always a pleasure to find a product that goes well beyond the norms of performance, especially when there is no unreasonable cost penalty.

The Sonamp 260x3 is a rare example of a product designed for a specialized application that proves to be well suited for general use as well. It is moderate in price, compact in size, and attractively styled, and despite its relatively modest 60-watt rating, it's a true powerhouse in actual use.

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LABORATORY MEASUREMENTS

Output power at clipping (1,000 Hz): 94.5 watts into 8 ohms, 144 watts into 4 ohms, 208 watts into 2 ohms

Clipping headroom (relative to rated output): 2.0 dB at 8 ohms, 1.6 dB at 4 ohms, 2.2 dB at 2 ohms

Sensitivity (for a 1-watt output into 8 ohms): 80 mv


Dynamic power output: 115 watts into 8 ohms, 190 watts into 4 ohms, 272 watts into 2 ohms

Dynamic headroom: 2.8 dB into 8 ohms, 2.8 dB into 4 ohms, 3.4 dB into 2 ohms

Maximum full-power distortion (20 to 20,000 Hz into 8 ohms): 0.058% at 60 watts (20,000 Hz)

A-weighted noise (referred to a 1-watt output): -87.5 dB

Frequency response: +0, -0.76 dB from 20 to 20,000 Hz



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JOOK P. LEUNG

YAMAHA KX-930 CASSETTE DECK

Craig Stark, Hirsch-Houck Laboratories

THE new three-head, dual-capstan Yamaha KX-930 cassette deck has an impressive complement of performance and convenience features. In addition to such standard amenities as Dolby B and Dolby C noise reduction and Dolby HX Pro headroom extension, the deck provides both automatic and manual bias-optimizing controls, bidirectional intro scanning, and a remote-control device that can program as many as ninety-nine selections.

The transport of the KX-930 uses the proven closed-loop principle to minimize wow and flutter by providing two sets of capstans and pinch-rollers to isolate the section of the tape that is actually in contact with the heads. The capstans themselves are driven by a single DC servomotor. A second DC motor is used for

high-speed winding, and a third one operates the head gate and related functions.

Although they share a common external casing, the recording and playback head elements are physically and electrically separate. This permits each head gap to be optimized for its function (narrow for playback, wide for recording) and also permits direct source-vs.-tape comparisons.

The cassette well is illuminated from the rear, and a window in the manually operated door lets you see the tape remaining on each reel. The label on the cassette is not visible, however. The front door of the cassette well is removable for routine cleaning and demagnetizing of the heads and capstans.

The factory-determined bias and equalization settings for ferric,

chrome, and metal tapes are selected automatically when a cassette is inserted. These settings will produce good results with most tapes on the market. In addition, however, the KX-930 provides two further kinds of performance optimization. Pressing the AUTO TAPE TUNING button while the deck is in record-pause mode causes it to record and silently analyze a short series of tone bursts and, on that basis, to adjust the sensitivity and bias settings for the specific cassette in use. It then rewinds the tape to the beginning of the test signals so that they will be erased when normal recording is begun. The procedure takes less than 5 seconds and will prove more than adequate for almost all tapes. Moreover, it provides the only way for the KX-930 to compensate for differences in tape sensitivity (insuring equal output levels from the tape and source switch positions), which is important for maintaining frequency-response accuracy with the Dolby noise-reduction systems.

If laboratory applications, personal preferences, or a really odd tape formulation require even more cus-

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FEATURES

- Separate recording and playback heads in single casing
- Closed-loop, dual-capstan transport
- Dolby HX Pro headroom extension
- Dolby B and Dolby C noise reduction
- Full-function remote control
- Auto Tape Tuning system to optimize bias and sensitivity; also manual bias control
- Manual play-trim treble control
- Linear and time-remaining tape counter
- Peak-holding electronic level indicators (eighteen segments per channel)
- Programmable play selection (from remote control)
- Bidirectional intro scanning
- Full-side or single-selection repeat
- Memory rewind and record return
- Switchable FM multiplex filter
- External-timer operation
- Front-panel headphone jack with volume control

LABORATORY MEASUREMENTS

Fast-forward time (C-60): 54 seconds

Rewind time (C-60): 50 seconds

Speed error: +0.05%

Dolby tracking error: Dolby B, +0.3, -1.2 dB; Dolby C, +0, -1.1 dB

Wow-and-flutter: 0.035% wrms, 0.073% DIN peak-weighted

Line input for indicated 0 dB: 102 mv

Line output at indicated 0 dB: 620 mv

Meter indication at IEC-standard 0 dB: +6 dB

Tape: TDK AD (Type I, ferric)

IEC 0-dB distortion: 0.52%

Meter indication at 3% THD + noise: +10 dB

Signal-to-noise ratios (decibels):

	Unwtd.	A-wtd.	CCIR/ARM
NR off	56.3	60.0	56.4
Dolby B	63.7	69.4	66.6
Dolby C	65.8	76.8	75.8

Tape: TDK SA (Type II, chrome-equivalent)

IEC 0-dB distortion: 1.5%

Meter indication at 3% THD + noise: +10 dB

Signal-to-noise ratios (decibels):

	Unwtd.	A-wtd.	CCIR/ARM
NR off	55.1	59.5	56.4
Dolby B	60.9	68.2	66.4
Dolby C	63.8	75.2	75.0

Tape: TDK MA (Type IV, metal)

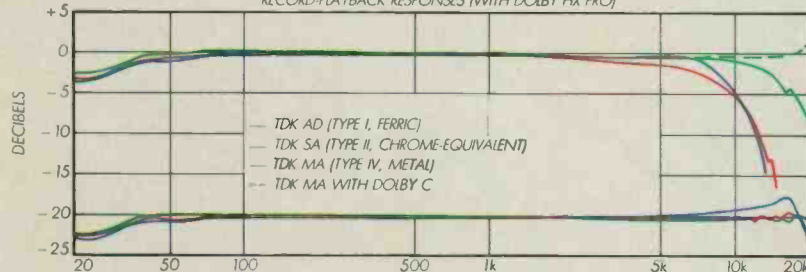
IEC 0-dB distortion: 1.0%

Meter indication at 3% THD + noise: +12 dB

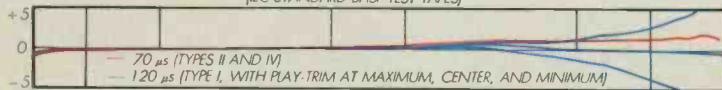
Signal-to-noise ratios (decibels):

	Unwtd.	A-wtd.	CCIR/ARM
NR off	59.1	62.7	59.2
Dolby B	65.8	71.8	69.4
Dolby C	67.6	79.4	78.4

YAMAHA KX-930 CASSETTE DECK
RECORD-PLAYBACK RESPONSES (WITH DOLBY HX PRO)



PLAYBACK-ONLY RESPONSES
(IEC-STANDARD BASF TEST TAPES)



FREQUENCY IN HERTZ

tomizing, the KX-930 also provides a manual bias control. Most recordists, however, will find more use for its manual PLAY TRIM control, which varies the playback treble response before the signal reaches the appropriate Dolby B or Dolby C decoder. Since the Dolby noise-reduction systems are sensitive to both level and frequency, high-end losses—often occasioned by recording on one machine and playing back on another—can be distressingly magnified by Dolby decoders. The play-trim control on the Yamaha KX-930 enables restoration of high frequencies in the signal being played to the proper level for accurate Dolby decoding.

Dolby HX Pro, which extends cassette treble-storage capacity at high signal levels by dynamically varying the bias level, does not require decoding, so it is permanently wired into the KX-930's recording circuitry. The multiplex filter is switchable, however, and for best response in the top half-octave it should be turned off except when recording from an FM tuner that provides inadequate 19-kHz stereo-pilot rejection.

Signal levels are shown on an eighteen-segment-per-channel peak-holding electronic display. It is calibrated from -40 to +12 dB, but the 0-dB marking corresponds to the outmoded Japanese reference level of 160 nanowebers per meter. (Dolby level is marked at +4 dB, and the 250-nwb/m reference level of our IEC calibration tapes registered at +6 dB.) With modern tapes this means that the user must record with peak levels well above the 0-dB marking in order to maximize dynamic range.

The electronic tape counter on the KX-930 displays directly in minutes and seconds. Alternatively, after you press a button to set the tape length in use, you can switch the display to show the time remaining on the side.

A pair of INTRO SCAN buttons on the front panel lets the user preview the first 15 seconds of either the previous or the upcoming musical selection. A switch sets the deck for repeat play of the full side or a single selection. The KX-930 has the usual memory-rewind feature, and if rewind is entered directly from record-

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TEST REPORTS

ing mode the tape will return to the point where the recording began. Moreover, the fast-winding buttons shift to an even higher speed if held down for more than 2 seconds.

The usual 4-second REC MUTE button, a switch for external timer activation, and a front-panel headphone jack with its own level control are also provided. Recording controls include individual channel levels and master fader; the overall playback level is not adjustable. The remote-control unit supplied with the KX-930 not only duplicates most of its front-panel switches but also has programming and search capabilities for sequences of as many as ninety-nine selections.

The Yamaha KX-930 measures 17¼ inches wide, 4¾ inches high, and 10½ inches deep, and it weighs a little less than 11 pounds. Price: \$599. Yamaha Electronics Corporation USA, Dept. SR, 6722 Orange-thorpe Ave., Buena Park, CA 90620.

Lab Tests

The KX-930's playback frequency response varied by less than ± 0.5 dB across the entire 20- to 20,000-Hz range of our calibrated IEC (BASF) ferric test tape, and it was nearly as good (± 1 dB) with the chromium-dioxide version.

We measured the overall record-playback response using our "center-line" samples of TDK MA (metal), TDK SA (chrome-equivalent), and TDK AD (ferric). At the usual -20-dB reference level, both the metal and the CrO₂-equivalent tapes were within ± 0.5 dB from roughly 40 to 20,000 Hz (MA) and 40 to 17,000 Hz (SA). The overall response from our ferric sample varied a little more widely at the frequency extremes, rising to a peak of +2.5 dB at 15,000 Hz even after optimization with the Auto Tape Tuning procedure and the manual bias control. (The KX-930 is rated at ± 3 dB to 18,000 Hz, so this is still well within specifications.) At the IEC 0-dB level (+6 dB on the display), the record-playback response was typical for a deck equipped with Dolby HX Pro. Under optimum conditions (metal tape and Dolby C noise reduction), flat response at even the 0-dB level extended above our 20,000-Hz measurement limit.

Referred to the standard 3-percent distortion point, the signal-to-noise ratio (S/N) of the Yamaha KX-930 was very good, with A-weighted figures ranging from 75 to 79 dB for all three tape types when Dolby C noise reduction was used. Because the 0-dB calibration of the display is set so low, however, to get these S/N figures we had to record at indicated levels of +10 and +12 dB, well above what most users would attempt, though in this case they could do so safely.

Our measurements on the transport of the KX-930 disclosed very slight overall speed error. Wow-and-flutter was good but not outstanding. High-speed winding was very rapid, however. Electronically, the input and output levels were entirely normal, and Dolby tracking error was exceptionally low.

Comments

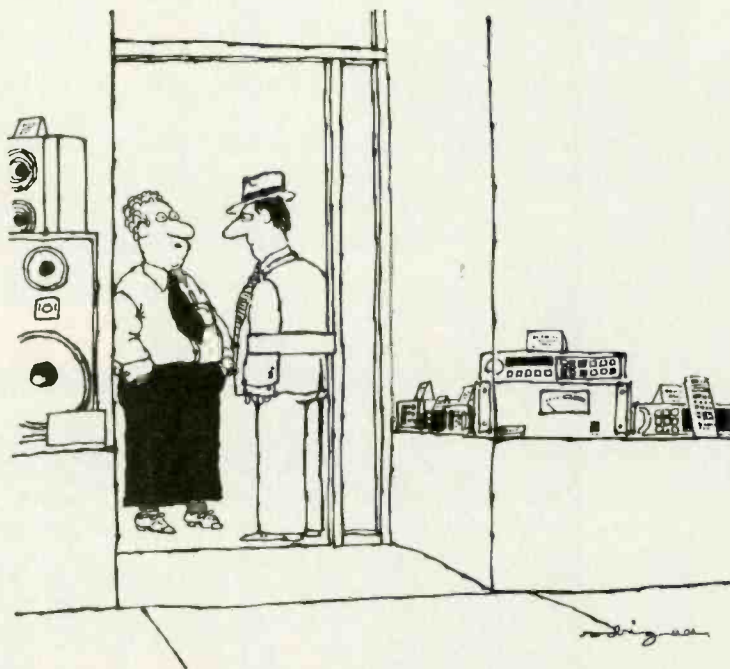
Except for the level display, which was too small and hard to read, we found the Yamaha KX-930 well designed and a pleasure to operate. Even its instruction manual is notably well written and helpful.

In direct A/B tests with a number

of CD's we use regularly for comparative evaluations, the deck rated very highly. As we shifted from source to tape we found the frequency-response accuracy of the recording to be excellent, and we were impressed by the clarity of the sound and the localization of instruments across the sound stage. Every analog copying process involves *some* loss of what in photographic terms would be called resolution, but with the KX-930 the fuzzing of instrumental focus was extremely slight. The small amount of "grunge" we detected, even with Dolby C, when we monitored very low-level passages at high volume levels was probably a result of residual low-frequency noise or the slight graininess imparted by the deck's wow and flutter.

Overall, we found the sonic performance of the Yamaha KX-930 just short of the very best—and most expensive—cassette decks we have used, and it has some excellent features not always found at the price. It's certainly worth consideration if you're shopping for performance and value.

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"... Open-reel tape decks?! Where've you been, in jail?!"

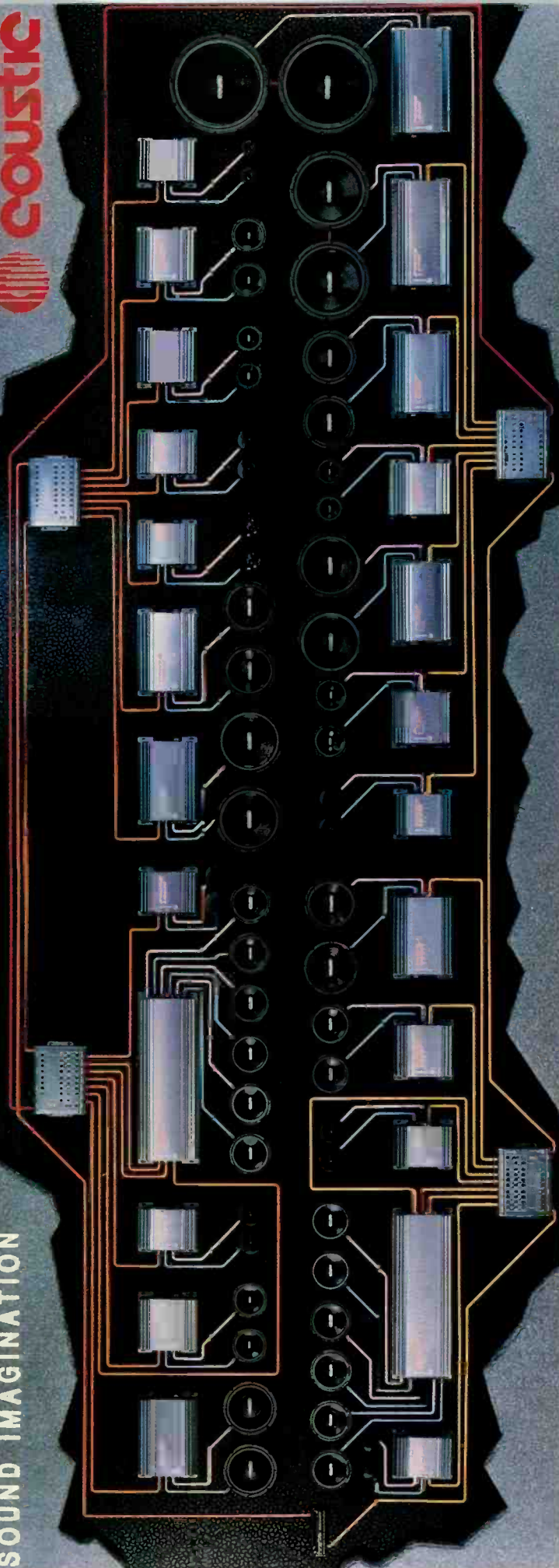
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SOUND IMAGINATION



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LISTENING TESTS DOLBY S VS. DAT

Can an advanced
noise-reduction
system make analog
cassettes sound
as good as
digital tape?
by Ken C. Pohlmann



SINCE its introduction eight years ago, the compact disc has driven the LP—once the format of choice for quality-conscious listeners—to the verge of extinction. On disc and, to a lesser degree, in the recording studio, digital has triumphed over analog. Now, with the introduction of digital audio tape, one has to wonder whether the trend will continue, with DAT displacing the familiar and ubiquitous analog cassette. Only time will tell; no laboratory measurements or listening tests can answer that question.

We can, however, take a stab at assessing the relative sound quality of the two formats. At first glance, this might seem an easy task: Surely an analog tape medium could never compare to a digital medium. After all, it was in

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The contenders in our listening comparisons were a Sony DTC-700 digital audio tape recorder, below left, and a Pioneer CT-939 Mark II analog cassette deck equipped with prototype Dolby S circuitry.



professional tape recorders that digital technology first came to prominence. Yet analog tape technology has not stagnated in the same way that the analog disc did. If anything, analog tape has shown tremendous growth over the last decade, culminating in the consumer market with the development of Dolby S noise reduction, an offshoot of the professional Dolby SR noise-reduction system that has given new life to professional analog recording in the past few years.

Can an analog cassette recording made using Dolby S favorably compare with a DAT recording? The answer could have a profound effect on the fate of the two formats. To find out, we conducted a series of blind A/B listening tests pitting DAT recordings from CD's against Dolby S dubs of the same material. Our listening panel's primary mission was simply to try to distinguish the two recordings from one another, but we also asked panel members to identify good and bad aspects of the sound quality of each whenever possible. The listening tests were backed up with full lab tests of the two tape decks as well as of the source CD player.

The Equipment

The digital tape recorder we used for the comparison was a Sony DTC-700, which is similar to the DTC-75ES deck reviewed in the September 1990 issue. This DAT recorder uses Sony's 1-bit High Density Linear Converter System for both analog-to-digital (A/D) and digital-to-analog (D/A) conversion. In addition to standard analog inputs and outputs, the DTC-700 also provides both optical and coaxial digital connection. Like other consumer DAT decks now available, it is equipped with the Serial Copy Management System (SCMS) and thus is capable of making direct digital dubs from CD's and prerecorded DAT cassettes. The DTC-700's list price is \$900.

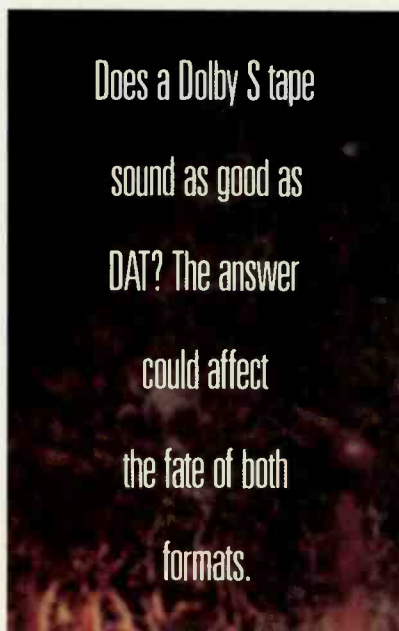
The cassette recorder was a Pioneer CT-939 Mark II outfitted with prototype Dolby S encoding and decoding circuitry. Although the CT-939 is not available in the United States, it is virtually identical to the Pioneer CT-91, a three-head, three-motor, closed-loop dual-capstan deck with Dolby B and Dolby C noise reduction, Dolby HX Pro headroom extension, and a front-panel bias adjustment. The CT-91 (without Dolby S) has a list price of \$950.

The music used in the comparisons all originated on CD, reproduced via a Philips CD-80 player. The CD-80 em-

loys a tried-and-true output design—a four-times-oversampling digital filter and dual 16-bit Philips Gold Crown D/A converters, which are specially selected for excellent low-level linearity. The player has a full complement of outputs: fixed- and variable-level analog and coaxial and optical digital. The CD-80's list price is \$800.

The rest of the system consisted of a Conrad-Johnson Motif MC9 FET pre-amplifier, a Conrad-Johnson MS-100 solid-state power amplifier rated at 100 watts per channel into 8 ohms, KEF Model 107 loudspeakers, Monster Cable M1000 interconnects, and 20-foot lengths of Monster Cable M1 speaker cable. Gold-plated Monster Cable plugs terminated all wiring. The room in which the tests were conducted is very well isolated acoustically, with an ambient noise level of no more than 25 db. In addition, the room is treated with a combination of absorptive and reflective surfaces to provide a central listening area with a very flat frequency response. The signal path from sources to loudspeakers was checked to insure noninverted polarity at the loudspeaker terminals.

In any test involving tape recorders, the choice of tape is important. We used TDK cassettes for both formats: DA-R90 digital tapes and MA-XG 90 Type IV metal-alloy analog tapes. Interestingly, the analog cassette is priced higher than the digital (\$18 versus \$12). We used a Sony TY-7551 test tape for bench measurements of the DAT recorder and Standard Tape Laboratory IEC-standard cassettes for lab tests of the analog deck.



The Setup

The Dolby S cassette for the listening comparison was recorded after we carefully calibrated the CT-939 to the TDK tape to insure low distortion, the flattest possible frequency response, and accurate Dolby tracking. The DAT cassette was recorded through the DTC-700's analog inputs. Direct digital transfer from disc to tape, bypassing the CD player's output D/A converters and the DAT deck's input A/D converters, would normally be preferred on grounds of both performance and convenience, but that procedure would have been inappropriate for the purposes of the comparison, since the input signal to the digital deck would then have been different (however inconsequentially) from that to the analog deck. We wanted to compare tape recorders, not a digital tape player and an analog recorder—as we would have had we digitally cloned CD selections to DAT.

The test was designed as a single-blind experiment (the subjects did not know which component was associated with which switch position, but the technician conducting the trials did), using an ABX comparator to switch between tape recorders. The ABX system includes a switching box, a logic and display box, and a wired, handheld controller. The test decks were arbitrarily assigned to the A and B switch positions at the switching box. At the beginning of each trial, the ABX system randomly assigns either A or B to the unknown X position as well as its own position; the controller enables the listener to select any of the three inputs—A, B, or X—for audition whenever he likes. A trial ends when the listener indicates which source component, A or B, he thinks is the one also assigned to X. The ABX system then steps to the next trial, again making a random assignment for the X position. At the end of a series of trials, the ABX system can recall the actual assignments. Consistently accurate identification of the X source indicates that the listener heard real differences between the two input sources, A and B—in this case, the analog and digital recorders.

During the test, the listeners did not know which components were being compared. Only at the end of each person's series of trials did we reveal the scores and the identities of the recorders. This precaution supplemented the security of the ABX system itself, helping to insure that the listeners had only one thing—sound

UNDERSTANDING DOLBY S NOISE REDUCTION

DOLBY LABORATORIES announced its S-type noise-reduction system fully twenty years after the introduction of Dolby B, which was the first consumer tape noise-reduction system. A very sophisticated system derived from the company's professional SR (Spectral Recording) technology, Dolby S is said to provide 24 dB of tape-hiss reduction (versus 10 dB from Dolby B and approximately 20 dB from Dolby C) plus 10 dB of low-frequency noise reduction and improved headroom across the board. It is difficult to achieve high levels of noise reduction without audible artifacts. Dolby S was designed specifically to minimize such problems, as well as those that can arise from errors in the alignment of the tape deck or the noise-reduction system, yet still provide greater noise reduction than Dolby B or Dolby C.

Most analog noise-reduction systems, including those developed by Dolby, rely on some form of "compansion," in which a signal's dynamic range (the range between the softest and the loudest sounds) is compressed before recording and expanded on playback. Compression effectively increases the average level of the recorded signal relative to the level of the tape noise, and this improvement in signal-to-noise ratio is preserved when the signal is expanded again.

A simple compander acts uniformly across the audio band, but because the entire noise floor moves up and down with changes in level when the signal is expanded—even when the signal itself occupies only a limited frequency range—one can encounter an obnoxious effect known as noise pumping. For example, an isolated high-level, low-frequency sound, such as a bass drum being struck, will cause the level of high-frequency noise to jump up along with it, generating a brief burst of hiss. With music covering a wider frequency range, noise pumping will be less audible because the high-frequency portions of the music will mask the hiss.

Dolby B and Dolby C prevent noise pumping by being conservative, operating only at high frequencies and boosting signals below a certain level by a constant amount during compression. But this conservatism also imposes limits on the degree of noise reduction they can achieve.

Dolby S provides greater noise reduction over a wider range of frequencies by adapting its action to the varying characteristics of the signal to which it is applied.

Depending on the content of the signal, it will act on certain parts of the audio band while leaving others alone. Portions of the frequency spectrum where the signal is strong do not require noise reduction (thanks to masking) and are not processed; portions where the signal contains little or no energy do require noise reduction and are processed.

circuitry conform to more stringent specifications for head-azimuth alignment, head height, and wow-and-flutter than it requires for Dolby B or Dolby C and that the decks provide increased headroom in their electronics and wider frequency response. These higher standards, combined with S-type noise reduction, amount to a significant advance in analog cassette technology.

Whenever a new noise-reduction system is introduced, it raises the question of backward compatibility.



Harman Kardon's Dolby S-equipped TD4600

To achieve this frequency-selective characteristic, the Dolby S system uses a modest fixed-band low-frequency compander and two cascaded sets of staggered fixed-band and sliding-band high-frequency compressors. Like the other Dolby systems, Dolby S does not vary its action at very low signal levels. At higher levels, it continuously adjusts the actions of the individual compander sections to suit the instantaneous spectral content of the incoming signal.

In addition, Dolby S uses modulation-control circuits to minimize overshoot on high-level transients. Spectral skewing in the control circuitry (also used in Dolby C) minimizes noise-reduction mistracking from both level and response errors, and antisaturation circuits attenuate very high-frequency signals during compression to help prevent tape overload.

Dolby Laboratories requires that recorders containing Dolby S

For example, people with only Dolby B noise reduction in their car or portable cassette decks might be reluctant to embrace Dolby S if they could not play back S-encoded recordings acceptably with their current equipment. Although a Dolby S recording played back through a Dolby B decoder has audibly less dynamic range than when it is correctly decoded, the signal is spectrally balanced and dynamically stable. It is therefore possible that Dolby S may eventually become the standard for prerecorded cassettes.

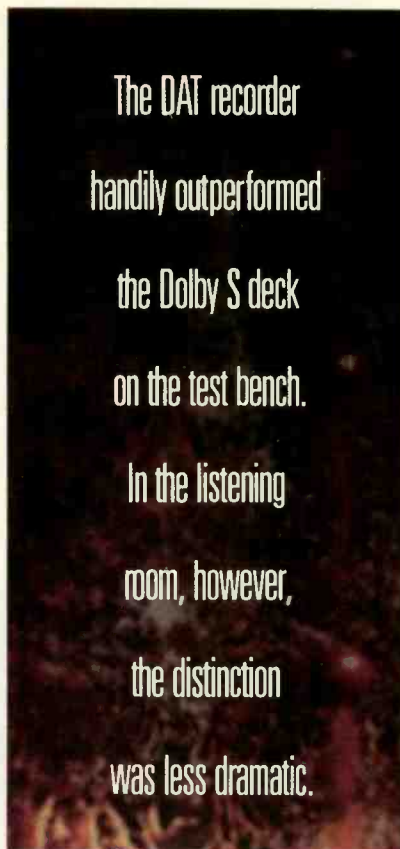
Dolby Laboratories has licensed Sony to develop and manufacture integrated circuits for Dolby S encoding and decoding. A three-chip Dolby S package is currently available to deck manufacturers, and a less costly single-chip circuit is under development. At present, the only Dolby S cassette decks on the market are from Harman Kardon, the three-head TD4800 (\$1,299) and the two-head TD4600 (\$799).

itself—on which to base their judgments. Other factors—such as product appearance, brand-name associations, knowledge of the circuit design, or, in this case, knowledge of the recording format—could not affect the outcome the way they so easily can in open listening comparisons.

As in any A/B listening test, it was important to match levels between the sources. Even very small level imbalances, amounting to a fraction of a decibel, can cause apparent sonic differences (usually in favor of the louder component) that vanish when the outputs are carefully matched. We routed the outputs from the tape recorders through four precision, locking potentiometers, which we adjusted so that the outputs from the two recorders were within 0.01 dB of each other at the loudspeaker terminals.

An especially difficult problem in this ABX test was synchronization between the tape recorders. If the decks happen to run at slightly different speeds, a listener could use timing differences between the playbacks to identify X. One possible solution is to modify the recorders to force them to run synchronously. We prefer to avoid this approach, however, since it might arguably alter the sound quality in some way. For example, the wow-and-flutter of an analog tape recorder could conceivably be changed if its transport reference signal were altered. Alternatively, we could have synchronized the recorders by hand, let them run free, and then stopped them when they had drifted apart by a predetermined amount. Such a procedure would be laborious, however.

Instead, we loaded both recorders with matching tapes previously recorded from the same compact disc and connected them to the ABX system. A listener could request to hear A, B, or X. A technician switched the ABX system accordingly, starting the recorder at the beginning of the test track. When the listener asked to hear another source, the technician muted the output signal, switched the ABX system, and started the tape at the beginning of the test track. The listener thus heard the same track repeatedly, from A, B, or X. This method insures that the listener cannot use a synchronization artifact to beat the system. Total time to mute the output, switch, and restart the tape was less than 10 seconds. The technician rigidly followed the ABX system's random X selections, and both the recorders and the technician were in another room, out of sight of the listener.



If an ABX test is properly performed, the success of listeners in identifying the X component will reflect the audibility of differences between the two sources, A and B. Scores hovering around 50 percent—which is what one would expect from pure guesswork—suggest that listeners are unable to hear any difference. With a large number of trials, a score of 75 percent or more suggests that there is a significant audible difference. The reliability of the score increases with the number of trials (with just a handful of trials, even a very high score may be due to chance). In fact, statistics show that with enough trials, a score of 75 percent or more cannot realistically be attributable to chance alone.

The Music

In any listening test, the choice of program material is critical. It is well known that aural sensitivity varies widely according to the stimulus. For example, distortion that is readily apparent in test tones may be completely inaudible in complex music. For this comparison, we used a simple 1,000-Hz sine-wave test signal as well as music selections that varied in sonic complexity.

The pure tone does not provide any

masking and stresses an analog tape's ability to record a single tone without modulation noise and other artifacts. The first musical selection was Frescobaldi's *Toccata prima* for harpsichord, played by Colin Tilney (Dorian DOR-90124), which is also challenging for a tape recorder. The percussive sound of a harpsichord can expose weaknesses in transient response and noise pumping in compander-type noise-reduction systems such as Dolby and dbx. The next musical piece was *Bird on a Wire*, from Jennifer Warnes's album "Famous Blue Raincoat" (Cypress YD 0100). This recording is well known in stereo showrooms around the world. Mixing engineer George Massenburg did a tremendous job of capturing solid drums, inner instrumental detail, and warm vocals. The demands placed on a tape recorder by this recording are extraordinary. The final selection was the finale from Saint-Saëns's Third Symphony, with Jean Martinon conducting the Orchestre National de l'ORTF (Angel CDMB-62643-2). This lush orchestral score is massive in construction and difficult to reproduce. Strings, in particular, can become hard sounding when they're not properly recorded.

The Listeners

The final element in a critical listening test is the listening panel itself. It is important to choose listeners who are patient and who hold up under trying circumstances—critical listening is a demanding and sometimes frustrating endeavor. In a departure from listening tests we have conducted in the past, we did not screen the panelists for hearing acuity.

There were four men and one woman, with an average age of thirty-two. We sent them into the listening room one at a time, alone, with a pad and pencil to record their choices. They were free to listen to A, B, or X at will, any number of times in any trial, and could return to previous trials if they wished. Each listener performed twenty trials in each of the four tests (one pure tone and three musical selections). Each listener completed his or her testing in one session, usually with a short break.

Assessing the Results

The numerical results of the tape-recorder comparison are presented in the table on the facing page. Each of the four tests is treated separately, with five scores given for each: (1) correct answers versus number of tri-

STATISTICAL SCOREBOARD: DOLBY S VS. DAT

THE outputs from the two tape recorders were compared in a total of four hundred trials. Five listeners performed twenty trials each with four different types of source material—one test tone and three kinds of music. In each case, the listener tried to identify which recorder, A or B, had been randomly assigned to the X position. A high proportion of correct scores, 75 percent or more, over a large number of trials would suggest that there are

guesswork. Scores between 50 and 75 percent suggest that there may be barely audible differences between the two sources.

For each trial, the listening scores are presented in five ways: (1) the ratio of correct identifications to the number of trials; (2) the correct-answer rate (CAR), which expresses the proportion of correct identifications as a decimal figure between 0 (none) and 1 (all); (3) the true discrimination rate (TDR), also

The fourth and fifth numbers both express statistical uncertainty, but in different ways. A probability figure of less than 0.01, corresponding to a confidence level of more than 99 percent, indicates that the score is almost certainly reliable. When the probability figure passes 0.05, the confidence level drops to 95 percent. In other words, there is one chance in twenty that a listener might achieve such a score just by guessing. A confidence level of less than 95 percent is usually taken to mean that the score is somewhat questionable. The lower the confidence level, the less precise or accurate you should presume the associated identification score to be.

The true discrimination rate is derived from the correct-answer rate, which is the proportion of correct answers to total answers. The CAR does not distinguish between correct answers from guesswork and correct answers from heard differences. The TDR estimates the proportion of correct answers due to audible differences rather than to chance. For CAR's greater than 0.5, the TDR is computed according to the formula $TDR = (2 \times CAR) - 1$; if the CAR is less than 0.5, the TDR is 0. For example, a CAR of 0.68 yields a TDR of 0.36, which suggests that differences were actually heard 36 percent of the time.

In weighing the data, it is perhaps best to focus on the TDR and the confidence level, since they are the easiest to grasp intuitively and contain all the information expressed in the other figures. Neither should be considered in isolation. If the confidence level is low, even a very high TDR doesn't mean much, since it could easily be a fluke. On the other hand, it is possible with a large number of trials to have a high confidence level for a low TDR, which would imply the existence of an audible difference, but one so faint as to escape detection most of the time. In these listening comparisons, the differences ranged from distinctly and consistently audible to virtually undetectable, depending mainly on the complexity of the program material.

	Score	Correct-Answer Rate	True Discrimination Rate	Probability of same score from pure guesswork	Confidence Level
Sine wave (test tone)	93/100	0.93	0.86	0.0	100%
Frescobaldi (harpsichord)	78/100	0.78	0.56	0.0	100%
Jennifer Warnes (vocal)	67/100	0.67	0.34	0.0004	99.9%
Saint-Saëns (orchestra)	55/100	0.55	0.10	0.1841	81.6%

significant audible differences between the recorders, at least for the audio signal used in the comparison. In many fields, such as psychology, the 75-percent value is called the difference threshold. Also important is the number of trials: The larger the number of trials, the greater the confidence that the outcome is not attributable to chance alone. In the absence of audible differences, we would expect a score of approximately 50 percent—the same as one would get from pure

guesswork. Scores between 0 and 1, which factors out the 0.5 CAR expected from guessing alone to estimate the proportion of correct identifications attributable to audible differences; (4) the probability—expressed as a decimal between 0 (an impossibility) and 1 (a certainty)—that a listener might achieve the identification score, or CAR, by guesswork alone; and (5) the level of confidence, given as a percentage, that the score did not result from chance.

als, (2) the correct-answer rate (CAR), (3) the true discrimination rate (TDR), (4) the probability that a person would achieve such a score by pure guesswork, and (5) the level of confidence that the identification did not result from chance.

In past listening tests, we expressed the second item, the correct answer rate, as a percentage. This time, however—at the suggestion of Herman Burstein, an economist, statistician, and audio columnist—we have used a decimal number, because this simplifies calculation of the true discrimination rate, an analysis tool also suggested by Dr. Burstein. The TDR is especially useful because it attempts to distinguish between correct answers that are a result of chance and those that result from *heard* differences between the sound sources.

In evaluating the numerical results,

one must always be careful to avoid overgeneralization, especially when, as here, the results are not always particularly striking. Still, it seems safe to say that the listeners were able to identify differences between the DAT and Dolby S recordings when the signal was a 1,000-Hz tone. Their aggregate score of 93 correct identifications out of 100 is far too good to be the result of chance alone, as witness the corresponding 100-percent confidence level. Moreover, all five listeners correctly identified the Dolby S recording. They commented that although the Dolby S tape was of very high quality, they were able to hear spurious noise surrounding the test tone. This is not surprising for an analog recording of a pure tone, no matter how good the noise-reduction system.

Scores fell somewhat in the Frescobaldi trials, with only 78 correct scores

out of 100 trials. Still, this aggregate also exceeds the 75-percent threshold and can be considered significant. (In this case, however, only three of the five listeners individually surpassed the 75-percent mark.) The probability that one would score that well by guessing alone is virtually zero, corresponding to a confidence level of 100 percent.

Scores dropped further in the Warnes trials, to 67 correct identifications in 100 trials. This falls below the 75-percent threshold, leaving the question of whether the listeners as a group could hear any significant difference between the two recorders open to debate. The TDR of 0.34 and the confidence level of 99.96 percent do suggest that they were hearing *something*, however. This could be a situation in which differences in individual hearing acuity come into play, since two listeners did have individual scores of better than 75 percent correct identifications.

The outcome was even murkier in the Saint-Saëns trials. This thickly scored orchestral music dropped the level of correct identifications to 55 out of 100, with a meager TDR of 0.1. The probability that one might do as well by guessing increased to 0.184, corresponding to a confidence level of 81.6 percent. This indicates that the listeners as a group probably could not reliably hear any differences between the recorders. No individual listener's identification score exceeded the 75-percent threshold. The best score was 13 out of 20 (65 percent).

Overall, the panelists scored 293 out of 400, or 73.2 percent. Because there was apparently a clearly audible difference when playing a pure tone, it is interesting to assess results with the music signals alone, which yielded an aggregate score of 200 out of 300, or 66.6 percent. Although well shy of the 75-percent threshold, the confidence level associated with this score suggests that it was not the result of chance alone. In other words, the listeners were probably able to hear differences between the recorders when listening to music. On the other hand, the score is low enough to suggest that any differences were very small—below what is technically considered to be the threshold of an audibly significant difference.

Subjective responses were mixed and depended on the source signal. In the ten cases where listeners scored better than 75 percent on a test, they expressed a preference for the DAT source seven times and the analog tape

LABORATORY MEASUREMENTS

	Sony DTC-700 DAT Deck	Pioneer CT-939 Mk. II Cassette Deck	Philips CD-80 CD Player
Frequency response (20 to 20,000 Hz)	+0.19, -0.01 dB	+1.35, -0.91 dB	+0.04, -0.01 dB
Channel separation (at 1,000 Hz)	83 dB	46 dB	104 dB
Signal-to-noise ratio (A-weighted)	91.5 dB	79.5 dB	114.1 dB
Dynamic range (A-weighted)	92.2 dB	not measured	98.9 dB
Distortion (THD + N)	0.0048%	0.38%	0.0050%
Linearity error (at 1,000 Hz, -60 dB)	+0.13 dB	not measured	0.0 dB
Interchannel phase error (at 20,000 Hz)	1.5 degrees	not measured	0.2 degree
Wow-and-flutter (IEC/DIN-weighted)	unmeasurable	0.034%	unmeasurable
Speed error	unmeasurable	+0.67%	unmeasurable
Rewind time (C-60)	28 seconds	82 seconds	not applicable

Data for the tape decks are for record-playback, using the analog inputs on the DAT deck and with Dolby S noise reduction engaged on the cassette deck.

with Dolby S three times. On the other hand, when the sine-wave test—in which all five listeners scored better than 75 percent and all five preferred DAT—is excluded, DAT gets the nod twice and Dolby S three times. These numbers must be interpreted carefully, however: The sample size is small, and since no comparison was made with the original CD source during the main series of tests, the preferences are merely preferences, not judgments of fidelity. Most likely, the analog recording occasionally altered the sound very slightly in a way that made it more appealing to some of the listeners than a more accurate rendition. This interpretation is supported by the consistent preference for DAT in the highly revealing pure-tone test, by the very poor showing listeners made when trying to distinguish between a CD source and a DAT copy in a later series of tests (see “DAT vs. CD” on this page), and by the laboratory test results, which are tabulated on the facing page.

The lab measurements show that the Philips CD-80 CD player supplied an analog output signal that was beyond reproach. Frequency response was flat within 0.05 dB from 20 to 20,000 Hz, the A-weighted signal-to-noise ratio (S/N) was 114.1 dB, total harmonic distortion plus noise (THD + N) for maximum output at 1,000 Hz was 0.005 percent, D/A linearity was perfect down to -60 dB, and inter-channel phase error at 20,000 Hz was a mere 0.2 degree. Clearly, the audio input to the tape recorders was of very high quality, with nonlinearities probably below the threshold of audibility.

The record/playback performance of the Sony DTC-700 DAT recorder was also quite good. Frequency response was within 0.20 dB, the A-weighted S/N was 91.5 dB, THD + N was 0.0048 percent, combined A/D and D/A linearity error was a modest 0.13 dB at -60 dB, and interchannel phase error at 20,000 Hz was just 1.5 degrees. As with other digital recorders, wow-and-flutter and speed error were below measurable limits. Fast-winding time for a C-60 cassette was a quick 28 seconds.

Although no match for the digital formats, the Pioneer CT-939's measured record/playback performance was exemplary for an analog cassette deck. With Dolby S engaged, frequency response deviated no more than 2.26 dB from 20 to 20,000 Hz, A-weighted S/N was 79.5 dB, and THD + N at 400 Hz was 0.38 percent. IEC/DIN-weighted wow-and-flutter was 0.034

DAT VS. CD

STRICTLY out of curiosity, several listeners on the panel asked to compare the reference Philips CD player against the Sony DAT recorder, to see whether they could hear any difference between them. So at the conclusion of the tape-deck testing one night, we reconfigured the ABX system with the Philips and the Sony as the A and B inputs. For the first test, we used the optical digital output on the CD player and the matching input on the DAT player to make a DAT copy of the Jennifer Warnes CD. Because this was a digital copy, the audio data on the CD should have been precisely transferred to the DAT, and the recordings should have been identical. In effect, this A/B test compared just the D/A converter and other playback electronics in the Philips player with those in the Sony recorder. The results of the comparison showed that the most successful listener scored only 30 correct identifications out of 55 trials, a 55-percent rate. That corresponds to a CAR of 0.55 and a TDR of just 0.1—certainly nothing to get excited about.

A second test, this one performed very late at night (or rather, early in the morning), used a DAT dub of the Warnes song made via an analog connection. In other words, a cycle of D/A and A/D conversion was added to the signal path used in the first test. After several listening trials, the scores were still mediocre. The most successful listener managed 33 correct answers out of 55 trials—a 60-percent rate, for a CAR of 0.60 and a TDR of 0.2. Although the evidence is still weak, it might suggest the presence of a small difference barely audible to at least some listeners. When asked to express an opinion, the listener replied that although he thought the sources sounded slightly different, he could not state a preference. Then again, at 4:00 a.m. it's hard to be picky.

percent, and the speed error was +0.67 percent. Fast-winding time was 82 seconds for a C-60. If anything, a production model would probably perform even better than our test unit, which had a modified power supply (altered to work on U.S. 120-volt line current) and prototype Dolby S circuitry hand-wired to its circuit board.

Conclusions

So which is better—DAT or analog cassette with Dolby S noise reduction? The DAT recorder handily outperformed the Dolby S cassette deck on the test bench. In the listening room, however, the distinction was less dramatic. Clearly, listeners often had a hard time identifying audible differences, topping the 75-percent identification threshold in only ten out of the twenty groups of listening trials. If the sine-wave test is excluded, the listeners' ability to discriminate at the 75-percent level drops to just five out of fifteen trial groups.

On the other hand, the analog deck was a high-end model that had been carefully tweaked for optimum performance with the tape we used. Without that calibration (which is not possible for most users with most cassette decks), it probably would not have fared quite as well. This points up one inherent advantage of a digital recorder: It does not require fine-tuning by the user to achieve maximum performance. Given that consideration, the DAT deck's clearly superior lab measurements, and the panel's unanimous preference for its reproduction of the pure tone, we're inclined to favor DAT, though by less of a margin than one might previously have imagined. Anyone expecting DAT consistently to devastate its analog cousin will be very surprised—as was everyone on our listening panel.

Whatever your reading of the results, it is important to note that the small audible differences were detected under conditions that permitted very critical listening. In poorer listening circumstances or with different program material, a DAT deck and a carefully aligned, high-quality cassette deck with Dolby S might be audibly indistinguishable. You should also bear in mind that the Dolby S recorder used in this listening test was a prototype. Integration of the noise-reduction circuitry into a chip may further improve performance. One thing is beyond doubt, however: Dolby S has the potential to deliver excellent sound quality from analog cassette tape. □

IN CONTROL

Mastering
the modern
receiver

CONTROL

IF you think receivers have been getting more complicated lately, you're right. Because they combine the functions of three basic components—preamplifier, power amplifier, and tuner—into one, receivers naturally tend to have more controls than most other types of components. And as their designers have dreamed up new features, the complexity of their front panels has tended to grow. Now, with the addition of video switching and surround-sound processing, many top-of-the-line and even mid-line receivers look like something that would appear right at home in the cockpit of a jumbo jet. One current receiver has seventy-two buttons on its face, and bulky remote controls have become commonplace.

Receiver makers differ on how to implement all this control power. A few years ago, knobs seemed on their way to extinction; now they're making a modest comeback for functions to which they are especially well suited, such as volume and balance control. Buttons still predominate, however, mostly in the form of touch keys or pads that just send pulses to a microprocessor deep within the receiver, which does the actual switching electronically. But you will still find rotary, slide, rocker, and toggle switches, along with plain old mechanical pushbuttons. Revox goes so far as to provide a

by Rich Warren

The JVC RX-1010V,

Pioneer VSX-D1S, and

Technics SA-GX700 represent

three basic approaches

to audio/video

receiver operation.



Perhaps the most common > approach to control layout on feature-laden components is the one Pioneer uses for its VSX-D1S receiver. Commonly used controls, such as the input-selector buttons at top right, are left exposed. But the panel holding the selector buttons flips down (lower right) to expose secondary controls and an extra set of input jacks.



The JVC RX-1010V carries the hide-the-buttons approach to its logical conclusion, achieving a sleek, uncluttered look by putting virtually all of its controls behind a large, unadorned door that folds down from the front panel to expose the vast < array shown here.



personal-computer interface on its receiver, giving the user access to a whole new level of control automation. How comfortable you are with the control scheme of the receiver you choose will have a big effect on how much you enjoy it, so this aspect of the design should play a significant role in your buying decision.

To help you out, we've chosen three fully loaded audio/video receivers with visibly different design approaches for a guided tour of receiver controls. They are the \$550 Technics SA-GX700, rated at 100 watts per channel; the \$1,350 Pioneer VSX-D1S, rated at

All of our sample receivers have these controls in some form.

The most prominent feature of both the Technics and the Pioneer is a massive, motor-driven volume knob protruding from the right side of the front panel. Some engineers prefer this type of volume control for technical as well as ergonomic reasons, since it generates less noise and distortion than do typical electronic level controls. A bright red LED on the knob shows its setting even when you are operating it from across the room with the remote control. The Technics also uses knobs for tuning, balance, and tone control (through a sophisticated parametric equalizer). Pioneer, on the other hand, has consolidated multiple functions in a single "jog dial" knob, beneath the volume control, that can be used to tune radio stations, to select letters for naming stations on the display, and to adjust the video enhancer, AM beat reduction, surround delay time, and surround effect. For browsing through radio stations, the old-fashioned tuning knob has no peer in feel or flexibility. Even without the old slide-rule dial display, a knob gives you better control, especially of scanning speed.

All three receivers have more than just the usual bass and treble controls and can memorize a number of settings for them. The Pioneer adds a midrange control, while the Technics and JVC incorporate powerful, versatile equalizers. This adds eleven buttons and four knobs on the Technics and twelve buttons on the JVC. One drawback to these built-in equalizers is the dissociation of the controls from the electronic display of their settings.

The mechanical sliders on most outboard equalizers provide more direct feedback on their adjustment.

Perhaps the most obvious effect of the audio/video merger is input proliferation: The Pioneer has twelve buttons for source selection, and the JVC has ten. Some receivers also provide separate input selectors for feeding the tape outputs, so that you can listen to one source while taping another.

SIMILARLY, the increasing popularity of FM has led to ever more station presets. Each of these receivers has ten numbered buttons for this purpose, plus an eleventh "+10" button on the JVC. On the Pioneer you select presets numbered higher than ten by pressing multiple buttons. Technics instructs the user to "Press the button for the most significant digit. Press the button for the least significant digit within 2 seconds." It helps to remember your high-school mathematics.

While the designs of the Pioneer and Technics signal at least a modest revival for knobs, the JVC runs to the other extreme. The RX-1010V looks beguilingly simple, its clean, uncluttered face flanked on the left by a large push plate for power and on the right by an identical rocker plate for volume. Pulling down the panel beneath the receiver's exceptionally large display reveals forty-four perfectly matched rectangular buttons and twenty-three matching square buttons. Two-thirds of the rectangular buttons are for controlling JVC's Digital Acoustics Processor (DAP) and CompuLink Source Related Preset



A Technics simplifies the SA-GX700's operation by judicious use of knobs—retro, perhaps, but also familiar, readily understood, and easy to handle.

130 watts per channel; and the \$1,500 JVC RX-1010V, rated at 120 watts per channel. The Technics has limited video switching, whereas the Pioneer and JVC are full-fledged A/V receivers. All three have programmable, "learning" remote controls.

What controls do you really need? Surely everyone would agree on volume, balance, source selection, and AM/FM tuning. Most listeners would add tone controls and radio presets.



For browsing
through
radio stations,
a tuning
knob has
no peer in
feel or
flexibility.

System (CSRP), the Dolby Pro Logic decoding, and the character input for the display. The labels for all these buttons can be difficult to read, but the bright, clear, amber display boldly tells all.

THE CSRP feature ultimately eliminates the need for endless button-searching by enabling you to store basic start-up settings for each source selector (CD, FM, tape, and so forth). You can program each one to reset sixteen different parameters, ranging from volume and balance to such esoterica as the DAP settings for room size, liveness, and wall type.

Pioneer opts for eight tiny, elegant gold buttons to select surround-mode environments and Dolby Surround. They stand out amid a field of black keys. To the left are two white buttons that glow amber when selected. One sends the input signal directly to the power amplifier, and the other invokes the unit's multiroom features. Pushing a tiny black button opens a door along the bottom of the front panel, uncovering yet another twenty-nine keys and buttons, plus four additional input jacks. Cycling the TONE button enables adjustment of the tone controls for all channels at once or independently for main front (stereo), center, and surround.

Although many listeners want and would enjoy the features of today's top-of-the-line receivers, they are often overwhelmed by all the knobs, buttons, and switches required to operate them. Overcomplicated controls can relegate a sophisticated A/V receiver to a life of electronic underachievement, functioning as no more than a basic tuner/amplifier. As the three receivers we have described here indicate, manufacturers are working on the problem.

JVC's large remote control hints at one possible path out of the wilderness. An LCD changes the labels appearing in the cells of an overlaid grid depending on the component selected and the function you're trying to control. You simply press the appropriate squares on the touch-sensitive screen to send commands to the equipment. Future receivers may even be black boxes that can be completely hidden, operated entirely by two-way remote controls, like those now available from Bang & Olufsen, that can display equipment settings as well as issue commands. But even today, incredible power awaits literally at your fingertips. Releasing it takes knowing the right switch. □

EQUIPMENT PHOTOS BY TONY PETTINATO; BACKGROUND ART BY DENNIS POTOKAR

THE BIG

When swing was king, the whole country danced to the beat.



by Candy Justice



IN December 1940, the *Billboard* College Survey told Americans what they already knew—the Glenn Miller Orchestra was the most popular band in the country. You only had to look at juke boxes, most of which were dominated by such Miller hits as *In the Mood* and *Tuxedo Junction*. The Miller band recorded forty-five top-selling songs in 1940, more than Elvis or the Beatles ever turned out in a single year.

Being America's favorite big band in 1940 was no small achievement, with competition from such phenomenally successful contemporaries as Tommy Dorsey's band, whose recording of *I'll Never Smile Again* with national heartthrob Frank Sinatra was No. 1 on the pop charts for twelve weeks in that year, or the band led by Artie Shaw, who made headlines by marrying movie star Lana Turner and got his own bite of 1940 popularity with *Frenesi*, which stayed at No. 1 for thirteen weeks.

Also nipping at Miller's heels were bands led by Benny Goodman, Jimmy Dorsey, Woody Herman, and dozens of others that were packing thousands of screaming fans nightly

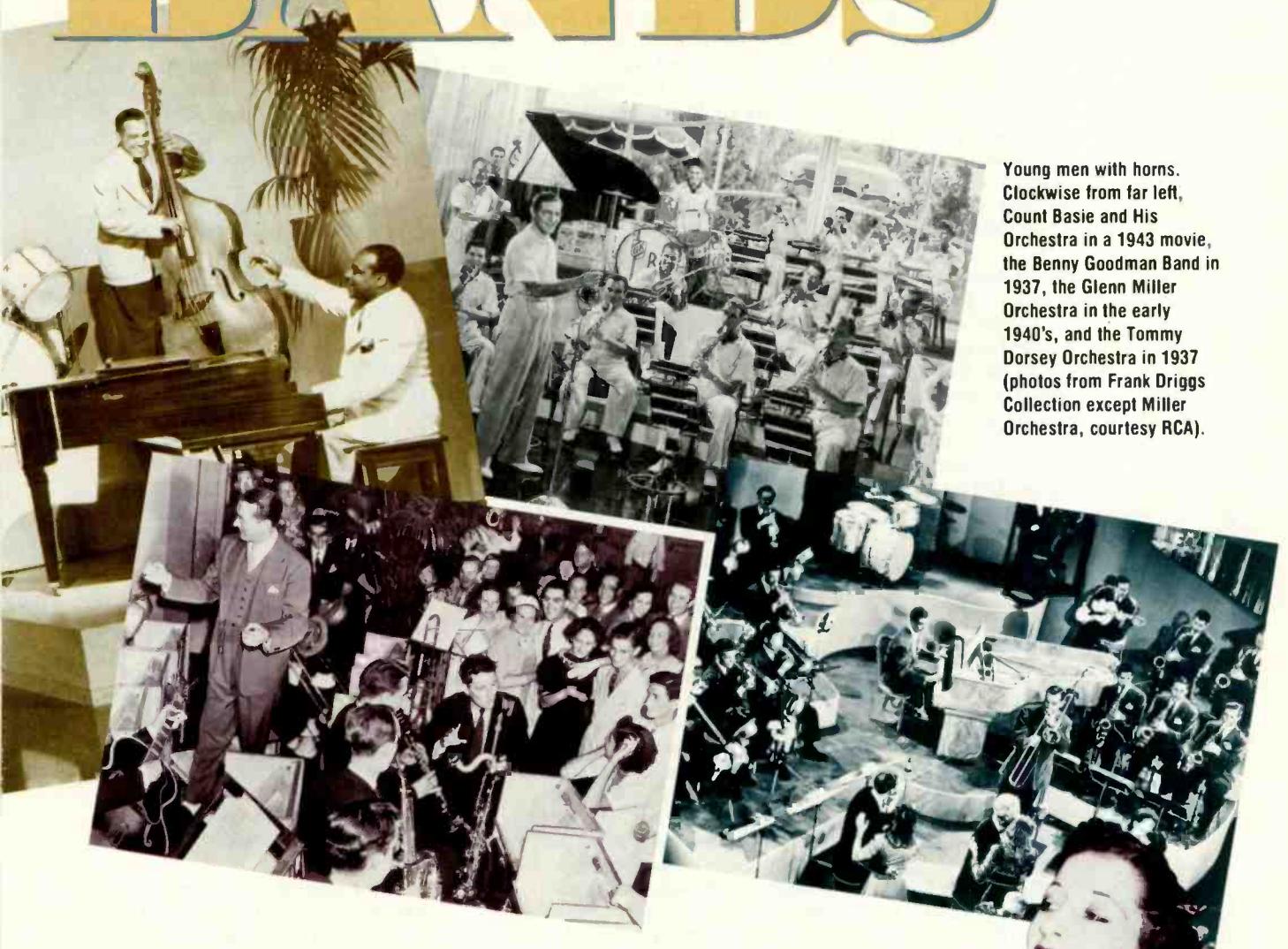
into theaters, hotel supper clubs, and ballrooms like the Palladium. The Big Band Era, as it would later be called, was in full swing and would soon yield the music industry's first gold record, *Chattanooga Choo Choo* by the Glenn Miller Orchestra.

But though swing was king fifty years ago, Glenn Miller wasn't taking his success for granted. Just a year earlier, he had been heavily in debt and struggling to keep the band he had formed in 1938 together. Then 1940 arrived with *In the Mood* at the top of the charts, and when *Tuxedo Junction* came out in February, it sold 115,000 copies the first week. By the end of 1940, Miller's band had grossed \$700,000, second only to Kay Kyser's, which took in a million dollars, and Miller could afford to hire some of the best musicians in the country.

In return for good pay and fame, band members were expected to live up to Miller's high standards. He wanted a group of young men who would look and act like the boys next door and play with precision and vigor.

"He was very strict about guys looking neat at all times—haircuts, neat clothes, shined shoes—and I never blamed him for it. He was a businessman," trumpet player Zeke

BANDS



Young men with horns. Clockwise from far left, Count Basie and His Orchestra in a 1943 movie, the Benny Goodman Band in 1937, the Glenn Miller Orchestra in the early 1940's, and the Tommy Dorsey Orchestra in 1937 (photos from Frank Driggs Collection except Miller Orchestra, courtesy RCA).

Zarchy told me. Zarchy, now seventy-five, played with Artie Shaw, Benny Goodman, Bob Crosby, Red Norvo, and Tommy Dorsey before going to work for Miller in 1940.

Being a good businessman also included keeping the fans happy, according to John Best, who played in the Miller band from 1939 until 1942.

"Billy May [a Miller trumpet player and arranger] and I once rushed past the kids waiting at the stage door after a performance without stopping to give autographs or talk to the kids, and we got chewed out by Glenn," Best recalled.

The 1940 *Billboard* poll showed Miller's male vocalist, handsome Ray Eberle, to be the most popular boy singer of the year, and Best says Eberle, who died in 1979, was the one the girls at the stage door most wanted to see.

Vocalists were so important to the big bands that in some cases the singer was far more popular than the band itself. The Ted Weems Orchestra, for example, had a respectable following in 1940, but it didn't attract nearly as much attention as its male vocalist, Perry Como. Today Como, in his characteristic modest, low-key style, downplays his popularity as a band singer. But he recalls the young female fans who stood in front of the bandstand screaming their

Helen Forrest, right, went to work with the Benny Goodman Band in 1939. (photo from Frank Driggs Collection).





adoration of singers like himself or Sinatra.

"You know, I don't think I ever heard Frank sing," Como, seventy-eight, said of the screaming mobs that surrounded the Tommy Dorsey bandstand, virtually drowning out Sinatra's voice. When it came to his own screaming fans, however, Como politely put a stop to it.

"I said no. I stopped them. It seemed disrespectful to me," he said. "I told them, 'I get confused and forget the lyrics,' and they understood and would signal to the others to stop screaming."

Como didn't actually have a problem remembering lyrics—he was a quick learner, he said—and only "forgot" lyrics when it suited his purpose. Ted Weems didn't like his singers to use sheet music, so if a singer still needed the music after a couple of performances of a new number, Weems would tear up the arrangement and never use it again. If Como was given "a dog" to sing, he could get rid of it by pretending to need the sheet music.

As a whole, however, the Big Band Era didn't produce very many musical "dogs." It was a period of prolific creativity in terms of both new music and new arrangements that breathed life into old songs.

Les Brown, the only major bandleader from the Thirties and Forties still fronting his own orchestra, said that he's lucky today if he finds one good new tune a year. "But then," he said, "we had two or three good tunes a month."

Although bands like Duke Ellington's were swinging in the Twenties in Harlem's Cotton Club, 1935 is usually cited as the beginning of the Swing Era, and the clarinetist Benny Goodman is usually given credit for it. Goodman, than at a low point in his fledgling career as a bandleader, decided one night in California that he had nothing to lose, and he and his musicians let loose with the most uninhibited sound anybody had ever heard from a dance band. Almost overnight America's people embraced swing.

It would be hard to find anyone in the music business then or now who would doubt the musical brilliance of Goodman, who died in 1986, but you can easily find those who didn't like him personally.

Helen Forrest, who sang with Artie Shaw before going to work for Goodman in 1939, remembers Goodman as "by far the most unpleasant man I ever met in music." She said he called

everyone "Pops" because he didn't care enough to remember their names.

"He wasn't a tyrant. He wasn't vicious," Forrest told me. "But Benny lived in his own little world. He didn't know anybody else existed."

When the band was on the road, Forrest said, band members quickly filled up tables in restaurants, so that Goodman could not join them.

"But one time it happened," she recalled with a laugh. "There was a place, and he sat at our table. He ordered scrambled eggs and put the newspaper in front of his face and never said a word except 'Ketchup.' Somebody loosened the top before

handing it to him, and he dumped ketchup, top and all, on his eggs. He just kept on eating and ate around the top, got up, and left. He never paid his check or left a tip. He always left it for someone else to pay."

Forrest and others also tell stories of Goodman's "ray," the piercing look he leveled at the foreheads of musicians who had displeased him. "He didn't fire anybody," Forrest said. "He'd force you to quit by giving you that ray. It was just awful."

Others, however, like Zeke Zarchy, who played trumpet in Goodman's band in 1936 before being recruited by Artie Shaw, remember the Goodman

The Swinging Nineties

CONSIDERING that 17,000 fans packed the Hollywood Bowl last fall to hear the bands of Glenn Miller, Tommy Dorsey, and Count Basie, it's hard to believe the Big Band Era ended more than forty years ago.

Although the era itself is over, the big-band sound lives on through digitally remastered recordings and through live performances by modern versions of the big-name bands of the Thirties and Forties.

Most of today's big bands are "ghost bands," orchestras bearing the names and carrying on the music of the leaders who formed them more than fifty years ago. Some, such as the Dorsey and Miller bands, are made up entirely of young musicians, while the Count Basie and Ellington feature a mixture of veterans and young players.

The audiences are getting younger, too. Although big-band audiences are still dominated by people who remember the original bands, bandleaders report more interest among young people.

"We're getting younger and younger people all the time at our shows," said Frank Foster, the saxophone-playing leader of the Count Basie Orchestra, who played in the band under Basie himself for many years.

Of the major bandleaders of the Big Band Era, only Les Brown still fronts his own band. "The band has lasted because I have," said Brown, whose orchestra does all of Bob Hope's TV specials and works about two nights a week, mostly in the Los Angeles area. Brown also recently began doing a nationally syndicated radio program, "The Big Bands of Renown with Les Brown."

Probably the most in-demand of today's big bands is the Glenn Miller Orchestra. The band, which was authorized by the Miller estate in 1956 and has been playing ever since, cut a new CD last December, its first recording since 1983. (Initially, the CD will

only be distributed in Japan and other Asian countries.)

Although U.S. audiences don't greet them with the wild excitement of fans in Japan, where the Miller band tours each spring, the Glenn Miller Orchestra does play to packed houses all over America.

"I think Glenn would be proud of this band," said leader Larry O'Brien, fifty-seven, who, like Miller, plays the trombone. "We're keeping the music alive with authenticity, with vigor, and with the spirit Glenn tried to instill in his people."

"The challenge is to give the music authenticity," said saxophone and clarinet player Andy Axelrad. "Sometimes people in the audience say, 'You're better than the original band,' and that makes you feel good."

Lack of a social life is the main complaint among the younger musicians, but one thing they never seem to tire of is the pursuit of musical excellence. Even though they perform for two to four hours nearly every day, most of the musicians also practice daily in their hotel rooms.

"You have to love playing to pick up that horn every day," said trumpeter Craig Stephens. "The band is your life. You have to live and breathe Glenn Miller while you're out here."

Although most of the current band members personally favor pure jazz over the more staid swing music of Glenn Miller, they are moved by their audiences' enthusiasm.

"That's what all that practicing was for all those years," said trumpeter Mike Kaupa, "to play for people who really enjoy it."

Glenn Miller has been dead for forty-six years, but audiences never seem to tire of his distinctive sound. "Glenn died," said leader O'Brien, "but the band didn't. The music has to go on."

band as being like a family. "It was great," Zarchy said. "I was on top of the world." Goodman, who could have resented Zarchy's leaving him, instead helped the trumpeter get a job with Bob Crosby's band after Shaw's group broke up.

Most musicians and singers from the Big Band Era have stories to tell of the cheapness of their leaders. One of Shaw's sidemen tells of getting \$10 an hour to work for about 6 hours on a movie (*The Dancing Co-Ed*) while Shaw himself was paid \$40,000. Zarchy's memories, however, are dominated by incidents of generosity. He fondly remembers rehearsals with the Tommy Dorsey band after New York evening performances.

"Tommy liked life, and he liked the band," Zarchy said. "He was generous and gregarious. We'd rehearse, and then he'd put the whole band into taxis and buy us dinner at an Italian restaurant he liked."

GLENN MILLER, by all accounts, wasn't as warm as Tommy Dorsey, but he was respected by his musicians, some of whom became close friends with him. Zarchy remembers introducing Miller to golf. "When I joined the band [in 1940], nobody played golf except me," Zarchy said. "Some of the guys took it up, and then Glenn did. He became such a fanatic, he would want to play in the pouring rain with caddies holding beach umbrellas over us."

Finding time to play golf or softball (the favorite pastime of the Harry James band) wasn't easy with the typical big-band schedule. John Best remembers only one four-day vacation during the three years he played with Glenn Miller. The band often did six or seven shows a day, plus rehearsals, recording sessions, and three radio broadcasts a week.

Even at that pace, alumni of the Big Band Era remember laughter, friendship, romance, and musical thrills more than they remember cold buses, homesickness, and demanding bandleaders.

Many remember 1940 as the last carefree year of the Big Band Era. As America became involved in World War II, so did bandleaders and musicians. Many bands broke up, some of them to re-form within the armed forces. Artie Shaw toured the Pacific with his Navy band. Ted Weems formed a Merchant Marine band. And Glenn Miller put together the unforgettable sixty-three-piece Army Air

Force band, which entertained servicemen in Europe and by radio.

In mid-December of 1944, the Miller band was preparing to leave for France, which had just been liberated by the Allies. Major Glenn Miller went a couple of days ahead of the band to make arrangements. When the band arrived in France they discovered that Miller had never gotten there. Despite an intensive search of the English Channel, his plane was never found, and he was declared dead a year later. Zeke Zarchy, who played in the Army Air Force band, recalls their reaction to Miller's disappearance.

"Nobody could believe it. These things don't happen to you, they happen to other people," Zarchy said. "It didn't sink in. Nobody ever said he was dead. We just expected him to come walking in any minute with that long stride of his."

The loss of Glenn Miller was a powerful blow to American morale at home and abroad, and it was one of the factors that brought the Big Band Era to an end. Although Miller's Army Air Force band continued under the capable leadership of Ray McKinley, something important was missing.

When the war was over, many bandleaders re-formed their bands, and most thought music would return to its pre-war norm. But John Best, who still plays trumpet professionally, recalls that the Big Band Era ended rather suddenly in the summer of 1946.

"I was on the road with Benny Goodman, and he was guaranteed \$3,000 a night," Best said. "Tommy Dorsey was getting \$4,000. Suddenly one night, the total take was just \$700." By December 1946, eight of the nation's top bandleaders had called it quits.

Band singers like Perry Como, who thought his career would end with the wartime break-up of the Ted Weems Band, found their careers were just beginning. Como, Sinatra, Helen Forrest, Peggy Lee, Doris Day, Jo Stafford, Ella Fitzgerald, Billie Holiday, Helen O'Connell—they all went on to be a part of the vocalists' era that followed the big bands.

Still, Forrest probably speaks for many when she says that her happiest memories are rooted in the Big Band Era. "We came alive when we came on the bandstand every night," she recalled. "There will never be another musical era like that in the history of the world. That was it." □

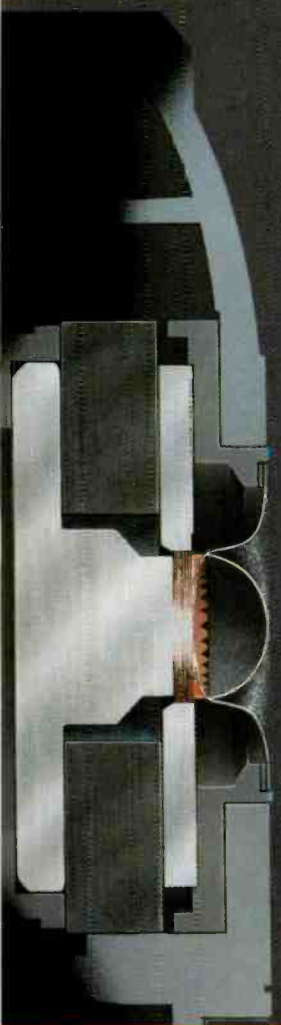
This article was produced with the cooperation of Memories magazine.



Bandleaders Glenn Miller (top) and Tommy Dorsey (middle, with Frank Sinatra) both played the trombone, while the Benny Goodman Band was built around the clarinet of its leader (bottom, during filming of Paramount's *The Big Broadcast of 1937*). Miller and Dorsey photos from the Frank Driggs Collection, Goodman photo courtesy Time-Life Books.



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ENERGY loudspeakers have become the personal favorites of discriminating audiophiles the world over. **O**ur Dual Hyperdome™ tweeter is the key reason why ENERGY recreates the original performance with uncompromised accuracy. **W**ith more than \$1 million in development, it exhibits better dispersion than any other tweeter on the market today. **T**hat's also why our new ENERGY 22-Series incorporates the revolutionary SPHEREX™ baffle. **I**ts smooth, sculpted surface angles gracefully out of the

way of direct radiated sound. **D**iffraction is eliminated for superior soundstage and positional imaging. **S**imply put, the ENERGY 22-Series defines a new standard in sonic precision. **T**ake a test drive today. **Y**our ears will thank you.

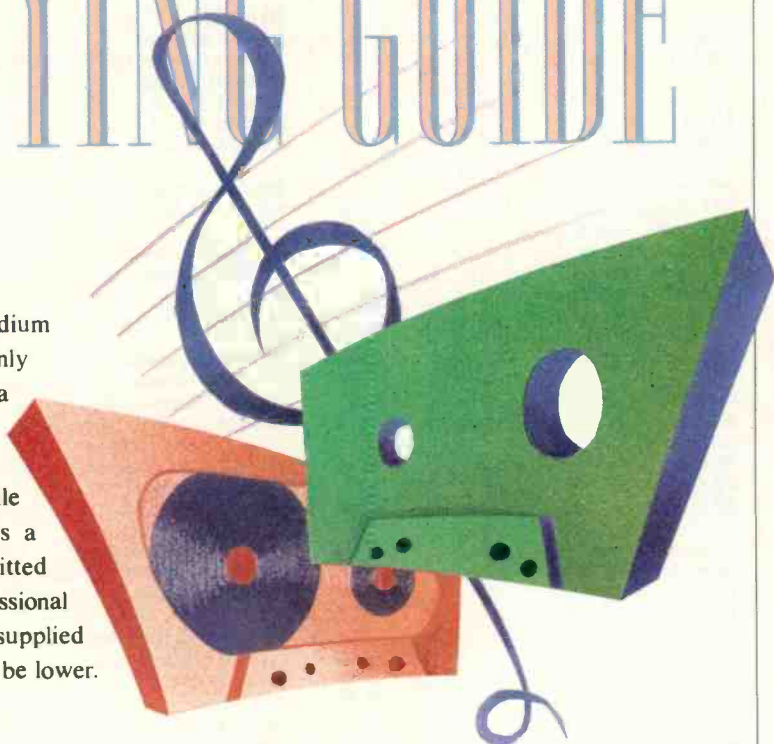
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TAPE BUYING GUIDE

ANALOG cassettes remain by far the most popular medium for prerecorded music, and the rise of CD's has only spurred the continuing improvement of tape as a medium for home recording. There's plenty to choose from in both blank tapes and tape recorders, including a variety of digital machines and tapes. While our buying guide is necessarily selective, it gives a representative picture of what's available. We've omitted open-reel equipment, as it is now essentially a professional format. Specifications, features, and list prices were supplied by the manufacturers, and actual selling prices may be lower.



BLANK TAPE

BASF

Digital Audio Tapes

Ultra-fine metallic pigment developed for helical-scan recording.

DAT C120. 120 min	\$11.99
DAT C90. 90 min	\$10.99
DAT C60. 60 min	\$9.99

Metal Maxima IV Cassettes

Metal-particle tape formulation.

C120. 120 min	\$6.49
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Chrome Maxima II Cassettes

High-density chrome tape formulation.

C90. 90 min	\$4.29
C60. 60 min	\$3.29

Chrome Extra II Cassettes

Pure-chrome tape formulation.

C100. 100 min	\$3.29
C90. 90 min	\$2.99
C60. 60 min	\$2.69

Ferro Maxima I Cassettes

Dual-layered and "micro-coated" tape formulation with proprietary megadium iron oxide. Provides MOL of almost 4 dB.

C90. 90 min	\$2.89
C60. 60 min	\$2.59

Ferro Super I Cassettes

Iron-oxide formulation with high-frequency sensitivity for extended response.

C90. 90 min	\$2.54
C60. 60 min	\$1.94

Ferro Extra I Cassettes

Iron-oxide formulation with extended S/N.

C100. 100 min	\$1.89
C90. 90 min	\$1.69
C60. 60 min	\$1.49

DENON

All Denon cassettes feature a lifetime warranty and head-cleaning leader.

Digital Audio Tapes

Ultrafine metallic-particle formula with special back-coating and precision mechanism.

R-120 DT. 120 min	\$12.99
R-90 DT. 90 min	\$10.99
R-60 DT. 60 min	\$8.99

HDM Metal Cassettes

Pure-metal formulation featuring residual magnetic flux density of over 3,500 gauss and coercivity of 1,200 oersted.

HDM-100. 100 min	\$5.99
HDM-90. 90 min	\$5.50
HDM-75. 75 min	\$4.99
HDM-60. 60 min	\$4.50

HD8 High-Bias Cassettes

High-density formulation combining metal particles with cobalt-doped ferric oxide to achieve residual flux density of 3,000 gauss, MOL of -4.5 dB at 10 kHz.

HD8-100. 100 min	\$4.99
HD8-90. 90 min	\$4.75
HD8-75. 75 min	\$4.25
HD8-60. 60 min	\$3.75

HD7 High-Bias Cassettes

Features extended high-frequency response and

low noise. Residual flux density 1,850 gauss, MOL -6.5 dB at 10 kHz.

HD7-100. 100 min	\$4.25
HD7-90. 90 min	\$4
HD7-75. 75 min	\$3.50
HD7-60. 60 min	\$3

HD6 High-Bias Cassettes

Extended high-frequency response. Residual flux density 1,700 gauss, MOL -5.7 dB at 10 kHz.

HD6-100. 100 min	\$3.50
HD6-90. 90 min	\$3.25
HD6-75. 75 min	\$2.75
HD6-60. 60 min	\$2.50

S-Port 100-Min Cassettes

Metal formulation with 20% thinner case and rounded corners and edges.

S-Port Metal. 2-pk	\$6.99
S-Port High. 2-pk	\$4.99

DX4 Ferric Normal-Bias Cassettes

Residual flux density 2,000 gauss, MOL -5.0 dB.

DX4-90. 90 min	\$4
DX4-60. 60 min	\$3

DX1 Ferric Normal-Bias Cassettes

Features -7.5 dB MOL at 10 kHz.

DX1-90. 90 min	\$2.25
DX1-60. 60 min	\$1.75

DIC

Digital Audio Tapes

Fabricated with densely packed, ultra fine-grained magnetic metal particles.

120XR. 120 min	\$12
90XR. 90 min	\$10
60XR. 60 min	\$9

BLANK TAPE

46XR. 46 min	\$8
30XR. 30 min	\$7
15XR. 15 min	\$6

FUJI

Digital Audio Tapes

Super-Fine Metallix ultrafine metal magnetic-particle formulation.

DAT (R-120). 120 min	\$12.95
DAT (R-90). 90 min	\$11.95
DAT (R-60). 60 min	\$10.95

FR Metal Series Cassettes

Metal tape with 70- μ sec EQ.

FR (C-90). 90 min	\$5.99
FR (C-60). 60 min	\$5.49

FR-II Pro Series Cassettes

High-bias tape featuring a temperature-resistant cassette shell.

FR-II Pro (C-100). 100 min	\$5.49
FR-II Pro (C-90). 90 min	\$4.99
FR-II Pro (C-60). 60 min	\$4.49

FR-IIx Series Cassettes

High-bias tape with 70- μ sec EQ.

FR-IIx (C-90). 90 min	\$3.99
FR-IIx (C-60). 60 min	\$3.49

DR-II Series Cassettes

High-bias tape with 70- μ sec EQ.

DR-II (C-100). 100 min	\$3.49
DR-II (C-90). 90 min	\$2.99
DR-II (C-60). 60 min	\$2.49

DR-I Series Cassettes

Normal-bias tape with 120- μ sec EQ.

DR-I (C-90). 90 min	\$1.99
DR-I (C-60). 60 min	\$1.49

JVC

Digital Audio Tapes

R-120. 120-min	\$14
R-100. 100-min	\$12.80
R-90. 90-min	\$12
R-60. 60-min	\$10

Metal Cassettes

XF1V90. 90-min; EQ 70- μ s	\$3.90
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High-Bias Cassettes

AF1190. 90-min; EQ 70- μ s	\$2.50
AF1160. 60-min	\$2.20

GI Normal-Bias Cassettes

G190. 90 min	\$1.55
G160. 60 min	\$1.30

LORAN

Pro-DAT Cassettes

Pro-DAT. 120-min	\$10.50
Pro-DAT. 60-min	\$7.50
Pro-DAT. 30-min	\$6

ESQ Series

High bias; polycarbonate shell.

ESQ-90. 90 min	\$4.99
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High-Bias Series

High bias; polycarbonate shell; cobalt-doped magnetic formulation.

HB-90. 90 min	\$3.99
HB-60. 60 min	\$3.49
HB-46. 46 min	\$2.99

MAXELL

Digital Audio Tapes

Features Ceramic-Armor metal particles.

R-120DM. 120 min	\$14.99
R-90DM. 90 min	\$12.99
R-60DM. 60 min	\$10.99
R-46DM. 46 min	\$8.99

Metal Vertex Cassette

MV-90. 90 min	\$14.99
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MX Metal Cassettes

MX-100. 100 min	\$5.99
MX-90. 90 min	\$5.29
MX-60. 60 min	\$4.39

MX-S Metal Cassettes

MX-S 100. 100 min	\$5.99
MX-S 90. 90 min	\$5.29
MX-S 60. 60 min	\$4.39

XLII-S Epitaxial Cassettes

High bias, 70- μ sec EQ

60 min-100 min	\$3.59-\$4.99
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XL-II Epitaxial Cassettes

Chrome type; high bias, 70- μ sec EQ.

46 min-90 min	\$3.29-\$4.39
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UD-II Epitaxial Cassettes

High bias, 70- μ sec EQ.

46 min-90 min	\$2.49-\$3.29
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XLI-S Epitaxial Cassettes

Normal bias, 120- μ sec EQ.

60 min-90 min	\$3.59-\$4.39
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UD-I Epitaxial Cassettes

Normal bias, 120- μ sec EQ.

46 min-90 min	\$2.49-\$3.29
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UR Cassettes

Normal bias, 120- μ sec EQ.

60 min-120 min	\$1.49-\$2.79
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MEMOREX BY MEMTEK

CDX II High-Bias Cassettes

Metal tape for use with 70- μ sec setting.

C-90	\$4.79
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HBX II High-Bias Cassettes

Ferric/cobalt tape for use with 70- μ sec setting.

60 min-90 min	\$2.79-\$3.69
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HBS II High-Bias Cassettes

HBS II. C-100	\$2.59
HBS II. C-90	\$2.29
HBS II. C-76	\$1.99
HBS II. C-60	\$1.79
HBS II. C-46	\$1.59

MRX I Normal-Bias Cassettes

Full lifetime warranty; clear shell.

C-90	\$2.29
C-60	\$1.79

Normal-Bias Cassettes

Normal-bias tapes for general-purpose recording.

Features clear shell.

C-120	\$1.99
C-90	\$1.49
C-60	\$1.19
C-46	\$1.10

NAKAMICHI

ZX Reference Cassettes

Metalloy (metal-particle) formulation; features ultra-high coercivity and retentivity; 70- μ sec EQ.

ZX-C90. 90 min	\$10
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SX II Reference Cassettes

Double-coated ionized cobalt and ferric-oxide formulation; 70- μ s bias and EQ.

SXII-C90. 90 min	\$8.90
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SX Reference Cassettes

Single-coated ionized cobalt and ferric-oxide formulation; 70- μ s bias and EQ.

SX-C90. 90 min	\$6.50
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EX II Reference Cassettes

Single-coated ferric/cobalt formulation; 120- μ s bias and EQ.

EXII-C90. 90 min	\$6
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Digital Audio Tapes

R-120. 120 min	\$22.50
R-90. 90 min	\$19.50
R-60. 60 min	\$16.50
R-46. 46 min	\$14.50

REALISTIC BY RADIO SHACK

Cassette prices may vary according to quantity purchased, with lower prices for larger quantities.

MIV Metal Cassettes

Fine-grain metal particles; five-screw housing; hinged storage box.

60 min-90 min	\$4.99-\$5.99
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MII Metal High-Bias Cassettes

Metal tape for recording and playback with Type II bias and EQ; head-cleaning leader.

MII-100. 100 min	\$4.99
MII-90. 90 min	\$4.79
MII-76. 76 min	\$4.49
MII-60. 60 min	\$3.99

HD High-Definition Chrome-Equivalent Cassettes

High-bias tape with head-cleaning leader; hinged storage box; index card.

HD-100. 100 min	\$3.69
HD-90. 90 min	\$2.99
HD-76. 76 min	\$2.79
HD-60. 60 min	\$2.49
HD-46. 46 min	\$2.39

BLANK TAPE

LN Low-Noise Standard Ferric Cassettes

Hinged storage box with index card.

LN-120. 120 min. 2-pk	\$3.49
LN-90. 90 min. 2-pk	\$2.39
LN-60. 60 min. 2-pk	\$1.99
LN-30. 30 min. 2-pk	\$1.69

XR Type I Premium Ferric Cassettes

Hinged storage box with index card.

XR-120. 120 min	\$2.79
XR-90. 90 min	\$1.99
XR-60. 60 min	\$1.49
XR-46. 46 min	\$1.39

SCOTCH BY 3M

Scotch XSSM IV. Metal. 90 min	\$6
Scotch XS II. High bias. 90 min	\$4.20
Scotch CX. Normal bias. 90 min	\$3
Scotch BX. Normal bias. 90 min	\$2

SONY

Metal-Tape Cassettes

70- μ sec EQ

Metal Master-90. 90 min	\$11.99
ES-90. 90 min	\$9.99
SR-60. 60 min	\$3.49
SR-90. 90 min	\$3.99
SR-100. 100 min	\$4.49

UX Series Cassettes

High bias, 70- μ sec EQ.

UX-Pro (C-90). 90 min	\$7.99
UX-Pro (C-60). 60 min	\$5.99
UX-ES (C-90). 90 min	\$5.49
UX-ES (C-60). 60 min	\$3.99
UX-S (C-100). 100 min	\$4.59
UX-S (C-90). 90 min	\$3.99
UX (C-90). 90 min	\$3.29
UX-S (C-60). 60 min	\$2.99
UX (C-60). 60 min	\$2.49

HF-S Series Cassettes

Normal bias, 120- μ sec EQ.

HF-S 90. 90 min	\$2.69
HF-S 60. 60 min	\$1.99

HF Series Cassettes

Normal bias, 120- μ sec EQ.

HF 120. 120 min	\$2.99
HF 90. 90 min	\$2.29
HF 60. 60 min	\$1.79
HF 46. 46 min	\$1.49

DT Series Digital Audio Tapes

DT-90R. 90 min	\$15.20
DT-60R. 60 min	\$12.60
DT-120R. 120 min	\$18

TDK

MA-XG Metal-Alloy Cassettes

Metal bias; 70- μ sec EQ; dual-layer metal Finavinx particles; RS-III 5-piece mechanism to eliminate modulation noise.

MA-XG 90. 90 min	\$15
MA-XG 60. 60 min	\$18

MA-X Metal-Alloy Cassettes

Metal bias; 70- μ sec EQ; ultrafine Finavinx metal magnetic particles; dual-layer, antiresonance mechanism.

MA-X 90. 90 min	\$5
MA-X 60. 60 min	\$4.25
MA-X 46. 46 min	\$4.25

MA Metal-Alloy Cassettes

Metal bias; 70- μ sec EQ; Finavinx metal particles; dual-layer, antiresonance mechanism.

MA-110. 110 min	\$5.25
MA-90. 90 min	\$5
MA-60. 60 min	\$3.50

SA-X High-Bias Cassettes

Dual-coated Super-Avilyn formulation; dual-layer antiresonance mechanism.

SA-X 100. 100 min	\$4.50
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(Photos not to scale)

SA-X 90. 90 min	\$3.50
SA-X 60. 60 min	\$3
SA-X 46. 46 min	\$3

SA High-Bias Cassettes

Super Avilyn magnetic particles; dual-layer, antiresonance cassette shell.

SA 100. 100 min	\$4
SA 90. 90 min	\$3
SA 80. 80 min	\$2.75
SA 60. 60 min	\$2.50
SA 46. 46 min	\$2.50

SD High-Bias Cassettes

Avilyn magnetic particles; H-type multiface shell to reduce resonance.

SD 100. 100 min	\$3.00
SD 90. 90 min	\$2.50
SD 60. 60 min	\$2.25
SD 46. 46 min	\$2.25

AR-X Normal-Bias Cassettes

Dual-coated Avilyn formulation; two-layer, antiresonance cassette shell to reduce vibration.

AR-X 90. 90 min	\$3
AR-X 60. 60 min	\$2.50

AR Normal-Bias Cassettes

AR-100. 100 min	\$3.50
AR-90. 90 min	\$2.75
AR-60. 60 min	\$2.50

AD Normal-Bias Cassettes

AD-90. 90 min	\$2.50
AD-60. 60 min	\$2.25

D Normal-Bias Cassettes

D-120. 120 min	\$2.50
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D-90. 90 min	\$2
D-60. 60 min	\$1.75
D-46. 46 min	\$1.60
D-30. 30 min	\$1.50

DA Digital Audio Tape

Super Finavinx pure-metal particle formulation.

DA-R120. 120 min	\$14
DA-R90. 90 min	\$12
DA-R60. 60 min	\$10

THAT'S AMERICA

Suono Metal Series Cassettes

Metal-coated shell contains rubber and metal to absorb modulation and vibrations.

Suono 90. 90 min	\$13.10
Suono 74. 74 min	\$11.49
Suono 60. 60 min	\$9.44
Suono 46. 46 min	\$8.10

CD-IV Metal Cassettes

Metal-coated shell contains rubber and metal to absorb modulation and vibrations.

CD-IV 100. 100 min	\$7.35
CD-IV 90. 90 min	\$5.99
CD-IV 74. 74 min	\$5.79

CD-MH High-Bias Cassettes

Made of pure metal; AVR shell dampens any vibration or excess noise.

CD-MH 100. 100 min	\$5.79
CD-MH 90. 90 min	\$5.31
CD-MH 74. 74 min	\$4.75

AS-IV Metal Cassettes

AS-IV 100. 100 min	\$5.37
AS-IV 90. 90 min	\$4.93
AS-IV 60. 60 min	\$4.38

CD-II High-Bias Cassettes

CD-II 100. 100 min	\$5.10
CD-II 90. 90 min	\$4.51
CD-II 74. 74 min	\$4.13

CD Normal-Bias Series Cassettes

CD 100. 100 min	\$3.95
CD 90. 90 min	\$2.83
CD 74. 74 min	\$2.91

AS-II High-Bias Series Cassettes

AS-II 100. 100 min	\$3.57
AS-II 90. 90 min	\$3.15
AS-II 60. 60 min	\$2.91

3M BLACK WATCH

Digital Audio Tapes

Series 7707. Proprietary pure-metal-particle magnetic formulation.

DT-120. 120 min	\$20
DT-100. 100 min	\$17
DT-50. 50 min	\$15

Analog Cassettes

Series 4040. Type IV tape uses an oxide-free extended range pure-metal-particulate magnetic formulation.

100 min	\$9
74 min	\$7

Series 2020. Type II, high-bias tape uses a metal-particulate suspension formulation that combines pure metal particles with cobalt-modified ferric oxide.

100 min	\$6
74 min	\$4

TAPE RECORDERS

ACOUSTIC RESEARCH

RD-06 Cassette Deck

Features Dolby B, C, and HX-Pro. Brushless direct-drive DC servo motor; rec/play sendust-core head; ferrite-core erase head. Bias-adjustment function; rec balance function; optional remote control. S/N Dolby B 64 dB. Dolby C 73 dB, no Dolby 55 dB; W&F 0.2% DIN; FR 30-20,000 Hz. ± 3 dB (metal tape). 17 x 4 $\frac{3}{4}$ x 13 in; 12.38 lb \$500

AIWA

AD-F1000 3-Head Cassette Deck

Dolby B, C, and dbx NR. Features Dolby HX Pro; MPX filter; double-gap sendust erase head and record/playback Super DX heads with PC-OCC coils; bias shield head block; tape-stabilizing mechanism; dual-capstan configuration. Manual bias and recording sensitivity; electronic tape counter; headphone jack with adjustable level. FR 20-18,000 Hz ± 3 dB (normal), 20-19,000 Hz ± 3 dB (chrome), 20-20,000 Hz ± 3 dB (metal); S/N 95 dB (dbx, metal), 80 dB (Dolby C, metal, above 5,000 Hz); W&F 0.025% wrms. 17 x 5 $\frac{1}{4}$ x 16 $\frac{1}{2}$ in; 17.8 lb \$880

AD-WX999 Double Cassette Deck

Autoreverse deck featuring Dolby B, C NR. Dolby HX Pro; amorphous heads with PC-OCC coils; tape-stabilizing mechanism. Fine bias control; IC-logic feather-touch controls; high-speed dubbing; continuous playback; recording/playback timer standby; electronic tape counter; headphone jack. Includes wireless remote control. FR 20-14,000 Hz ± 3 dB (normal), 20-15,000 Hz ± 3 dB (chrome), 20-16,000 Hz ± 3 dB (metal); S/N 65 dB (Dolby B, metal), 78 dB (Dolby C, metal, above 5,000 Hz); wow and flutter 0.055% wrms. 17 x 5 $\frac{1}{2}$ x 12 $\frac{1}{2}$ in; 11.9 lb \$600

AD-F800 3-Head Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; auto tape selector; auto rec-mute; bias shield head block; tape-stabilizing mechanism; dual-capstan configuration; double-gap sendust erase head and record/playback Super DX head with PC-OCC coils; MPX filter. IC-logic feather-touch controls; memory rewind and repeat; independent L&R FL peak-level meters; recording/playback timer standby; manual bias and recording sensitivity; headphone jack with level control; direct-in CD/DAT inputs. FR 20-17,000 Hz ± 3 dB (normal), 20-18,000 Hz ± 3 dB (chrome), 20-19,000 Hz ± 3 dB (metal); S/N 68 dB (Dolby B, metal), 80 dB (Dolby C, metal, above 5,000 Hz); W&F 0.035% wrms. 17 x 5 $\frac{1}{2}$ x 12 $\frac{1}{2}$ in; 11.2 lb \$450

AD-R707 Cassette Deck

Autoreverse deck featuring Dolby B, C NR. Dolby HX Pro; tape-stabilizing mechanism; auto-rec mute; auto tape-type selector. IC-logic feather-touch controls; electronic tape counter; FL peak-hold level meter; fine bias control; music sensor; blank skip; rec/play timer standby; headphone jack. Includes wireless remote control. FR 20-16,000 Hz ± 3 dB (normal), 20-17,000 Hz ± 3 dB (chrome), 20-18,000 Hz ± 3 dB (metal); S/N 78 dB (Dolby C, metal, above 5,000 Hz); W&F 0.065% wrms. 17 x 5 $\frac{1}{4}$ x 10 $\frac{1}{2}$ in; 8.8 lb \$275

BANG & OLUFSEN

Beocord 6500 Cassette Deck

Autoreverse deck with auto Dolby B, C NR. Features sendust head; Dolby HX Pro; auto search; auto record level. FR 30-18,000 Hz ± 3 dB (chrome); W&F <0.09% wrms; speed deviation <



$\pm 1.5\%$; ff/rew 75 sec; S/N Dolby B >64 dB, Dolby C >73 dB (metal); Dolby B >65 dB, Dolby C >74 dB (chrome); Dolby B >63 dB (normal); ch sep >35 dB \$1,140

Beocord 4500 Cassette Deck

Integrates with Beosystem 4500 for full remote control. Features Dolby B and HX Pro; autoreverse; auto-bias control. Sensi-touch capacitive sensitive controls; auto search. FR 30-18,000 Hz. ± 3 dB (chrome); W&F <0.09% wrms; S/N (metal) Dolby B 66 dB \$800

DENON

DRW-850 Double Cassette Deck

Twin recording mode makes two simultaneous copies of external source program. Dual deck autoreverse. Dolby B, C NR; Dolby HX Pro; high-speed dubbing; dual power supply. Remote has separate buttons for each deck; auto tape selector; music-search system; rec balance control; bias fine adjust; peak-reading level meters; auto space; system remote-control capability; output-level control; headphone jack. FR 20-19,000 Hz ± 3 dB with metal tape; W&F 0.06%; S/N >74 dB (Dolby C) \$500

DRM-800A Cassette Deck

Dolby B, C NR. Features Dolby HX Pro dual capstan; amorphous alloy SF combination; dual power supply. CD-direct switch; auto tape selector; music-search system; rec balance control; bias fine adjust; peak-hold; rec return mode; auto space; linear real-time counter; system remote control capability; output-level control; headphone jack. FR 20-20,000 Hz ± 3 dB with metal tape; W&F 0.038%; S/N >76 dB (Dolby C) \$475

DRW-750A Double Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; SF hyperbolic heads; 2x high-speed dubbing; double nonslip reel drive; dual power supply. Single set of controls operates both decks through deck-selector switch; auto tape selector; music-search system; rec balance control; fine bias adjust; peak-reading level meters; auto space; output-level control; headphone jack. FR 20-19,000 Hz ± 3 dB with metal tape; W&F 0.055%; S/N >74 dB (Dolby C) \$400

DRR-680 Cassette Deck

Autoreverse, Dolby B, C NR. Features Dolby HX Pro; amorphous alloy combination head; dual power supply. Full auto stop; rec balance control; fine bias adjustment; peak-reading FL level meters; auto space; output-level control; headphone jack. Includes Denon Integral System remote control. FR 20-19,000 Hz ± 3 dB with metal tape; W&F 0.06%; S/N >74 dB (Dolby C) \$350

DTR-2000 DAT Recorder

8x oversampling, 20-bit digital filter and 20-bit LAMBDA D/A converter system. Sigma-Delta type A/D converters. Helical-scan head assembly with amorphous alloy heads. Optical and digital inputs; fade-in and fade-out; ID-code editing with $\frac{1}{2}$ -speed fine-cueing; high-speed search; display of time and level information; peak-hold metering system. FR 2-22,000 Hz ± 0.5 dB; S/N 92 dB; dynamic range 90 dB \$1,000

FISHER

CR-W905B 3-Head Double Cassette Deck

Double autoreverse with Dolby B, C NR. Features switchable MPX filter. Full-logic controls; metal-tape capability; high-speed 1-touch dubbing; sequential playback; introscan; blank skip; digital tape counter. Includes remote control. W&F 0.06% wrms; S/N 62 dB Dolby B; FR 40-15,000 Hz ± 3 dB CrO₂ \$350

GRUNDIG

CCT-903 Double Cassette Deck

Autoreverse deck featuring Dolby B, C, 3 motors for each deck; switchable MPX filter; automatic switching between tape types; electronic switch-over between recording and playback. High-speed dubbing; adjustable line output; headphone output. S/N, Cr: 73 dB with Dolby C, 67 dB with Dolby B, 58 dB without Dolby; W&F < $\pm 0.09\%$; FR 30-18,000 Hz \$899



Aiwa AD-F1000

HARMAN KARDON

All decks have an MPX filter and Dolby B and C NR; FR spec for all types of tape unless otherwise specified.

TD4800 3-Head Cassette Deck

Dolby S NR. Features closed-loop, dual-capstan transport; HX Pro; isotropic heads; bias tone-generator. Record-calibration and output-level controls; headphone jack; auto tape selector; 2-key music search; introscan; record mute; remote. FR 20-22,000 Hz ± 3 dB \$1,299
TD4600. 2-head version of above with solenoid transport. FR 20-21,000 Hz ± 3 dB \$799
TD4500. As TD4600, no Dolby S NR \$549

TD4400 2-Head Cassette Deck

Features 2-head solenoid transport; HX Pro; isotropic heads. Bias fine-trim control; record mute; auto tape selector; 2-key music search; introscan. FR 20-20,000 Hz ± 3 dB \$419

JVC

TDV1010TN 3-Head Cassette Deck

Dolby B, C noise reduction. Features Dolby HX Pro; closed-loop dual capstan with direct-drive motor; full-logic transport; 210,000 Hz high-bias circuit; MPX filter; half-shell stabilizer. Bias control and record-level calibration; auto tape selector; FL digital peak-metering; music scan; auto rec mute \$700

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TAPE RECORDERS

TDW901BK Double Cassette Deck

Dolby B, C NR. Dolby HX Pro; quick autoreverse double cassette deck with full-logic transports. Features high-speed editing with synchro-dubbing; auto tape selector; FL peak meter; music scan; multifunction remote; timer start . . . \$500

TDR531BK 3-Head Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; MPX filter; full-logic mechanism; direct CD input; closed-loop dual capstan drive; FL digital peak; auto rec mute; music scan; timer start; auto tape selector; headphone jack . . . \$380

XD-Z1010TN DAT Recorder

Features 1-bit A/D and D/A converters with variable noise shaping, four parallel 18-bit 8-times-oversampling D/A converters, K2 digital interface, analog and digital filters, optical and coaxial digital inputs and outputs, microphone input, headphone output with volume control. Operating features include digital fader, intro scan, headroom indicator, Serial Copy Management System. Includes remote control. FR 2-22,000 Hz, dynamic range 93 dB. 17¼ x 5¾ x 14¼ in; 24½ lb . . . \$1,700

XD-Z505BK DAT Recorder

Features 1-bit A/D and D/A converters with variable noise shaping, analog and 8-times-oversampling digital filters, optical and coaxial digital inputs and outputs, headphone jack with volume control. Operating features include headroom indicator, absolute time counter, Serial Copy Management System. Includes remote control. FR 2-22,000 Hz, dynamic range 91 dB, S/N 91 dB. 17¼ x 5¾ x 13¼ in; 15½ lb . . . \$1,000

KENWOOD

KX-W4520 3-Head Cassette Deck

Autoreverse. Dolby B, C NR. Features Dolby HX Pro; hard-permalloy rec/play head; double-gap ferrite erase head. Peak-level meter; auto bias-adjustment; 16-program search; MPX filter; index scan; blank search; remote control. FR 20-17,000 Hz \pm 3 dB (normal tape), 20-18,000 Hz \pm 3 dB (high-bias tape), 20-19,000 Hz \pm 3 dB (metal tape); S/N (metal tape): no NR 58 dB, Dolby B 66 dB, Dolby C 73 dB; THD < 0.8% at 1,000 Hz (normal tape); W&F 0.08% wrms. 17¼ x 5 x 12¼ in; 11.7 lb . . . \$470

KX-W8020 2-Head Double Cassette Deck

Autoreverse, Dolby B, C NR. Features HX Pro; hard-permalloy rec/play head; double-gap ferrite erase head; full-logic controls; 2 motors; 2-head tape drives. Bidirectional rec/playback in both wells; peak-level meter; auto bias-adjustment (deck B); high-speed dubbing; 16-program search; index scan (deck A); blank skip; auto rec-mute. FR 30-14,000 Hz \pm 3 dB (normal tape), 30-15,000 Hz \pm 3 dB (high-bias and metal tape); S/N (normal tape): no noise reduction 57 dB, Dolby B 65 dB, Dolby C 72 dB; THD < 0.6% at 1,000 Hz (normal tape); W&F 0.08% wrms. 17¼ x 5 x 10½ in; 11 lb . . . \$399

KX-W2520 Cassette Deck

Autoreverse, Dolby B, C NR. Features HX Pro;



Mitsubishi M-T5010

hard-permalloy rec/play head; double-gap ferrite erase head. Peak-level meter; 16-program search; index scan; blank search. FR 30-14,000 Hz \pm 3 dB (normal tape), 30-15,000 Hz \pm 3 dB (high-bias tape), 30-15,000 Hz \pm 3 dB (metal tape); S/N (metal tape): no NR 57 dB, Dolby B 65 dB, Dolby C 72 dB; THD < 0.6% at 1,000 Hz (normal tape); W&F 0.08% wrms. 17¼ x 5 x 10½ in . . . \$249

LUXMAN

K-112 3-Head Cassette Deck

Dolby B, C NR. Features Dolby HX Pro. Features Hexalam 3-head assembly; 2-motor, single-capstan transport; logic controls; Duo-Beta dual feedback-loop amp circuitry. Tape monitoring; auto space; 4-digit electronic tape counter with memory; output/rec-level, fine-bias, rec balance controls; system remote control jacks. FR 20-21,000 Hz \pm 3 dB (metal tape), 20-20,000 Hz \pm 3 dB (high-bias tape), 20-19,000 Hz \pm 3 dB (normal-bias tape); S/N (high-bias tape): no NR 55 dB, Dolby B 64 dB, Dolby C 72 dB; W&F 0.05% wrms. 17¼ x 4¼ x 12½ in; 9.5 lb . . . \$600

K-111 2-Head Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; Hexalam 2-head assembly with motor-driven cam; 2-motor, single-capstan transport; logic-controls; Duo-Beta dual feedback-loop amp circuitry. Rec-level control; L/R mic and system remote control jacks. FR 30-18,000 Hz \pm 3 dB (metal tape), 30-17,000 Hz \pm 3 dB (high-bias tape), 30-16,000 Hz \pm 3 dB (normal-bias tape); S/N (high-bias tape): no NR 55 dB, Dolby B 63 dB, Dolby C 70 dB; W&F 0.06% wrms. 17¼ x 4¼ x 10½ in; 7.7 lb . . . \$380

MARANTZ

DL 3507 Cassette Deck

Dolby B, C, and HX Pro. Features two sets of permalloy recording heads; ferrite erase heads; dual constant-current drive amplifier; 20-track bidirectional automatic music search; auto biasing; synchro-record capable with CD player. Frequency response 20-20,000 Hz; W&F 0.06%; signal-to-noise ratio 74 dB . . . \$400

MITSUBISHI

M-T5010 Double Cassette Deck

Autoreverse, Dolby B, C NR. Features Dolby HX Pro; on-screen programming and displays; high-speed synchronous dubbing; full-logic controls; continuous playback of 2 cassettes. Music search; repeat; blank skip; auto mute; auto bias calibration; remote control; video output . . . \$700

NAD

Model 6300 Monitor Series Cassette Deck

3-head, 3-motor cassette deck with Dolby B and C NR. Features full logic transport; Dolby HX Pro; Dyneq range expansion; car processor to boost level of soft passages 20 dB. NAD/Dolby-developed Play Trim which optimizes high-frequency playback characteristics; fine bias tuning. Speed accuracy \pm 1%; wow-and-flutter 0.03% wrms; frequency response 30-19,000 \pm 3 dB. Includes wireless remote control. Rack mountable . . . \$899

Model 6100 Monitor Series Cassette Deck

Features Dolby B and Dolby C NR; Dolby HX Pro; Dyneq range expansion; full-logic transport; car circuitry as in Model 6300. NAD/Dolby-developed Play Trim which optimizes high-frequency playback characteristics; fine bias adjust-

ment. Includes remote control. Rack mountable . . . \$499

Model 6340 Cassette Deck

Features Dolby B and Dolby C NR; Dolby HX Pro; Dyneq range expansion; full logic transport; car circuitry as in Model 6300. Fine bias adjustment . . . \$399

Model 6325 Cassette Deck

Features Dolby B and Dolby C NR; full logic transport; car processor as in Model 6300. Compatible with metal tape . . . \$249



Nakamichi Cassette Deck I

NAKAMICHI

Dragon 3-Head Cassette Deck

Microprocessor-controlled, autoreverse deck with Dolby B, C NR. Features auto azimuth correction system; dual-gap ferrite/sendust erase head; asymmetrical diffused-resonance transport; Super Linear Torque direct-drive motors; auto-retracting slot guides; tape-pad lifter; auto tape-slack reducing mechanism. Rec-level and bias-calibration controls with 2-tone oscillator; separate tape and EQ switches; direct-coupled recording and playback amplifiers; 2-speed cueing; 2-speed master fader; auto rec pause; left, right, master input-levels control; output-level control; rec mute; high-output headphone jack; defeatable infrasonic filter; 4-digit LED electronic counter with memory stop and repeat; optional remote control via RM-20. W&F 0.019% wrms; FR 20-22,000 Hz \pm 3 dB with ZX tape; S/N Dolby B/C 66/72 dB (A-wtd, ZX tape at 400 Hz, 0 dB); sep/crosstalk 37/60 dB at 1,000 Hz, 0 dB; input sens/imp 50 mV/50 kilohms line; output level/imp 1 V/2.2 kilohms line, 45 mW/8 ohm headphones; 17¼ x 5½ x 11¼ in; 21 lb . . . \$2,295
RM-20. Remote control unit for above . . . \$50

CR 7A 3-Head Cassette Deck

Asymmetrical diffused-resonance dual-capstan transport, Dolby B, C NR. Features 3 motors; auto bias/EQ; manual azimuth adjust; elapsed-time counter; remaining-time counter. Output-level control; memory stop/play; LED meters; soft-touch controls; headphone jack; rec mute; wireless remote; auto and manual tape/equalizer selection; auto fade; auto repeat. W&F 0.027% wrms; FR, ferric 18-21,000 Hz, \pm 3 dB; S/N (A-wtd), metal 66 dB, Dolby B 72 dB; line-input sens for 0-dB reading 50 mV; line-output level with 0-dB indication 1.000 mV. 17¼ x 5½ x 12 in; 19 lb, 13 oz . . . \$1,695

CassetteDeck I Cassette Deck

Dolby B, C NR. Defeatable MPX filter. Azimuth fine-tuning control; asymmetrical dual-capstan diffused-resonance transport; DC servo capstan motor; silent mechanism; pressure-pad lifter; auto slack-tape takeup; integrated construction of head and playback amp; multiregulated power supply. Bidirectional auto-search; bias fine-tune control; auto repeat; timer rec/play; record mute; output-level control; tape selector with interlocked EQ selection; system remote compatibility; 4-digital tape counter; gold-plated input/out-

TAPE RECORDERS

put jacks. FR 20-20,000 Hz \pm 3 dB; S/N (A-wtd, metal tape) Dolby C 72 dB, Dolby B 66 dB; W&F <0.035%; THD <0.9%. 17 x 4 x 12 $\frac{1}{2}$ in; 12 $\frac{1}{2}$ lb \$799

CassetteDeck2 Cassette Deck

Dolby B, C NR. Defeatable MPX filter. DC servo capstan motor; silent mechanism; pressure-pad lifter; auto slack-tape take-up; multiregulated power supply. Bidirectional auto-search; bias fine-tune control; auto repeat; timer rec/play; record mute; system remote compatibility; 4-digit tape counter. FR 20-20,000 Hz \pm 3 dB; S/N (A-wtd, metal tape) Dolby C 70 dB, Dolby B 64 dB; W&F <0.06%; THD <1.0%. 17 x 4 x 12 $\frac{1}{2}$ in; 11 $\frac{1}{2}$ lb \$349

ONKYO

TA-2800 3-Head Cassette Deck

Computer-controlled deck with Dolby B, C NR. Features 3 heads; Dolby HX Pro headroom extension; 3 motors; dual capstans; auto bias; record calibration. Real-time counter; switchable MPX filter; RI remote compatible. FR 20-21,000 Hz (metal tape); S/N 58 dB (metal, no NR); W&F 0.035% wrms. 17 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 14 $\frac{1}{2}$ in; 14 lb ... \$650

TA-RW490 Double Cassette Deck

Dolby B, C NR. Features rec/playback, music search, and autoreverse in both wells; Dolby HX Pro headroom extension. High-speed and real-time dubbing; continuous recording; 2 real-time tape counters; headphone jack; mike input; remote control \$630

Integra TA-2700 3-Head Cassette Deck

Closed-loop dual-capstan design with Dolby B and C NR. Features HX Pro; 3 motors; 3-head



Onkyo Integra TA-2700

configuration; isolated transformer; silent-tape transport with microcomputer control; low impedance linear-switching power supply; discrete low impedance; low-noise regulators for improved sound, transport, display, and signal-path-independent power supplies; high-resolution fluorescent peak-hold level indicators; forward Automatic Music Control System (AMCS); repeat function; RI remote compatible \$530

TA-2600 3-Head Cassette Deck

Computer-controlled cassette deck with Dolby B, C NR. Features auto bias; HX Pro. Real-time counter; switchable MPX filter; forward AMCS (Automatic Music Control System); RI remote compatible. FR 20-20,000 Hz (metal tape); S/N 58 dB (metal tape, no Dolby); W&F 0.045% wrms. 17 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 14 $\frac{1}{2}$ in; 13 lb \$480

TA-R300 2-Head Cassette Deck

Computer-controlled autoreverse deck with Dolby B, C NR. Features auto bias/tape selector; HX Pro. Electronic tape counter; switchable MPX filter; FL display; auto space; rec mute; dual mode (block/full) repeat; forward AMCS (Automatic Music Control System); RI remote control included. FR 30-18,000 Hz \pm 3 dB (metal tape), 30-17,000 Hz \pm 3 dB (high-bias tape), 30-16,000

\pm 3 dB (normal-bias tape); S/N 58 dB (metal tape, no Dolby); W&F 0.07% wrms. 17 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 10 $\frac{1}{4}$ in; 10 lb \$360

TA-2200 2-Head Cassette Deck

Computer-controlled deck with Dolby B, C noise reduction and HX Pro. Features 2 heads; 2 motors; full-logic transport; auto bias/tape selector. Electronic tape counter; fluorescent display; switchable multiplex filter; forward AMCS (Automatic Music Control System); auto space; rec mute; dual mode (block/full) repeat; RI remote compatible. FR 30-18,000 Hz \pm 3 dB (metal tape), 30-17,000 Hz \pm 3 dB (high-bias tape), 30-16,000 \pm 3 dB (normal-bias tape); S/N 58 dB (metal tape, no Dolby); W&F 0.07% wrms. 17 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 10 $\frac{1}{4}$ in; 10 lb \$330

DT-9000 DAT Recorder

Features 1-bit A/D and D/A converters with 3rd-order noise shaping and discrete two-stage digital filters: high-performance amorphous heads; Silent Shaft Bearing head cylinder for low mechanical noise; built-in head-cleaning indicator; optical and coaxial digital inputs and outputs; headphone jack with volume control. Operating features include variable-speed fast wind, digital fader, intro scan, Serial Copy Management System. RI-compatible remote control included. FR 2-22,000 Hz; S/N > 90 dB, dynamic range > 90 dB. 17 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 13 $\frac{1}{2}$ in; 12 $\frac{1}{2}$ lb \$1,100

OPTIMUS BY RADIO SHACK

SCT-89 Double Cassette Deck

Autoreverse deck featuring Dolby B and C NR. Features Dolby HX Pro; autotape selector; high-speed dubbing. Repeat sequential play; record mute; microphone jacks; auto-stop; logic-controlled operation; recording-level control meters. FR 30-15,000 Hz \pm 3 dB (normal bias), 30-17,000 Hz \pm 3 dB (metal); S/N: Dolby B 62 dB, Dolby C 70 dB; W&F 0.06% wrms. 17 $\frac{1}{2}$ x 5 x 11 $\frac{1}{2}$ in; 11 lb \$300

SCT-88 Cassette Deck

Dolby B and C NR. Features Dolby HX Pro; automatic tape selector; bias control. Auto-stop; logic-controlled operation; record-mute button; timer. FR 20-16,000 Hz \pm 3 dB (normal), 20-18,000 Hz \pm 3 dB (metal); S/N: Dolby B 63 dB, Dolby C 73 dB; W&F 0.05% wrms. 16 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 11 $\frac{1}{2}$ in; 8.9 lb \$200

PHILIPS

FC-60 3-Head Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; electronic real-time counter; alpha text mode display; digital peak-level display with peak memory function; fine bias adjustment; rec calibration controls. Compatible with Philips RC-5 remote control \$549

FCR-515 Double Cassette Deck

Dolby B, C NR. Features continuous playback and recording with both decks for up to three hours. Automatic two-way recording; simultaneous recording on both decks or sequential recording for up to three hours of taping; high-speed dubbing. Music search; memo function; blank skip; remote compatible with most Philips receivers and other products; remote controls for both decks \$499

FCR-50 Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; logic-controlled transport mechanism; alloy flywheel;

hard-permalloy head; switchable MPX filter. Music search; auto music scan; blank skip; auto space record mute; Philips remote-control compatible \$399

PIONEER

CT-91 3-Head Cassette Deck

Dolby B, C NR. Features full-logic controls; Dolby HX Pro; 3 heads; 2 motors; 3 power supplies; bias fine tuning; antivibration design; closed-loop dual-capstan transport; amorphous head; fluorescent display; system remote compatible; electronic real-time tape counter; power eject; FR 20-23,000 Hz; S/N 60 dB; W&F 0.022%. 18 x 5 $\frac{1}{2}$ x 14 $\frac{1}{2}$ in; 24 $\frac{1}{2}$ lb \$950

CT-W830R Double Cassette Deck

Dolby B, C NR. Features two autoreverse record/play cassette transports; Dolby HX Pro. Cassette stabilizer, honeycomb chassis; MPX filter switch; OFC head wire. CD-deck synchro; tape dubbing from deck to deck at normal or double speed; relay recording/play; parallel recording; music/skip search; blank skip; peak-hold level meters; time counter; auto rec mute; auto tape selector; optional timer record/play; headphone output; system remote compatible. 16 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 12 $\frac{1}{2}$ in; 12.5 lb \$500

CT-S707 3-Head Cassette Deck

Dolby B, C NR. Features cassette stabilizer, honeycomb chassis; rigid die-cast head base; MPX filter switch; bias adjustment; Dolby HX Pro. CD-deck synchro; 4-digit electronic time counter; music/skip search; auto monitor; peak-hold level meters; auto rec mute; auto tape selector; repeat play; optional timer record/play; headphone output with volume control; system remote compatible. 16 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 12 $\frac{1}{2}$ in; 12.5 lb \$480

CT-M6R Cassette Changer

6-cassette tape changer featuring Dolby B, C NR. Full-logic controls; Dolby HX Pro; record and playback capability; synchronized recording; programmed copy and random copy; relay recording up to 9 hours; relay play; cassette scan; auto rewinder; 8-segment FL meter; 4-digit electronic counter; music skip search up to 15 selections forward and back; blank skip; auto rec mute; auto tape selector. FR 25-18,000 Hz (metal tape); S/N 58 dB (without noise reduction). 16 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 14 $\frac{1}{2}$ in; 16.5 lb \$450

CT-S605 2-Head Cassette Deck

Single cassette deck with Dolby B, C NR and HX Pro. FR 25-17,000 Hz; S/N 58 dB; W&F 0.055%. 16 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 12 $\frac{1}{2}$ in; 11 lb \$375



Pioneer CT-M6R

CT-W630R Double Cassette Deck

Dolby B, C NR. Features Dolby HX Pro; two autoreverse cassette transports, play (deck 1) and record/play (deck 2). Cassette stabilizer, honeycomb chassis; MPX filter switch. CD-deck syn-

TAPE RECORDERS

chro: tape dubbing from deck to deck at normal or double speed; music/skip search; blank skip; peak-hold level meters; auto rec mute; auto tape selector; optional timer record/play; headphone output; microphone inputs; system remote compatible. 16 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 10 $\frac{1}{2}$ in; 10.13 lb \$360

PROTON

AD-630 Cassette Deck

Autoreverse cassette deck with Dolby B, C, and dbx NR. Features 3-motor IC logic mechanism; real-time counter; 2-color LCD display; MPX filter; 20 song programming; remote capability. FR



Revox B 215-S

30-17,000 Hz \pm 3 dB (normal), 30-18,000 Hz \pm 3 dB (high bias), 30-19,000 Hz \pm 3 dB (metal); S/N no NR 50 dB, Dolby B 60 dB, Dolby C 70 dB (normal tape); W&F 0.03%. 18 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x 15 $\frac{1}{2}$ in; 18.7 lb \$800

REVOX

B 215-S 3-Head Cassette Deck

Cassette deck with 3 microprocessors for control of bias, level, EQ, transport, and real-time counter. Features Dolby HX Pro, Dolby B and C; 4 motors; digital storage of bias, level, EQ settings for 6 tape formulations; manual or auto record-level setting; diecast transport chassis; azimuth-stable pivoting headblock; 2 programmable locate buttons; loop mode; auto start-of-record scan. Counter computes elapsed time on partially wound tapes. W&F 0.1% wrms; FR ferric 30-18,000 Hz \pm 3 dB, high bias and metal 30-20,000 Hz \pm 3 dB; S/N ratio (A-wtd) ferric: 55 dB no NR, 64 dB Dolby B, 70 dB Dolby C, high bias: 57 dB no noise reduction, 65 dB Dolby B, 72 dB Dolby C, metal: 58 dB no NR, 66 dB Dolby B, 72 dB Dolby C; line-input sens for 0-dB reading 50 mV; line-output level with 0-dB indication 775 mV; 17 $\frac{1}{4}$ x 6 x 13 in; 20 lb \$2,900
B215. As above, cosmetic differences \$2,600

ROTEL

RD865 Cassette Deck

Dolby B, C, and HX Pro. Features 2 high-torque DC motors; full-logic controls; remote: manual continuously adjustable bias; 3 preset bias/EQ positions memory and repeat functions; FL bar graph meters; record mute; peak-level indicator. FR 30-20,000 Hz \pm 3 dB (normal), 30-19,000 Hz \pm 3 dB (high bias), 30-20,000 Hz \pm 3 dB (metal); signal-to-noise ratio without noise reduction 55 dB, Dolby B 64 dB, Dolby C 73 dB. Wow-and-flutter 0.035%. 17 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 12 in; 11.5 lb ... \$449

SANSUI

D-X301i Cassette Deck

Dolby B, C NR, Dolby HX Pro. Features computerized control; auto program search; bidirectional music scan; 2 repeat modes; fine bias adjustment; switchable MPX filter; auto rec mute;

full logic controls; timer rec/playback; peak meters; electronic tape counter. Remote interface with other Sansui components. FR 30-20,000 Hz \pm 3 dB; S/N Dolby C 75 dB; W&F 0.05% wrms. 17 x 5 x 11 $\frac{1}{4}$ in; 10 lb. Black finish \$350

D-X311WR Double Cassette Deck

Autoreverse (in both transports) with Dolby B, C NR. Features Dolby HX Pro; MPX filter switch; bias control; hard permalloy heads for record and playback; double-gap ferrite head for erase. High-speed dubbing; edit dubbing; 16-song program search; auto rec mute; rec cancel; tape lead-in; memory stop; 8-cycle relay play; manual-recording level control; fluorescent peak-level indicator; 4-digit electronic counter; timer record/play; headphone output; auto tape selector. FR 20-21,000 Hz (metal); W&F 0.06% wrms; S/N (metal): NR off 58 dB, Dolby B 65 dB, Dolby C 75 dB. 16 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 10 $\frac{1}{2}$ in; 10.9 lb \$350

SHERWOOD

DS-7000R 3-Head Cassette Deck

Dolby B and C NR. Features microprocessor supervised, full-logic control. Fine bias control; digital readout; auto tape selector; separate left/right record-level adjustment; output-level control; mic and headphone jacks; 13-segment rec-level indicators; rec-mute button; timer switch; 2-line input jacks with record cross fader. FR 30-18,000 Hz; S/N 75 dB; ch sep at 1 kHz 40 dB; W&F 0.05%. 17 $\frac{1}{2}$ x 5 x 11 in \$469

DD-1230R Double Cassette Deck

Autoreverse and Dolby B and C NR. Features microprocessor supervised, full-logic control. Digital tape counter; normal/high speed dubbing; bidirectional auto music search; auto tape selector; fully synchronized 1-touch dubbing; relay play with alternate playback deck; rec-mute button; separate rec-level and balance control; 13-segment rec-level indicators; timer-record and start; illuminated tape-direction indicators; air-dampened soft-eject cassette doors. FR 30-16,000 Hz; S/N 75 dB; ch sep at 1,000 Hz 40 dB; W&F 0.12%. 17 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 8 $\frac{1}{2}$ in \$299

SONY

TC-K950ES 3-Head Cassette Deck

Dolby B and C NR. Features HX Pro; LC-OFC laser amorphous heads; closed-loop dual-capstan transport; quartz-lock direct-drive 3-motor design; linear counter; record-level calibration; variable bias; automatic tape type selection; MPX filter switch; auto play; auto space/record mute; timer record/playback; remote compatible. FR 15-22,000 Hz \pm 3 dB; W&F 0.024%; S/N 61 dB. 18 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 15 in; 25.13 lb \$900

TC-WR90ES Double Cassette Deck

Dolby B and C NR. Features HX Pro; laser amorphous heads; 6-motor (3 per transport) design; single-drive capstans; autoreverse; high-speed dubbing; relay play; auto pause; linear real-time counter; automatic music sensor; full-logic controls; blank skip; auto tape-type selection; remote compatible; 210 kHz super bias. FR 20-20,000 Hz \pm 3 dB; W&F 0.06%; S/N 59 dB. 18 $\frac{1}{2}$ x 5 $\frac{1}{2}$ x 13 $\frac{1}{2}$ in; 15.14 lb \$600

TC-K850ES 3-Head Cassette Deck

Dolby B and C NR. Features HX Pro; laser amorphous heads; direct-drive dual capstans; linear tape counter; calibration bias adjustment; full-logic controls; auto music search; multiplex filter switch; remote compatible. FR 15-21,000 Hz

\pm 3 dB; W&F 0.024%; S/N 59 dB. 17 x 5 $\frac{1}{2}$ x 13 $\frac{1}{2}$ in; 15.4 lb \$600

TC-K650ES 3-Head Cassette Deck

Dolby B and C NR. Features HX Pro; laser amorphous heads; single-drive capstans; fine bias adjustment; full-logic controls; MPX switch; linear tape counter; auto music search; FR 20-21,000 Hz \pm 3 dB; W&F 0.09%; S/N 58 dB. 17 x 4 $\frac{1}{2}$ x 11 $\frac{1}{4}$ in; 10.3 lb \$400

DTC-75ES DAT Recorder

High density linear converter system compatible with 32, 44.1, and 48 kHz sampling rates. 45-bit noiseshaping digital filter; direct-digital sync; 4-stage feed-forward circuit; digital servo IC; 4-motor transport design; multiregulated power supply stages; low-noise copper chassis; vibration-resistant transport. Features high-speed music search; music scan; 3-way repeat; 10-key direct-access track selection; 60-track programming; start/skip/end; 4-hr record/playback mode; variable fader; optical and coaxial digital input; wireless remote control; 3-yr parts-and-labor warranty \$950

DTC-700 DAT Recorder

High density linear converter system compatible with 32, 44.1, 48 kHz sampling rates. 45-bit noiseshaping digital filter; direct digital sync; 4-stage feed-forward circuit; digital servo IC; 4-motor transport design; vibration-resistant transport. Features high-speed music search; music scan; 3-way repeat; 10-key direct-access track selection; 60-track programming; start/skip/end; 4-hr record/playback mode; variable fader; optical and coaxial digital input; wireless remote control; 3-yr parts-and-labor warranty \$900

TEAC

R-919X 4-Head Cassette Deck

Dolby HX Pro, dbx, and Dolby B and C NR. Features 3-motor IC-logic transport; double accu-align rotating head system; hysteresis tension servo-control system; bipolar power supply and DC configuration circuit; autoreverse/repeat; multi-function FL display; electronic tape index



Sansui D-X311WR

counter with tape-run time mode; 2-color L/R peak program-level meter; fine-bias adjustment; program search; direct selection; intro check; blank scan; memory play/stop; block repeat; auto monitor; master rec-level control; output-level control; MPX filter; timer rec/playback capability. Optional wood side panels. Includes multifunction wireless remote control. W&F 0.029% wrms; FR 25-20,000 Hz \pm 3 dB (metal); S/N 80 dB at 1,000 Hz (Dolby C). 17 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 10 $\frac{1}{4}$ in. 13 $\frac{1}{4}$ lb \$830

W-990RX Double Cassette Deck

Dolby B and C and dbx NR. Features continuous rec/playback, and parallel recording; 3-motor IC-logic control mechanism; bipolar power supply and DC configuration circuit; sync reverse capability; 1-touch high-speed and normal-speed dub-

TAPE RECORDERS

bing: intro check memory dubbing system; random memory program dubbing; reverse-edit function; editing dubbing; cobalt amorphous LC-OFC rec/play head; multifunction FL display; independent electronic counter for decks A and B; 2-color L/R peak program level meter; program search; direct selection; intro check; blank scan; timer rec/playback; auto tape select; rec mute with auto spacer; headphone jack. Includes multifunction wireless remote control. W&F 0.045% wrms; FR 30-19,000 Hz \pm 3 dB; S/N 78 dB at 1,000 Hz (Dolby C) \$800

V-970X 3-Head Cassette Deck

Dolby HX Pro, dbx, and Dolby B, C NR. Features 3-motor IC-logic transport; closed-loop dual-capstan drive; independently micro-aligned rec and play head with cobalt amorphous LC-OFC winding; hysteresis tension servo-control system;



Technics RS-B965

bipolar power supply and DC configuration circuit; multifunction FL display; electronic tape index counter with tape run time mode; 2-color L/R peak program-level meter; fine-bias adjustment; L/R level control; program search; direct selection; intro check; blank scan; memory play/stop function; block repeat; auto monitor; master rec level; output-level control; MPX filter; timer rec/playback capability. Wood side panels optional. Includes multifunction wireless remote control. W&F 0.028% wrms; FR 25-20,000 Hz \pm 3 dB (metal); S/N 80 dB at 1,000 Hz (Dolby C) .. \$800

V-680 3-Head Cassette Deck

Dolby B and C NR, Dolby HX Pro. Features 2-motor IC-logic control mechanism; bipolar supply; direct-coupled circuitry; MPX filter; timer rec/play; headphone jack; auto tape selector. W&F 0.06% wrms; FR 20-21,000 Hz (metal); S/N 70 dB at 5,000 Hz (Dolby B). 17 $\frac{1}{8}$ x 4 $\frac{1}{4}$ x 10 $\frac{1}{4}$ in; 11 lb. \$450

W-550R Double Cassette Deck

Features Dolby B and C NR, Dolby HX Pro. 2-motor IC-logic control mechanism; bipolar supply; autoreverse; blank scan; sync reverse; hard-permalloy heads; 2-color LED meter; rec mute; auto tape selector; headphone jack; 1-touch high-speed/normal dubbing; continuous play; timer rec/play. System remote compatible. W&F 0.07% wrms; FR 30-18,000 Hz (chrome); S/N 69 dB at 5,000 Hz (Dolby B)..... \$360

TECHNICS

RS-B965 3-Head Cassette Deck

Dolby B, C NR. Features HX Pro; quartz-locked direct-drive capstan motor; closed loop, dual-capstan transport; cassette stabilizer; amorphous head system; isolated circuit chassis design; independent power supplies; dual-range FL peak-hold meters; semiautomatic bias/record level calibration; real-time electronic tape counter; auto record mute; auto tape selector; memory stop/repeat. FR 20-22,000 Hz (chrome); S/N 66 dB (Dolby B, chrome); W&F 0.03%. 17 x 5 $\frac{1}{8}$ x 11 $\frac{1}{8}$ in; 14.1 lb \$680

RS-B755 3-Head Cassette Deck

2-motor quartz-locked deck with Dolby B, C NR. HX Pro high-torque direct-drive motor; high-precision digital servo; 2-motor full-logic control; cassette stabilizer with power loading; bias fine adjustment; record-level calibration; dual-range peak-hold FL meters; dual mode electronic counter with memory stop/repeat; auto record mute; auto tape selector. FR 20-20,000 Hz (chrome); S/N 66 dB (Dolby B, chrome); W&F 0.05%. 17 x 5 $\frac{1}{8}$ x 11 $\frac{1}{8}$ in; 11.7 lb \$440

RS-TR555 Dual Cassette Deck

Dolby B and C NR. HX Pro; 2-motor transport; full-logic touch controls; dual-range FL peak-level meters; metal compatibility; simultaneous parallel recording; 3-hr series recording; 24-hr series playback; high-speed editing; synchro start/stop and rec mute; dual electronic tape counters; remote-control capability; CD synchro editing with selected Technics CD players; music select; auto-tape select; L/R independent rec-level controls; timer rec/playback capability; headphone jack. Brushed-aluminum front panel. FR 20-18,000 Hz (chrome); S/N 66 dB; W&F 0.07%. 17 x 5 $\frac{1}{8}$ x 11 $\frac{1}{8}$ in; 12.1 lb \$440

SV-DA10 DAT Recorder

Features 1-bit MASH A/D and D/A converters, digital and analog filters, optical and coaxial digital inputs and outputs, headphone jack with volume control. Operating features include shuttle search dial for fast cue and review, digital fader, intro scan, Serial Copy Management System. Includes wireless remote control. FR 2-22,000 Hz, dynamic range 90 dB \$900

UHER OF AMERICA

CR 1601 3-Head Portable Cassette Deck

Compact front-loading portable cassette recorder with monitor facility featuring 8 hours record time and built-in voice-actuating system. Features 2 motors; direct drive; dual capstans; manual azimuth adjust; elapsed-time counter; output-level control; bias fine tuning; memory stop/play; LED meters; soft-touch controls; mike inputs; headphone jack; rec mute; 3 tape speeds: 1.88 ips, 0.94 ips and 0.16 ips with ALC. FR 20-19,000 Hz (ferric) \pm 3 dB; W&F <2% wrms. 9 $\frac{1}{4}$ x 2 $\frac{1}{4}$ x 7 $\frac{1}{4}$ in; 5 lb \$1,890

VECTOR RESEARCH

VCX-270 Cassette Deck

Features Dolby B and C NR and HX Pro; high-frequency play trim; fine bias adjustment; 2 motor-logic tape transport; switchable MPX filter; headphone jack w/ volume. FR 30-17,000 Hz; signal-to-noise ratio Dolby C 75 dB. Dolby B 67 dB; wow-and-flutter 0.05% wrms. 16 $\frac{1}{8}$ x 4 $\frac{3}{8}$ x 11 $\frac{1}{4}$ in; 12.5 lb \$280

YAMAHA

KX-W900Ti Double Cassette Deck

Autoreverse. Featuring amorphous recording and playback heads; play, record, and autoreverse on both decks; relay play and record; Dolby B and C noise reduction and Dolby HX Pro; dubbing modes: high-speed, auto, skip, random program, manual, cross-Dolby; simultaneous independent recording; 44-key wireless remote-control; random program play (both decks); music search (both decks); intro scan; record return; auto record mute; blank skip; auto tape selection; 4-digit electronic linear tape counter; 13-segment peak-level meters on both decks; remaining time

indicator. Titanium finish; 18 lb \$699
KX-W900U. As above, black \$699

KX-930Ti 3-Head Cassette Deck

28-key wireless remote-control. Features double-dbx dynamic-bias servo; double Dolby B and C NR; closed-loop dual-capstan tape transport; OR-BIT system with optical balance tuning system, which automatically sets bias and HF tape sens; Dolby HX Pro headroom extension; auto tape selector; auto monitor; direct music search; 9 selection program playback; timer rec and play; repeat; memory stop; intro scan; play trim; bias adjust; 12-layer amorphous heads; PC-OCC coil winding; full-logic control; 19 segment LCD meter with peak hold; master fader; 2-speed fast wind; optimum rec-level indicator; headphone jack with level control; RS remote control with 28 keys; RS-integrated system remote compatibility; rounded front panel. Titanium finish \$599
KX-930. As above, black \$599

KX-630Ti 3-Head Cassette Deck

Double Dolby B and C NR. Features Dolby HX Pro headroom extension; hard permalloy rec head; amorphous play head; double-gap ferrite erase head; 13-segment LCD peak-level meter; LCD linear time counter; master fader; MPX filter; high-speed fast wind; remaining time indicator; random program; optimum rec level indicator; bidirectional intro scan; manual bias adjustment \pm 20%; play trim; auto tape selector; auto rec mute; rec return; memory stop; output-volume control; headphone output with level control; music search; repeat; RS integrated system remote-control compatibility. Includes remote. Titanium finish \$469
KX-630. As above, black \$469



Yamaha KX-930

KX-530Ti Cassette Deck

Dolby B and C NR. Features Dolby HX Pro dynamic bias servo; amorphous play head/rec head; double-gap ferrite erase head; 16-segment LCD peak-level meter; LCD linear time counter; master fader; MPX filter; high-speed fast-forward/rewind; play trim; remaining-time indicator; random program; optimum rec-level indicator; bidirectional intro scan; auto tape selector; rec mute; rec return; memory stop; headphone output with level control; music search; repeat; RS integrated system remote-control compatibility. Includes 27-key wireless remote-control. Titanium finish \$399
KX 530. As above, black \$399

KX-R430 Cassette Deck

Autoreverse cassette deck with Dolby B and C NR. Features amorphous head; bidirectional intro scan; Dolby HX Pro headroom extension; 2 heads; 2 motors; music search; full, single, and phrase repeat; rec return; auto rec mute; auto tape selector; timer rec and play; headphone jack; 7-segment LED peak-level meter; MPX filter; blank skip; manual bias adjustment \pm 20%; integrated system remote compatibility. Includes 11-key wireless remote. Black. 11 lb \$349

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Illustration by James Dowlen ©1990

Stereo Review's critics choose the outstanding current releases

THE MCGARRIGLES: "HEARTBEATS ACCELERATING"

HEARTBEATS ACCELERATING," the superb new album by Kate and Anna McGarrigle, is the duo's first release in over seven years. Why did they wait so long? Out of consideration, it seems, for their legion of admirers. After all, one can stand such a profoundly moving experience only so often.

The work of these Canadian sisters melds the austere moods and emotional intensity of nineteenth-century literature—the reclusive spinster Emily Dickinson comes to mind—with the modality of Gallic folk songs, hymns, and old-fashioned parlor tunes plunked out in hauntingly unadorned and homespun fashion on an array of such old-timey instruments as the button accordion, the banjo, and acoustic guitar.

For the first time in six albums, however, the McGarrigles have also employed the least intrusive of synthesized instruments to embellish their fragile musical framework. The addition does nothing to alter the suspended-in-time aura of their surrealistic sound, although the melodies, which have occasionally been longwinded in the past, are here more concise, leaving room for the resonances of the electronic ambiance. As before, however, the McGarrigles adhere to a folky metronome of their own making—their tunes refreshingly skip beats and repeat measures in structures that defy the rules of conventional, commercial songwriting.

The duo has always achieved a startling intimacy with their records, transporting the listener to a dimly lit living room, where a family sings in sweet but adamant soprano voices of domestic events that may seem small and unimportant on the surface but pulse with the often unaddressed tensions and failures of life's greatest trials. "Heartbeats Accelerating" is

no exception. The title tune asks the central question, "Love, love, where can you be?" And for most of the rest of the program, the sisters set forth on a bleak tour of an emotional country where the question is seldom answered happily.

Except for Anna's title track, the strongest of the songs here are Kate's. Her *Mother Mother* and *Losing You* pulsate with ominous tones and the paranoia of separation. *Mother Mother* amounts to a blurred plea from a child subject to some unnamed, threatening force ("Someone's trying to hurt me"), and *Losing You* is the prayer of a mother who is desperate to maintain the most precious relationship of her existence.

There are more upbeat moments, of course, usually courtesy of Anna, who presents herself as the sunnier, more detached side of this sibling yang and yin. Her whimsical escape from life's disappointments, *Rainbow Ride* (co-written with Philippe Tatartcheff), employs a nursery-rhyme alliterative chorus of "flotsam and jetsam" and "riff-raff the raggie-taggle," which goes some distance to brighten the mood. Still, for every optimistic flutter of the heart in the album, there are four devastating allusions to the morbidity of love.

Curiously, the photographs that adorn the last page of the CD booklet pull back the veil that hangs over the record to reveal a very different Kate



Kate and Anna McGarrigle: "Love, love, where can you be?"

But nothing else on the record reverberates like *I Eat Dinner*, a resonant sketch of a divorced mother eating leftovers at the kitchen table with her thirteen-year-old daughter. Dark and harrowing, it captures the mother at the moment she realizes that, as her hair has turned to gray and the last of her lovers has paraded through her life, she faces nothing but loneliness and the death of hope. "No more candlelight," Kate muses with verbal economy and perceptive wit. "No more romance/No more small talk/When the hunger's gone."

McGarrigle—one who laughs an open-faced greeting to anyone who happens by. That may be an anomaly. But it's certainly an interesting book-end to an album as somber (in the best sense) as "Heartbeats Accelerating."

Alanna Nash

KATE & ANNA MCGARRIGLE: *Heartbeats Accelerating*. Kate McGarrigle (vocals, accordion, keyboards, guitar, banjo); Anna McGarrigle (vocals, keyboards, drums); vocal and instrumental accompaniment. *Heartbeats Accelerating*; *I Eat Dinner*; *Rainbow Ride*; *Mother*

Mother; Love Is; D.J. Serenade; I'm Losing You; Hit and Run Love; Leave Me Be; St. James Hospital. PRIVATE MUSIC © 2070-2-P (43 min).

PETER DONOHOE'S DIRECT AND VITAL BRAHMS

THE English pianist Peter Donohoe is one of those musicians most of us have known only through recordings. He's made a handful for EMI/Angel, ranging from Tchaikovsky and Liszt to Gershwin and Messiaen, and they've all been excellent. Angel has just issued his recording of the Brahms D Minor concerto with the Philharmonia Orchestra under Yevgeny Svetlanov, and I must say I've seldom found the piece so easy to love, either in



Donohoe: in his element

concert or on records. Like Arthur Rubinstein, Solomon, and Rudolf Serkin, Donohoe keeps the music moving, pacing the first two movements a bit more briskly than today's norm. While a case can be made for a more expansive approach (and has been, eloquently, by such pianists as Emil Gilels and András Schiff), Donohoe's more fleet-fingered way, with its greater directness and sense of flow, points up the music's Mozartean bloodlines as well as its youthful assertiveness.

The playing is limpid, vital, at all points surpassingly musical, and the mesh with the orchestra is exceptional.

Svetlanov might not have been expected to give us this kind of Brahms. His general style, in both Russian music and the few Western works in which I've heard him, has suggested a tendency toward grand gestures and epic proportions, a love for lush colors and for caressing voluptuous tunes. But here he is happily at one with his soloist, stressing vigor, directness, clean line, a sane course that steers as clear of austerity as of excess. This must have been a happy recording session; it is very happy listening.

The disc is filled out with quite a substantial encore—or, rather, a half-dozen encores: the six *Klavierstücke* that make up Brahms's Op. 118. In these, too, Donohoe is thoroughly in his element, catching in full the character of each piece and weighting his tone for maximum expressive effectiveness without getting in the music's way. He is an artist, one feels, who would never do that. The sound quality, in both the concerto and the solo pieces, is EMI's very best.

Richard Freed

BRAHMS: Piano Concerto No. 2, in B-flat Major, Op. 83; Piano Pieces, Op. 118. Peter Donohoe (piano); Philharmonia Orchestra, Yevgeny Svetlanov cond. EMI/ANGEL © CDC 49934 (71 min).

GRAHAM PARKER: A HARD-WON OPTIMISM

GRAHAM PARKER is one of the most tenacious writer/rockers in the business. The more the public ignores him, the more determined he is to make his point on his own terms. Of course, he's got a cult following and the unflagging loyalty of critics, but he's overdue for the sort of broader hearing that Elvis Costello and Joe Jackson—fellow Angry Young Men from the class of '77—have enjoyed at one time or another. And with the release of his latest album, "Struck by Lightning," he may get it at last.

Less obscure than "Human Soul" and a tad more scuffed-up than "The Mona Lisa's Sister," its immediate predecessors, the new album finds Parker in pique form (pun intended). Just

check out the wordy assault on capricious materialism in *She Wants So Many Things* or the sustained circus metaphor of *They Murdered the Clown* (a prickly verbal juggling act even Costello would envy). Overall, though, Parker's new songs are more reflective



Parker: in pique form

than recriminatory, and much of "Struck by Lightning" has a distinctly folkish—if not downright country—feel to it.

Comparisons with midperiod Dylan (during his association with the Band) are tempting, perhaps even inevitable. "Struck by Lightning" was recorded at studios near Parker's home in Woodstock, New York—the heart of "Big Pink" and "Basement Tapes" country. And a pronounced "Blonde on Blonde" sound—the distinctive blend of mesmeric organ lines, jangly rhythm guitar, and scuffling harmonica with knotty, allegorical lyrics sung in a passionate, untrained rasp—in-fuses much of the material. In fact, Garth Hudson, the Band's virtuoso multikeyboardist, plays in the set, and another former Woodstock denizen, Van Morrison, is evoked in *And It Shook Me*. Like Morrison's soulful, stream-of-consciousness classic *And It Stoned Me*, Parker's paean reflects back on certain defining moments in his life and revels in their mystery. "And it shook me/And I'm still shaking now," he sings in obvious awe of those

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memories, still capable of being captivated and enthralled by what life has to offer.

All this is not to suggest that Parker is slavishly imitating his forebears, but rather that some of their magic—and the sense of place conferred by their common tenure in Woodstock—has rubbed off on him. Parker is certainly among the few consistently literate and commanding lyricists in rock, and his voluminous tropes and turns of phrase, his gift for penetrating insights that justify the contrariety of a faith and disillusionment that are stubbornly intertwined, have never been displayed to better advantage than in "Struck by Lightning."

If the album has a flaw, it's that it's almost too long—a congenital malady in the compact disc age. It would arguably be leaner and more tightly focused if a three-song soft spot between *A Brand New Book* and *Over the Border (to America)* had been trimmed. I can't come down too hard on Parker, however, for his generosity in serving up a fifteen-song smorgasbord as tasty as this one.

The Sun Is Gonna Shine Again ends this exhaustively discursive, emotionally forthright album on an upbeat note. High anxiety gives way to something resembling faith in the future as Parker sings, "And every man will get a chance to be what a man wants to be/ And every woman will look at a child and know that he's growing up free." But the essence of "Struck by Lightning" is perhaps best captured in some lines from *A Brand New Book*, "I don't believe love is blind/It just can't see straight." Parker's optimism throughout the album is hard-won and real, and therefore genuinely reassuring. Now that he's largely sidestepped the rut of reflexive rancor, it will be interesting to see where his tireless muse leads him next. *Parke Putterbaugh*

GRAHAM PARKER: *Struck by Lightning*. Graham Parker (vocals, guitars, harmonica); vocal and instrumental accompaniment. *She Wants So Many Things*; *They Murdered the Clown*; *Strong Winds*; *The Kid With the Butterfly Net*; *And It Shook Me*; *Wrapping Paper*; *That's Where She Ends Up*; *A Brand New Book*; *Weeping Statues*; *Guardian Angels*; *Children and Dogs*; *Over the Border (to America)*; *When I Was King*; *Ten Girls Ago*; *The Sun Is Gonna Shine Again*. RCA © 3013-4-R, © 3013-2-R (57 min).

A JOYOUS NEW "L'ELISIR D'AMORE"

EVERY so often a recording truly fills one's heart with gladness. Such a one is the new Deutsche Grammophon set of Donizetti's *L'Elisir d'Amore*. The casting is nearly perfect in terms of vocal weight and contrast, the Metropolitan Opera Chorus and Orchestra sing and play with uncommon effervescence and spirit, and conductor James Levine is at his best in his sensitive articulation of the delicate and exuberant score. As for the recording itself, the sound is clear, balanced, and crisp.

Donizetti's comic opera is a little masterpiece—"little" because of its dramatic material, which centers on bucolic life and love as influenced by an engaging quack who sells red table wine as a panacea for the lovelorn.



Levine and Battle: captivating

There is no royal execution as in *Maria Stuarda* and no great mad scene as in *Anna Bolena* or *Lucia di Lammermoor*. But there is an abundance of youthful spirit and of funny situations, all peopled by characters directly in the tradition of Italian *commedia dell'arte*. And there is Donizetti's music. In no other of his operas did he surpass the melodic invention of *L'Elisir*, just as in no other of his works is that invention put to more appropriate use. His finely honed craftsmanship is directed here toward a satisfying artistic whole, and

the "little" story of Adina and her Nemorino amounts to a great opera, a jewel.

Kathleen Battle's Adina may well be her finest creation. Her light, supple voice spins out Donizetti's ornamentation easily and gracefully. Temperamentally, she seems to identify with Adina, so that her capriciousness, dejection, and final admission of real love are genuinely affecting, and she sings with a geniality that makes her performance especially appealing.

The part of Nemorino seems as if it were written expressly for Luciano Pavarotti. There's no role in his repertory that he appears to enjoy more, except perhaps Tonio in *La Fille du Régiment*, the opera of his Metropolitan debut. The two characters are similar—musically lyrical and dramatically naïve. Possibly these qualities appeal to Pavarotti, who is completely winning when he's singing liltily and creating a personality with whom we can all identify and sympathize. Under these circumstances, he is a lyric tenor with few peers.

Leo Nucci's Belcore is a model of the swaggering, swashbuckling soldier, full of beans. His singing throughout is polished, fullbodied, and pleasing, as is that of Enzo Dara, whose Dr. Dulcamara recalls Fernando Corena's memorable portrayals of the friendly charlatan who's lovable for his very humbug. Dawn Upshaw, one of the brightest lights on the current vocal horizon, brings her unusual musical refinement and insight into character to her performance as Giannetta.

These five fine performances, along with the work of the chorus and orchestra, add up to more than the sum of the parts. Thanks to Levine's direction, the vivacious and captivating spirit of Donizetti's score is fully and delightfully communicated. It is a performance distinguished by rare dedication on the part of all concerned. And the result is joyous listening.

Robert Ackart

DONIZETTI: *L'Elisir d'Amore*. Kathleen Battle (soprano), Adina; Luciano Pavarotti (tenor), Nemorino; Leo Nucci (baritone), Belcore; Enzo Dara (bass-baritone), Dulcamara; Dawn Upshaw (soprano), Giannetta. Metropolitan Opera Chorus and Orchestra, James Levine cond. DEUTSCHE GRAMMOPHON ① 429 744-1 two LP's, © 429 744-4 two cassettes, © 429 744-2 two CD's (118 min).

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

SUZY BOGGUSS: *Moment of Truth.* Suzy Bogguss (vocals); vocal and instrumental accompaniment. *Under the Gun; My Side of the Story; Moment of Truth; All Things Made New Again; Wild Horses;* and six others. CAPITOL © C4-92653, © CDP-92653 (35 min).

Performance: *Bright future ahead*
Recording: *Very good*

Suzy Bogguss's debut album, "Somewhere Between," was the kind of record every new artist should strive for—tuneful, distinctive, and filled with songs of strength and character. Now comes her follow-up, and while new producer Jimmy Bowen moves her away from the gritty sound that characterized her freshman effort, she remains a riveting performer. Few women in country music can nail their notes as squarely as Bogguss can, and still fewer have her bell-like clarity of voice. Even when the songs aren't that interesting—and that's true for much of this album—she carries them with the beauty of her instrument, the poise of her delivery, and her authoritative tone. In other words, you get the feeling you'd better listen to what she has to say.

Bogguss is maturing as a songwriter, too. She co-wrote three of the most captivating numbers here, *My Side of the Story*, *Fear of Flying*, and the sensual *Friend of Mine*. Although her first album was more rhythmically grabby, there's something comforting about this record, particularly in the premium several of the songs put on friendship. Bogguss is also quickly establishing herself as a member of the Emmylou Harris School of Tasteful Production. Her albums may not yet take the creative chances that Harris's do, but they are crafted with the same quiet integrity and emotional fortitude. Keep an eye on this gal. A.N.

THE BROTHER BOYS. The Brother Boys (vocals and instrumentals); other musicians. *Wanna, Wanna, Wanna; Blue from Now On; The Diamond Stream; Majestic;*

EDIE BRICKELL & NEW BOHEMIANS

THE second album by Edie Brickell and New Bohemians, "Ghost of a Dog," is rawer, both musically and emotionally, than its ingratiating predecessor, "Shooting Rubber Bands at the Stars." And it is probably more representative of what this band is all about.

Brickell is a late-model flower child without the trendy paisley affectations; her innocence and sense of wonder appear genuine. Her voice falls somewhere between a caressing whisper and a gauzy rasp, with tints of Joni Mitchell's oblique poetry, Melanie's naïve charm, and Janis Joplin's anguish.

Brickell's blues center around the fear of parental and romantic desertion, and of the passage of childlike innocence in the face of grown-up travails. More or less the same sentiment—determination in the face of disappointment—recurs in several songs here, most plainly in *He Said*, in which she sings: "I know that when I get back on my feet/I will walk away from misery." Whether she's trying to outrace the blues (as in *Woyaho*, a buoyant drifter's anthem) or stumbling across them in a dream (as in *10,000 Angels*, a frightening vision of being suspended between good and evil), it remains true—as the old bluesman's adage has it—that you can run but you sure can't hide. Brickell admits as much in *This Eye* when she sings, in weary, parched tones, "One day you just get tired of crying/Runnin' can't escape the beating heart."

Still, there's a keenness of spirit that allows Brickell to prevail, or at least persist, in the internal struggle between loneliness and self-reliance. Accompanied by little more than her own acoustic guitar, she offers her own variation on the

solipsism/communalism dilemma in the album-closing *Me by the Sea*: "I'm glad no one's here, just me by the sea/But man, I wish I had a hand to hold."

New Bohemians is one of the most unusual bands on the scene right now, filling a niche that falls somewhere between the organic meanderings of the Grateful Dead and the structured, jazzy slickness of Steely Dan. Brad Houser's loping, unrestrained bass line gives *Black & Blue* its air of playful optimism. Kenny Withrow's bluesy, shambling slide guitar underscores Brickell's plaintive singing in *Mama Help Me*. The textural interplay between an arpeggiating twelve-string and a feedback-drenched lead guitar sets the tone for the epic drama of *Forgiven*, and the presence of two percussionists lends a tasty, synopated sizzle to the proceedings. New Bohemians' marriage of words and music reaches its peak in *Strings of Love*, a suitelike number that goes through some captivating changes while tracking love through emotional chasms and labyrinths. "Ghost of a Dog" is solid music: no fake emotions, no filler, nothing but real lives channeled into song—as it should be. Parke Puterbaugh

EDIE BRICKELL & NEW BOHEMIANS: *Ghost of a Dog.* Edie Brickell (vocals, acoustic guitar); Kenny Withrow (guitars, dobro, vocals); Wes Burt-Martin (guitars, vocals); Brad Houser (bass); John Bush (percussion); Matt Chamberlain (drums); other musicians. *Mama Help Me; Black & Blue; Carmelito; He Said; Times Like This; 10,000 Angels; Ghost of a Dog; Strings of Love; Woyaho; Oak Cliff Bra; Stwisted; This Eye; Forgiven; Me by the Sea.* GEFEN GHS-24304, © MSG-24304, © 24304-2 (54 min).



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The First Time; Loose Talk; (You've Got the Look of a) Perfect Diamond; Tango Till You're Sore; Blue Days, Black Nights; and nine others. NEW HILLBILLY RECORDS © NHD-1101 (53 min). New Hillbilly Records, P.O. Box 5326 EKS, Johnson City, TN 37603.

Performance: *Onto something*
Recording: *Good*

Eugene Wolf and Eddie Lynn Snodderly aren't related, but they call themselves



The Connells: mumbles and whispers

the Brother Boys, and with good reason. Their vocal harmonies, clear as a mountain stream and warm as an early October sun, call to mind all the famous brother groups before them, among them the Louvins and the Wilburns, whose songs appear in this bright, shiny program of country and bluegrass.

The notes with the CD say that the Brother Boys play what they call New Hillbilly music, "forged from attitudes and beliefs, old and new, from the Appalachian mountains." They also call New Hillbilly "a backwoods fiddle on a two-lane highway, rolling into 1964, with Sam McGee, Jimmie Rodgers, and Johnny Cash riding in the back seat." How a fiddle with a back seat rolls down a highway—and how Sam and Jimmie and Johnny all fit in there—I don't know. But I do know that ol' Ed and Eugene cook up a mighty pleasant stew of acoustic sound, one that mixes sparkling originals with the tried-and-true songs of Hank Locklin, Uncle Dave Macon, Loretta Lynn, and Tom Waits.

With mandola, snare drum, piano, and bass putting all the trimmings on the age-old sentiments, this is as eclectic a record as you could hope for from two hairy-legged East Tennessee boys and their little farmhand band. It's graced with a genuinely old-timey feel, the standards balanced with sharp-eyed songs written by Snodderly, such as the infectious *Majestic*, the high-lyonesome saga of a shoe-shine boy fallen on hard times.

With eighteen songs, the album is a tad

too long for such low-key instrumental treatments, an unvarying mid-tempo, and a style that doesn't have many changes in texture. But Snodderly's songs themselves are worth the price of the record, and you'll have a right pleasant time with the rest. A.N.

THE CONNELLS: *One Simple Word.* Doug MacMillan (vocals); Mike Connell (guitar); George Huntley (guitar, piano, vocals); David Connell (bass); Peele Wimberley (drums). *Stone Cold Yesterday; Speak to Me; All Sinks In; Get a Gun; What Do You Want?; Set the Stage;* and seven others. TVT 2580-1, © 2580-4, © 2580-2 (48 min).

Performance: *Refreshing*
Recording: *Good*

In the R.E.M. age, Southern pop bands are as introverted as Southern rock bands are outgoing. The Connells, from Raleigh, North Carolina, mumble and whisper more than they yell, yet album by album they extend their public outreach a little further without surrendering their brainy, delicate emotionalism. Meanings may be elusive, but their music just keeps getting sharper.

"One Simple Word," their fourth album, was recorded in Wales, and the distance from home has opened them up. Mike Connell's roving lead guitar has always been more British Isles than U.S.A. anyway, and Doug MacMillan's courtly vocals could ennoble a Shakespeare sonnet. It's hard to say, though, what these thirteen songs are about. The Connells themselves might not know, though they seem to have something to do with bringing the world into focus. Rocking over a bed of chiming guitars and a steady beat helps them get where they're going, and injecting a humorous non sequitur or two into their navel-gazing doesn't hurt either. For example, "He was a bad dancer till he learned to shimmy/He was adrift until the world came into view," as MacMillan sings in the invigorating *Stone Cold Yesterday*.

Commercially, the Connells' drawback is that their brilliance doesn't call attention to itself, but that only makes them all the more likable. Consider the quirky *Get a Gun*, which wanders from twangy country licks and barroom piano to "Blonde on Blonde" folk-rock before arriving at its strange but exuberant chorus: "She never listens to me at night/Get a gun, get a gun, we're losing altitude." Neat guitar treatments, all-for-one playing, sturdy and imaginative songs by Mike Connell (with and without MacMillan), and three affecting change-ups from guitarist George Huntley add up to an album that, given half a chance, will grow on you like kudzu up an embankment. P.P.

THE DEL-LORDS: *Lovers Who Wander.* The Del-Lords (vocals and instrumentals); other musicians. *Touch One Heart; You and I; I Need Love; Love on Fire; About You; Learn to Let Go; Stand in*

Your Light; Kiss Away; and five others. ENIGMA © 73361-4, © 73361-2 (54 min).

Performance: *Solid*
Recording: *Good*

Let's hear it for the Chevy Impala, a very dependable car with a little bit of oomph when you really needed it. Just the right car for the Del-Lords—stylish but not too sporty, smart but not esoteric, clean but not too nice. "Lovers Who Wander" delivers the kind of four-on-the-floor rock we expect from the DLs. Tight guitars, tight bass, tight drums. Deep throaty vocals that recall Presley or Springsteen (depending on how old you are). Romance from a down-to-earth, working-class perspective (these guys are old enough to know better but lonely enough to try anyway). There's a weary kind of inevitability to group leader Scott Kemper's voice when he sings, "There was a song back in 1966/What the words meant were anybody's guess/What the song meant everybody knew/That's the way I feel about you." Neo-classic rock is seldom better. R.G.

DEVILS WIELDING SCIMITARS: *Worry Dolls.* Devils Wielding Scimitars (vocals and instrumentals). *She's a Hemingway; Blue Star Linoleum; Chapter's End; Destruction; Twirl Around the World;* and five others. SAN JACINTO © 0197-4, © 0197-2 (35 min). From San Jacinto Records, P.O. Box 44227, Tucson, AZ 85733.

Performance: *Bittersweet*
Recording: *Good*

I really enjoy this oddly named band even though I often have no clear idea what its songs are about. Lead singer Suzy Callahan is a joy. In her lower range, her voice flows thick, rich, and sweet as maple syrup. Up high, it flutters, like a kite on a gusty day. The rest of the band provides spare underpinning with their guitar-bass-drums setup. Sometimes the guitar jangles, *à la* R.E.M., and sometimes it stings, *à la* Jefferson Airplane, but it never strays much from an electrified folkiness. The directness of the music allows the lyrics to stand out, and yet they're mysterious and often opaque. No matter how many times I hear Callahan sing, "I'm going to twirl around the world like a saviour," I don't have the slightest clue what she means. That might bother me if I didn't enjoy her voice and her band so much. But I do, so it doesn't. R.G.

PETER GABRIEL: *Shaking the Tree.* Peter Gabriel (vocals, piano, synthesizers); other musicians. *Solsbury Hill; I Don't Remember; Sledgehammer; Family Snapshot; Mercy Street;* and eleven others. GEFEN © M5G-24326, © 24326-2 (77 min).

Performance: *Superfluous*
Recording: *State of the art*

Peter Gabriel is hardly your average hit-hungry singles artist, yet he wittily subti-

ted this best-of collection "Sixteen Golden Greats," as if he were Gary Lewis or Johnny Rivers. What a card! As any serious listener knows, such complex, non-AM pieces of songcraft as *San Jacinto* and *Biko* set Gabriel apart from more commercial, entrepreneurial colleagues like Phil Collins. Still, Gabriel has proved that brainy eccentricity and commercial clout aren't necessarily mutually exclusive, even in the MTV age—witness the success of *Sledgehammer* and *Shock the Monkey*. But his albums are self-contained entities, and almost everything on "Shaking the Tree" is better heard in its original context. Also, the song selection is lopsided: five-eighths of "So" is repeated, while nothing is culled from his 1978 album produced by Robert Fripp (the second of four successive albums titled simply "Peter Gabriel"). The anthemic *D.I.Y.*, in particular, is glaringly absent. So, while the music is uniformly wonderful, "Shaking the Tree" does not present a balanced picture of Peter Gabriel's solo career. Pass on this one. *P.P.*

GREGSON & COLLISTER: *Love Is a Strange Hotel*. Clive Gregson, Christine Collister (vocals and instrumentals). *The Things We Do for Love; Move Away Jimmy Blue; How Men Are; Love Is a Strange Hotel; Even a Fool Would Let Go; One Step Up*; and six others. RHINO © R4-70961, © R2-70961 (46 min).

Performance: *Maudlin*
Recording: *Good*

"Love Is a Strange Hotel" is a very tasteful album—too tasteful to yield much satisfaction. The first all-covers record by the folkie duo of Clive Gregson and Christine Collister, it's full of solemn, note-perfect singing and a surfeit of guitar-and-vocal niceness from which the listener is apparently to infer a higher wisdom regarding the inner workings of the heart. For example, 10cc's *The Things We Do for Love* used to be a jaunty pop tune, but Gregson and Collister leech it of humor. Later, Collister suffers theatrically over the syllables in *How Men Are*, and Gregson strains for rootsy credibility in *Lonesome Whistle*. Jackson Browne's *For a Dancer* and Joni Mitchell's *Same Situation* sag under the weight of their wordy sorrow and pity, and the Springsteen cover (*One Step Up*) is just arbitrary. All in all, "Love Is a Strange Hotel" tends to be mawkish when it wants to be poignant and mushy when it means to be tender. *P.P.*

ROBIN HOLCOMB. Robin Holcomb (vocals, piano); other musicians. *Nine Lives; The American Rhine; Electrical Storm; Troy; So Straight and So Slow*; and five others. ELEKTRA MUSICIAN © 60983-4, © 60983-2 (42 min).

Performance: *Chamber pop*
Recording: *Very good*

Robin Holcomb, a pop singer-songwriter with artsy ambitions, is so serious. It's

understandable; more than anything else, she wants us to respect her songs. So she approaches the material the way a classical singer approaches lieder—with sober reverence. Her arrangements are minimal, even minimalist. In a number of songs, her acoustic piano intones a melodic fragment over and over while a rhythm section or a guitar or a clarinet provides skeletal support. The somber quality of the music combines wonderfully with Holcomb's astringent soprano and its carefully apportioned vibrato. It also suits the delicately wrought lyrics, which range from elliptical narratives to impenetrable poetry and present the oblique thoughts, memories, and resentments of a very smart introvert. At times the album seems claustrophobic and tiresome, but I suppose Holcomb herself wouldn't have it any other way. *R.G.*

JELLYFISH: *Bellybutton*. Jellyfish (vocals and instrumentals); other musicians. *The Man I Used to Be; That Is Why; The King Is Half-Undressed; I Wanna Stay Home; She Still Loves Him*; and five others. CHARISMA © 91400-4, © 91400-2 (40 min).

Performance: *Retro psychedelia*
Recording: *Multidimensional*

As revivalists of a short-lived subgenre—late-Sixties psychedelic pop—Jellyfish is the next best thing to having been there. Sort of. The band is too young to have known, firsthand, the thrill of gobbling LSD-soaked sugar cubes and tripping out to ornate, baroque psych-pop in the scarifying context of the Vietnam War and the Nixon-era police state. Removed from the cultural moment that engendered it, psychedelia as practiced by Jellyfish and other bands makes for pleasant listening, but the flow of colorful sounds doesn't feel linked to anything real. It's escapism into somebody else's past, as formulaic, in its own way, as current electronic dance music.

Jellyfish's lyrics, however, are utterly modern, largely tales of trouser stains, beaten wives, and waking up on the floor after having partied too hard. *I Wanna Stay Home* is a wonderful exception, setting introspective, song-of-myself lyrics to a sweet melody. But even when the words fail to achieve lift-off, the music soars toward the ether. *All I Want Is Everything* is an aural delight, boasting a killer chorus that pounds along at the speed of sound. Ringo-esque drum fills and prolonged syllabicating give *That Is Why* its dreamy sense of slow motion.

On a musical level, "Bellybutton" is a hypnotically alluring trip back to the Age of Incense—although real Sixties bands rarely played this well. Now if the members of Jellyfish could just figure out what they want to say and where to go with it from here. *P.P.*

KATE & ANNA MCGARRIGLE: *Heartbeats Accelerating* (see Best of the Month, page 73)

GRAHAM PARKER: *Struck by Lightning* (see Best of the Month, page 74)

THE POINTER SISTERS: *Right Rhythm*. The Pointer Sisters (vocals); instrumental accompaniment. *Friends' Advice (Don't Take It); Man with the Right Rhythm; Real Life; After You; You Knocked the Love (Right Outta My Heart); Billy Said Yes*; and five others. MOTOWN © MOTC-6287, © MOTD-6287 (41 min).

Performance: *Punch and propulsion*
Recording: *Satisfactory*

Years of staying together, in one configuration or another, have given the Pointer Sisters a certain sureness in how they navigate through the propulsively rhythmic numbers in their latest album. This is driving, high-energy music designed primarily for dancing, but it won't have much staying power for listeners. No amount of sound and fury can substitute for substance. The best tracks are the opener, *Friends' Advice (Don't Take It)*, and *Man with the Right Rhythm*, which follows, with its pounding pulse and sassily punched-out harmonized vocal lines. The rest is a forgettable, if professionally rendered, blur. *P.G.*

DAVID RUDDER: 1990. David Rudder (vocals); other musicians. *Calypso Rising; Just a Carnival; One More Officer; Down at the Shebeen; 1990; Dark Secret; Johannesburg Woman; Victory Is Cer-*



Jellyfish: revivalists

tain; and five others. SIRE/WARNER BROS. © 4-26250, © 2-26250 (54 min).

Performance: *Great*
Recording: *Good*

At thirty-two, David Rudder reigns as the king of calypso, the infectious music of Trinidad. Traditionally, calypso's popularity derives in part from its lilting rhythms and in part from the performer's



DWIGHT YOAKAM

IN "Buenas Noches from a Lonely Room," his landmark album of 1988, Dwight Yoakam crafted a song cycle about murder, pride, heartbreak, and vengeance wrapped in a classic Appalachian-style tale of love and betrayal. In his latest album, "If There Was a Way," Yoakam still seems obsessed with the idea that women are a faithless lot, unworthy of the devotion of an honorable man. In song after song here, he seethes and shivers over the impossibility of a true union of the sexes, raging bitterly one moment and crying the next.

In the Johnny Cash-like *Turn It On, Turn It Up, Turn Me Loose*, Yoakam implores someone in a run-down honky-tonk to crank up the music since "her memory is driving me lonely, crazy, and blue" (a tick-tock guitar keeps pace with the anguished throbbing in his head). Earlier, in *The Distance Between You and Me*, he addresses his mate directly, telling her that if she took a map of the world and measured all the miles, she might have some idea of how far apart they really are. And when the same couple meet again in the country-waltz of *You're the One*, he learns that she's felt the same crushing blow from a new love, a turn-about that Yoakam clearly relishes: "How's it feel now that you're the one it happened to?"

Fortunately, Yoakam offsets the album's monotony of mood and theme with a stunning smoothness of vocal delivery and a variety of musical styles. *Takes a Lot to Rock You*, with its snide disdain for a woman unmoved by his lovemaking ("When it comes to love/You're double-

tough"), mates a house-burning beat with a slide guitar and a pounding piano. *Since I Started Drinkin' Again* calls on the uptempo rhythms and instrumentation of bluegrass. And *You're the One* even employs the kind of lushly orchestrated "Nashville Sound" Yoakam has repeatedly denounced in his interviews. In other words, this is the first of Yoakam's albums that rolls as well as it rocks.

Yoakam always strikes glamour poses in his photographs, and he's inordinately fond of the tragically hip tears in the knees of his sprayed-on jeans. Consequently, he's still regarded as a hype by much of Nashville's music establishment, dismissed as no more authentically "country" than the made in Taiwan merchandise sold in Music City souvenir shops. Some reservations are still in order, but his music often stands head and shoulders over the "real thing." A little bitterness, in music or romance, is sometimes good for the soul. *Alanna Nash*

DWIGHT YOAKAM: *If There Was a Way*; Dwight Yoakam (vocals, guitar); Patty Loveless (vocal in *Send a Message to My Heart*); Pete Anderson (electric, baritone guitars); Tim O'Brien (mandolin); other musicians. *The Distance Between You and Me*; *The Heart That You Own*; *Takes a Lot to Rock You*; *Nothing's Changed Here*; *Sad, Sad Music*; *Since I Started Drinkin' Again*; *If There Was a Way*; *Turn It On, Turn It Up, Turn Me Loose*; *It Only Hurts When I Cry*; *Send a Message to My Heart*; *I Don't Need It Done*; *You're the One*; *Dangerous Man*; *Let's Work Together*. REPRISE © 26344-4, © 26344-2 (48 min).

ability to think up clever lyrics, often improvising them on the spot with a heavy dose of humor. Rudder has gone one step further and infused elements of American soul music of the Sixties and Seventies, creating what he calls *soca* or soul calypso, a kind of Caribbean music that is both utterly fresh and comfortably familiar.

Rudder has conceived his lyrics with a keen eye to international political developments. Several of the songs in "1990" were inspired by the freedom fight in South Africa, such as the hauntingly beautiful *Working on the Join*, which tells the story of a black miner who must "dig, dig, dig deep into the belly of the earth" each day while he longs for the family he had to leave in his search for work. A dreamlike quality pervades *Victory Is Certain*, which envisions a time when Afrikaners will lay down their guns and a new day of freedom will dawn. In the title song, Rudder ranges far indeed, from Bogota to Beirut to Beijing to Brooklyn's Howard Beach, addressing everything from perestroika to prejudice.

Yet not everything here is heavy with social significance. *Basement Party* captures the flavor of a New York jam with yuppies and "puppies" (poor urban professionals) mingling—until the police arrive to tone down the noise. *Down at the Shebeen* is old-fashioned calypso, celebrating good times and strong drink, as is *Island Delight*. David Rudder paints vibrant musical murals that encourage us to think while we also are having one helluva good time. *PG.*

RUN-D.M.C.: *Back from Hell*. Run-D.M.C., Jam Master Jay (vocals and instrumentals); other musicians. *Sucker D.J.'s*; *The Ave.*; *What's It All About*; *Bob Your Head*; *Faces*; *Kick the Frama Lama Lama*; and ten others. PROFILE PRO-1401, © PCT-1401, © PCD-1401 (55 min).

Performance: *Powerful*
Recording: *One for the woofers*

Run-D.M.C. has cut a ferocious new album whose title suggests a comeback and whose sound confirms it. "Back from Hell" takes an angry, unrelenting look at home-turf neighborhoods wracked by lawlessness, crack, and despair, dissing those doing the dope and the social inequities that drive inner-city denizens to such dead ends. They also manage to brag on themselves, tell a few nasty jokes, and party in the ruins, all the while cutting up their competition with short-lined lightning-quick rhymes, like "This is it/Legit/A hit/I throw a fit/Not slackin' or lackin' a bit . . ."

The real innovation, though, is the way they've fused their raps with the music behind it—some of it taped, scratched, or sampled, some played on "real" instruments—while maintaining the integrity of rap as a *spoken* medium. Sometimes it's so off-the-wall as to be avant-garde—witness the aural collage of *What's It All About*, in which they rap

over both a sampled lounge singer and some of the most dissonant noise this side of a subway tunnel—and sometimes it's funky and tuneful, à la James Brown or E.U. The messages aren't pretty, and if urban holocaust makes you queasy, stick to George Michael. But if you're up for a no-holds-barred adventure, "Back from Hell" is as real as it gets. Sample quote: "To the maximum, I keep askin' 'em/When's the city gonna fix where the blacks are from?" P.P.

TOM RUSSELL BAND: *Poor Man's Dream*. Tom Russell (vocals, guitar, grittas); vocal and instrumental accompaniment. *Blue Wing; The Heart of the Working Man; Veteran's Day; Walkin' on the Moon; Outbound Plane; Bergenfield; Spanish Burgundy*; and six others. 800 DARK ANGEL © 8 DACT1, © 8 DACD1 (51 min). Distributed by 800 Dark Angel, P.O. Box 744, Radio City Station, New York, NY 10101-0744.

Performance: *Sinewy*
Recording: *Good*

Despite an earlier progressive country/folk album, Tom Russell is still better known as a writer whose pithy story songs have graced releases by Nanci Griffith, Jerry Jeff Walker, Ian Tyson, and Johnny Cash. But Russell is a hell of a talent, as potent a performer of his own material as anyone who's ever covered it. That's something his second album, "Poor Man's Dream," should go a long way toward proving.

Russell's strength is his ability to weave taut, psychological stories about the deferred dreams of the ordinary man. In *Blue Wing*, for example, he inhabits the mind of a chronic loser, imprisoned in Walla Walla with his hopes tethered to a tattoo of a bluebird's wing on his shoulder. (I won't divulge what eventually happens to Wing because it would spoil the carefully prepared ending.)

Russell and his co-writers (including Griffith and Tyson as well as Katy Moffatt and Dan Zanes of the Del Fuegos) build a quiet, intense beauty into their lyrics without ever creeping into sentimentality. As a singer, Russell hobbles down the same bass-baritone path as Johnny Cash, coming across as something of an ageless troubadour, crafting socially conscious songs in the American folk tradition. And his band—lean, lithe, and stinking ever so slightly of beer—can play honky-tonk, rock-and-roll, or cowboy music like there's no tomorrow.

But Russell's individual power as a performer is his ability to slip into a song and sing it from his gut, whether he is seething with blue-collar anger and frustration (*The Heart of a Working Man*) or reminiscing about a less complicated time of love and innocence (*Navajo Rug*). More than a few of these tunes will break your heart.

Sadder than the plight of any of his protagonists, however, is that an observer as fine and authentic as Russell

couldn't find a major label for this album. Although it's been available in Canada for some time now, Russell has marketed it mostly through a toll-free telephone number, 800-DAR-KANG, that reappears in the name of his record label. Go ahead. He's only a phone call away. A.N.

SLAYER: *Seasons in the Abyss*. Slayer (vocals and instrumentals). *War Ensemble; Blood Red; Spirit in Black; Expendable Youth; Dead Skin Mask; Hallowed Point*; and four others. DEF AMERICAN © 224307-4, © 224307-2 (42 min).

Performance: *Brutal*
Recording: *Good*

Why do I, a reasonably mature guy, like Slayer? I have no choice. When I listen to "Seasons in the Abyss," I feel I'm in a death grip. The elemental impact of this music, with its Richter-force rhythms and industrial-strength guitars, never lets up. There aren't even pauses between songs. Only a downshifting of tempo or a machine-gun burst of guitar signals that one tune has ended and another has begun. "Seasons in the Abyss" is like one relentlessly churning song crammed with the trashiest of heavy-metal hooks and riffs. The lyrics are dumb—filled with war, death, and devil images—but I don't care. I listen to Slayer not for enlightenment but for intensity. And that's exactly what the band delivers. R.G.

THE WATERBOYS: *Room to Roam*. The Waterboys (vocals and instrumentals); other musicians. *In Search of a Rose; Song from the End of the World; A Man Is in Love; Kalliope House; Bigger Picture; Natural Bridge Blues; Something That Is Gone; The Star and the Sea; A Life of Sundays; Islandman*; and seven others. CHRYSALIS © F4 21768, © F2 21768 (41 min).

Performance: *Sparkling*
Recording: *Okay*

With all the wealth of Irish pop available to us, it can be difficult for a band with traditional leanings to stand out in the crowd. Van Morrison has claimed the mystical higher ground, the Pogues own the postpunk lower sod, and a huge number of bands are fighting it out in between. The Waterboys are right smack in the middle, especially in "Room to Roam." The songs here go back and forth from traditional numbers arranged by the group to sentimental little tunes written by leader Mike Scott. The new stuff sounds fine, if a little sappy compared with the genuine article, but the blend is exceptionally smooth. Fiddles, accordions, flutes, and whistles sound very natural here next to electric guitars, drums, and saxophones. "Room to Roam" may not carve out a distinctive niche for the Waterboys, but it's great good fun. R.G.

(Continued on page 84)



Inc. Magazine

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COLLECTIONS

BEN & JERRY'S NEWPORT FOLK FESTIVAL '88: *Live, Vol. 2.* Queen Ida: *La Louisianne*. Tom Paxton: *One Million Lawyers*. Richard Thompson: *Two Left Feet; The Choke Wife*. Nashville Bluegrass Band: *Goodnight the Lord's Coming/Little Maggie*. George Grizzbach: *Midnight Hour Blues*. Holly Near: *Once or Twice*. Bill Morrissey: *Grizzly Bear*. Doc Watson: *St. James Infirmary*. Dr. John: *Iko Iko*. Cheryl Wheeler: *I Know This Town*. Taj Mahal: *New Statesboro Blues*. And two others on CD. ALCAZAR ALC-105-L, © ALC-105-C, © ALC-105-D (43 min).

Performance: *Alive and kicking*
Recording: *Good remote*

A year after the release of the first volume of performance snippets from Ben & Jerry's Newport Folk Festival comes the eagerly awaited sequel, and a most satisfying sequel it is.

As before, the collection offers a smorgasbord of styles, ranging from the Zydeco romp of Queen Ida's *La Louisianne* to George Grizzbach's *Midnight Hour Blues* to Holly Near's "mushy love song" *Once or Twice*. Almost every performance soars on its own spirit, and even when the material is familiar (Doc Watson's traditional *St. James Infirmary*, Dr. John's classic *Iko, Iko*), the renditions throb with unexpected immediacy. There are lots of arresting performances—Bill Morrissey's grizzled *Grizzly Bear*, the Nashville Bluegrass Band's seamlessly harmonized *Goodnight, the Lord's Coming*, and Richard Thompson's manic *Two Left Feet*, to name a few. One or two selections fail to get up to speed, but the only real problem with a sampler like this, where most artists get just one shot, is that the impressive performances just whet your appetite for more. A.N.

RED, HOT & BLUE. Neneh Cherry: *I've Got You Under My Skin*. Neville Brothers: *In the Still of the Night*. Sinéad O'Connor: *You Do Something to Me*. Fine Young Cannibals: *Love for Sale*. Debbie Harry and Iggy Pop: *Well, Did You Evah!* Kirsty MacColl and the Pogues: *Miss Otis Regrets/Just One of Those Things*. David Byrne: *Don't Fence Me In*. Tom Waits: *It's All Right with Me*. U2: *Night and Day*. k.d. lang: *So in Love*. Lisa Stansfield: *Down in the Depths*. And nine others. CHRYSALIS © F4-21799, © F2-21799 (78 min).

Performance: *Willfully eclectic*
Recording: *Very good*

This collection of Cole Porter covers, recorded to raise consciousness about AIDS and money for AIDS charities, is dizzyingly diverse. The twenty-one acts represented here are all over the map; some take a traditional approach to Porter's Broadway pop tunes, while others freely interpret and deconstruct them. Diversity, in fact, is the point of the

project, whose subtext is that the unhindered pursuit of free expression—in lifestyle, art, or both—makes us strong, while censorship and denial undermine our character. In going about this subtle proselytizing, "Red, Hot & Blue" administers a timely shot in the arm to contemporary pop by resurrecting the work of Porter, a true innovator and craftsman who, interestingly, led a closeted homosexual life in the first half of this century.

On a musical level, each listener will no doubt ferret out his or her own favorites. One highlight has to be Aaron Neville's exquisite vocalism in the Neville Brothers' sweet, satiny version of *In the Still of the Night*. Likewise, Sinéad O'Connor rises to the occasion with a cool, seductive rendition of *You Do Something to Me* that is palpably damp with tempered eroticism. Debbie Harry and Iggy Pop's uptown sendup, *Well, Did You Evah!*, is a flat-out hoot. (Iggy: "And have you heard the story of a boy, a girl, unrequited love?" Debbie: "Sounds like pure soap opera. I may cry!") And it's worth the price of admission to hear U2's weird, synth-heavy take on *Night and Day*, which gets across on the gritty longing, with not a trace of irony, in Bono's vocal. Elsewhere, artists like k.d. lang and Aztec Camera demonstrate a fair knack for the torch song, and rap and African pop forge their own alloys via Jungle Brothers (*I Get a Kick out of You*) and Salif Keita (*Begin the Beguine*). "Red, Hot & Blue" is an estimable and generous act of synthesis, perhaps even a cultural milestone. P.P.



O'Connor: *seductive Porter*

JAZZ

AL COHN AND ZOOT SIMS: *Al and Zoot*. Al Cohn, Zoot Sims (tenor saxophone, clarinet); Mose Allison (piano); Teddy Kotick (bass); Nick Stabulas (drums). *It's a Wonderful World; Brandy and Beer; Two Funky People; Chasing the Blues; Halley's Comet*; and three others (four others on CD). DECCA/MCA © MCAD-31372 (47 min).

Performance: *Dynamic duo*
Recording: *Very good transfer*

Al Cohn appeared on a Zoot Sims Sextet date for Prestige in 1952, but the two tenor saxophonists didn't become an established team until five years later, when Coral released "Al and Zoot," an album by the Al Cohn Quintet featuring Zoot Sims. Now this superb album has re-emerged on CD, with an extra track, *Gone with the Wind*, that originally appeared in a compilation called "Jazz Cornucopia." Of course the Cohn-Sims association really dates back to the late Forties, when both artists played in the Woody Herman Orchestra and made history as members of the Herman Herd's celebrated "four brothers" saxophone lineup (along with Serge Chaloff and Stan Getz).

This set, the result of two 1957 sessions, started an intimate collaboration that would produce many fine albums on a variety of labels. It's a fresh, easygoing romp in a style that embraces both swing and bop, clearly demonstrating the debt both players owed to Lester Young. The rock-steady rhythm section is led by Mississippi pianist Mose Allison—then a newcomer—with bassist Teddy Kotick and drummer Nick Stabulas laying the foundation. While the emphasis here is on the tenor saxophone, Cohn and Sims spend one track on a sonorous clarinet duet called *Two Funky People*—it's a wonderful aside. The next time you see the yuppie "jazz fan" next door bring home a new Kenny G album, lend him your copy of "Al and Zoot." He won't have to be told it's the real thing—every turn of a phrase, every swapped bar will make it abundantly clear. C.A.

CHARLES MINGUS: *At Antibes*. Charles Mingus (bass); Ted Curson (trumpet); Eric Dolphy (bass clarinet, alto saxophone); Booker Ervin (tenor saxophone); Bud Powell (piano); Dannie Richmond (drums). *Wednesday Night Prayer Meeting; What Love?; Better Git Hit in Your Soul*; and three others. ATLANTIC 90532-1, © 90532-4, © 90532-2 (69 min).

Performance: *Indelible*
Recording: *Very good*

The reissue on CD of "Mingus at Antibes" (recorded in July 1960) may be one of the greatest values you will get for your jazz dollar this year. It contains the

entire original double-album, almost 70 minutes of spectacular jazz by an all-star Mingus quintet in top form. Furthermore, one track, *I'll Remember April*, is graced by the addition of pianist Bud Powell. Well, perhaps "graced" is the wrong term, for Powell—whose mental instability often had a severe effect on his performances—displays some weakness here. But it is, all in all, a downpour of brilliance, and drummer Dannie Richmond's backing brings us smoothly to the more motivated horn solos that follow.

The opening track is a stunning rendition of Mingus's passionate, suitably chaotic bow to Holy Rollers, *Wednesday Night Prayer Meeting*. Trumpeter Ted Curson and saxophonist Eric Dolphy testify, as it were, with powerhouse performances that ride over the sanctified melee. Other highlights are Booker Ervin's sinewy tenor sermon in *Prayer for Passive Resistance* and *Better Get Hit in Your Soul*. No more needs to be said about the music—the whole set is a feast for the ears. C.A.

MACEO PARKER: *Roots Revisited*. Maceo Parker (alto saxophone, piano, organ); Fred Wesley (trombone); Don Pullen (organ); Rodney Jones (guitar); Bootsy Collins (bass guitar); other musicians. *Them That Got; Children's World; Better Get Hit in Yo' Soul; People Get Ready*; and four others. VERVE © 843 751-4, © 843 751-2 (51 min).

Performance: *Finger-snappin' good*
Recording: *Excellent*

Maceo Parker is best known for his work with James Brown—he's the saxophonist who gave the Godfather of Soul's band that extra bit of raunchiness. Jazz purists tend to regard his sort of high-decibel rhythm-and-blues as something less than desirable, but it should surprise no one that jazz has not eluded Parker's ears. Mind you, "Roots Revisited" is not one of those albums in which a coarse tenor creature of the soul circuit abandons commercialism. Not at all. It retains all the nasty ingredients that make us snap our fingers and twist our bodies, but it dishes up the funk with a generous sprinkling of individual jazz expression. The edges may be a bit rough here and there, but that is the nature of the beast—this is a fun session, a musical gabfest where the subject ranges from Ray Charles, Sly Stone, and Curtis Mayfield to Mingus and Bird. Don Pullen's full-bodied electric organ lurks throughout, often swelling with soulful bursts. Guitarist Rodney Jones adds skillful layers of sound, and the horns lead the way, sometimes in a slightly chaotic manner that brings to mind the *Saturday Night Live* band but with far more substance. Parker's own style is an eclectic one that encompasses Louis Jordan and Charlie Parker in almost equal measure. C.A.



GEORGE BENSON

AFTER a long sojourn in the lucrative field of contemporary pop, George Benson has made a dramatic return to his home base in jazz, where he first won acclaim two decades ago as a remarkably inventive guitarist. This welcome turnabout was already apparent in his last recording, "Tenderly," which showcased his gifts as a romantic singer in a group of lusciously arranged standards. He continues in the same vein in his new album, "Big Boss Band," where he performs as both singer and guitarist with the Count Basie Orchestra. In the liner notes, Benson says that he had discussed the project with the Count before he died and that the recording realizes a years-long dream.

Firmly rooted in jazz, Benson fits right into the groove of the Basie band, and they make a marvelous combination in this delightful and varied set. Though few of the songs were in Basie's repertory, the classic spirit of the band and its founding leader informs the whole album. That spirit is most evident in the openly swinging numbers like *Without a Song* and *Ready Now That You Are*, a Frank Foster original in which Benson pairs his voice and guitar in a blistering serving of scat.

Benson's funky interpretation of Jackie Wilson's rhythm-and-blues classic *Baby*

Workout is also a real jewel. It's a natural for Benson, who cut his teeth on r-&-b, and the Basie band provides plenty of punch and propulsion. Another standout is the splendid treatment of the Legrand-Bergman ballad *How Do You Keep the Music Playing*.

Two tracks constitute a mini-tribute to the late Nat "King" Cole: a buoyant rendition of *Walkin' My Baby Back Home* and a lush arrangement of *Portrait of Jennie*, which Cole immortalized many years ago and which still shimmers with a rare beauty. *Jennie* is the only track in which Benson is not joined by the Basie band; instead, he's backed by Britain's superb fifty-two-piece Robert Farnon Orchestra.

All told, "Big Boss Band" is a finely crafted set that's guaranteed to bring solid musical satisfaction. Phyl Garland

GEORGE BENSON: *Big Boss Band*. George Benson (vocals, guitar); the Count Basie Orchestra; the Robert Farnon Orchestra; other musicians. *Without a Song; Ready Now That You Are; How Do You Keep the Music Playing; On Green Dolphin Street; Baby Workout; I Only Have Eyes for You; Portrait of Jennie; Walkin' My Baby Back Home; Skylark; Basie's Bag*. WARNER BROS. 26295-1, © 26295-4, © 26295-2 (42 min).



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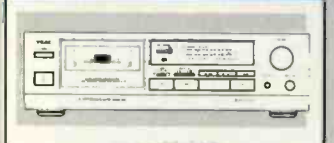
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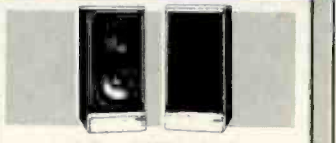
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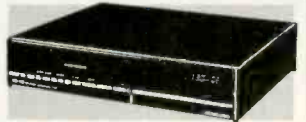
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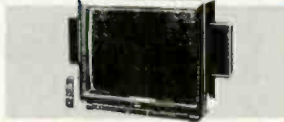
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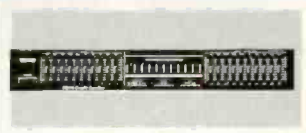


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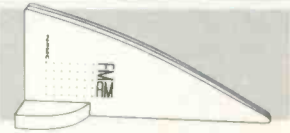
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by *Christie Barter & Maryann Saltser*

IN honor of John Lee Hooker's recent induction into the Rock & Roll Hall of Fame, Chameleon Music Group has reissued a number of Hooker



Hooker: classics reissued

classics on compact disc. Titles include "I'm John Lee Hooker," "The Soul of John Lee Hooker," "Travelin'," "Concert at Newport," and "Soul Meeting," which features fellow Hall of Fame inductee **Jimmy Reed**.

In a career spanning some



Pinchas Zukerman

Pinchas Zukerman's first recordings under his new exclusive contract with BMG Classics will be released in March to coincide with an American tour by the English Chamber Orchestra, with which he will be appearing as conductor and

violin soloist. He serves in both capacities with the ECO in their new album of the Bach violin concertos. In another album he is accompanied by the pianist **Marc Neikrug** in three of Mozart's violin sonatas and the G Minor Variations, the first volume in a complete cycle of Mozart's works for violin and piano. Zukerman and Neikrug will also record complete Beethoven and Brahms cycles for BMG. Other prominent artists scheduled to record with Zukerman are the violinist **Itzhak Perlman** (an album of Mozart and Leclair sonatas) and the conductors **Leonard Slatkin** (Bartók concertos) and **Zubin Mehta**.

THE latest act to hit the club music scene is C&C Music Factory, the brainchild of pro-

ducers Robert Clivilles and David Cole. The title track from the group's debut Columbia album, "Gonna Make You Sweat," climbed to the top of the *Billboard* dance charts in a mere three weeks.

C&C Music Factory teams rapper **Freedom Williams** and newcomer **Zelma Davis** with such seasoned artists as **Martha Wash**, who performed as part of the **Weather Girls** and **Two Tons o' Fun** and was a back-up vocalist for disco star **Sylvester**. Clivilles and Cole's first success as starmakers was with the group **Seduction**, for which they wrote, arranged, and produced the hit album "Nothing Matters Without Love" (it earned a Gold record). They've also remixed albums for **Natalie Cole**, **Grace Jones**, and **New Kids on the Block**.

MESA Records' "Voices," a boxed set of three CD's described as a "compilation of the world's greatest choirs," features performances by thirty-three choral ensembles, ranging in size from the modest **Overtone Choir Düsseldorf** and **Ladysmith Black Mambazo** to the massive **London Symphony Chorus**. The music, most of which conveys a spiritual message, is equally wide ranging. A few examples are the "Amen" from Handel's *Messiah* performed by **John Eliot Gardiner's Monteverdi Choir**, a mantric *Om* sung by a group of Tibetan monks, an excerpt from the Mozart Requiem performed by the **Viena State Opera Choir**, some Japanese Zen music, a selection by the popular women's choir called **Le Mystère des**

Voix Bulgares, and the "*Hosanna in excelsis*" from **J. S. Bach's B Minor Mass** sung by the **Bach Choir of Munich**. "Voices" is distributed by **CEMA**, a division of **Capitol Records**.

THE new Sony Classical re-recording of *Man of La Mancha*, the 1966 **Mitch Leigh-Joe Darion** musical based on the life and times of Cervantes's **Don Quixote**, stars **Placido Domingo** in the title role, **Mandy Patinkin** as **Sancho Panza**, and **Julia Migenes** as **Aldonza**. In lesser roles are a couple of artists Domingo would feel right at home with on the opera stage, tenor **Jerry Hadley** and basso **Samuel Ramey**, and a couple he's never appeared with profes-



Domingo and Sons

sionally—his two sons, **Alvaro** and **Placido, Jr.**, who are making their recording debuts. The recording sessions began last June in New York, where **Alvaro**, twenty-two, is studying film, and **Placido, Jr.**, twenty-five, is studying music, both at **NYU**.

SUPERSTAR country mother/daughter duo the **Judds** have served notice that their current "Love Can Build a Bridge" concert tour will be their last, as singer-songwriter and mom **Naomi** is retiring from performance for health reasons. "I have always told our fans that the only thing that could stop me from this career that I desperately love would be my health. Unfortunately, that is what has happened," **Naomi** announced recently. She will continue songwriting, however.



C[ivilles] & C[ole] Music Factory

EBET ROBERTS

MARTHA SWOPE/BMG CLASSICS

SONY CLASSICAL

COLUMBIA RECORDS



The Judds: breaking up is hard to do

Daughter Wynona will enter the recording studio toward the end of this year to embark on a solo career. "I have the support of my manager, my mother, and others around me," Wynona noted. "I will certainly give it my best shot." An album is due in spring 1992.

In the meantime, the Judds can be seen—in 3-D, yet—in their final, state-of-the-art video compilation, "Love Can Build a Bridge" (MPI). Call 1-900-288-JUDDS or 1-900-786-4000 to receive a pair of 3-D glasses and coupons worth \$5 off the price of the tape. All proceeds from the calls, which cost \$2 each, will be donated to charity. □

A WISE young man once sang that to everything there is a season. Now twenty-five years older, Roger McGuinn is still singing; in fact, the founder and frontman of the Byrds has just released "Back from Rio," his first solo album in over a decade and his Arista debut. It reunites him with former bandmates David Crosby and Chris Hillman, who also joined him earlier this year when the Byrds were inducted into the Rock & Roll Hall of Fame.

"Back from Rio" benefits

from the contributions of a few other guest stars, too. Elvis Costello and Spiritual Cowboy Dave Stewart lend their songwriting talents, and Michael Penn and ex-Eagle Timothy B. Schmidt pitch in on vocals. The first single, *King of the Hill*, is a duet with Tom Petty, who had a hit last year with an updated version of the Byrds classic *Feel a Whole Lot Better*. "Without my friends,"

McGuinn said, "this album could never have happened." □

O N March 14, PBS will broadcast a gala concert taped in Leningrad by artists from the Soviet Union and other countries celebrating the 150th anniversary of the birth of the Russian composer Peter Ilyitch Tchaikovsky. The soloists include Jessye Norman, Itzhak Perlman, and Yo-Yo Ma with the Leningrad Philharmonic under Yuri Temirkanov. March 14 falls during PBS pledge weeks, so the broadcast date and time may vary. Check local listings.

All major classical record companies are releasing recordings by Tchaikovsky during the anniversary season. New versions of his Violin Concerto have been issued on CD by Angel, with Itzhak Perlman, and by Denon, with Jean-Jacques Kantorow. Denon has released Tchaikovsky's Fifth Symphony with Eliahu Inbal conducting the Frankfurt Radio Symphony, and BMG Classics has released a performance of the Fifth by the St. Louis Symphony under Leonard Slatkin. New performances of the opera *The Queen of Spades* are available on Sony Classical and on the Art & Electronics label of MCA Classics.

The Soviet conductor Mark

Ermler has recorded all three of the big Tchaikovsky ballets—*Swan Lake*, *Sleeping Beauty*, and *The Nutcracker*—with the Orchestra of the Royal Opera House Covent Garden. Produced by the English company Conifer Records, these are the first CD's marketed in the U.S. on the Royal Opera House label. □

G RACENOTES. Sundazed Records, the innovative independent reissue label spe-



Covent Garden's Swan Lake

cializing in Sixties garage-band rock (albums by the Knickerbockers, the Five Americans, and the Trashmen), has just acquired the Dunwich Records catalog, including every note ever recorded by Chicago's legendary Shadows of Knight (*Gloria*). Look for a Shadows CD repackaging by mid-summer. . . . Noted without comment: The latest video by squeaky-clean teen idol Tiffany (*Here in My Heart*) was shot in the same hotel corridor featured in Madonna's too-hot-for-MTV *Justify My Love*. . . . New York's Lincoln Center for the Performing Arts, home of the New York Philharmonic, the Metropolitan Opera, and other highbrow institutions, has added a jazz department, with trumpeter Wynton Marsalis as creative consultant. . . . The Kronos Quartet has released three CD/cassette "singles" on Elektra Nonesuch, specially priced at \$7.98 and \$5.98. The three works in the new format are Witold Lutoslawski's String Quartet, Astor Piazzolla's Five Tango Sensations (with Piazzolla on bandoneon), and *Hunting-Gathering* by South African composer Kevin Yolans. □

McGuinn: a season for singing



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BARTÓK: Concerto for Orchestra; Music for Strings, Percussion, and Celesta. Oslo Philharmonic Orchestra, Mariss Jansons cond. EMI/ANGEL © CDC 54070 (68 min).

Performance: *Crisp, clean*
Recording: *Likewise*

The pairing of these two most popular of Bartók's large-scale orchestral works makes for ideal programming. Indeed, it is fascinating to sense the affinities between the taut Music for Strings, Percussion, and Celesta (1936) and the later, more relaxed Concerto for Orchestra (1943).

The reading of Music for Strings, Percussion, and Celesta led by Mariss Jansons is sharply honed and has a fine, tensile quality of rhythm and phrasing. The slow, fugue-textured opening works its way to a splendidly intense climax. The elaborately contrapuntal and metrically complex allegro that follows is handled by the Oslo players with a mastery that one would not have thought possible for them a decade ago. The slow movement is breathlessly atmospheric, and the finale goes with great verve up to the expansive coda, where the strings take on a more than usually dark coloration—all the better to add impact to the final dash home at the end.

The Concerto for Orchestra follows much the same interpretive scheme. The vibratoless string playing in the opening pages has a wonderfully spooky quality that sharpens the contrast with the virtuosic main body of the movement. The paired woodwinds of the second movement dance their way across the stereo stage in as jaunty a fashion as one could wish. As in the Music for Strings, Percussion, and Celesta, the high point musically and interpretively is the slow movement, especially in its final pages. The humor of the *Intermezzo interrotto* is well in evidence here but does not become kitschy, and the finale, with its defiant yea-saying at the close, is swift, urgent, and brilliant, as was intended by the composer.

The sonics represent a distinct im-

provement over EMI's past work in Oslo in terms of brilliance and sense of space. Still, my own preference remains the Dutoit-Montreal version of the same coupling on London, which has the edge in refinement and sheer sonic brilliance. But Jansons and his players offer a touch more drive and tautness. Take your pick. *D.H.*

BRAHMS: Piano Concerto No. 2; Piano Pieces (see Best of the Month, page 74)

BRUCKNER: Symphony No. 7, in E Major. Vienna Philharmonic Orchestra, Herbert von Karajan cond. DEUTSCHE GRAMMOPHON © 429 226-4, © 429 226-2 (66 min).

Performance: *A masterly valedictory*
Recording: *Dark-hued splendor*

This last of Herbert von Karajan's studio recordings finds him probing the depths and heights of the Bruckner Seventh in his third interpretation of it on disc in a nearly twenty-year period. Although his 1971 EMI/Angel and 1977 Deutsche Grammophon versions (both now on CD) were done with the Berlin Philharmonic, the new recording was made with the



Earl Wild: large-scale Chopin

Vienna Philharmonic. The hall was the Musikverein Grosser Saal, site of Karajan's early recording triumphs released on British and U.S. Columbia.

If this valedictory reading offers no profound new insights not found in Karajan's earlier interpretations, it does have a decided sonic edge, enhanced not only by the recording locale but also by the luminous Vienna strings, which limn the countermelodies of the first movement in a most noble and transparent fashion. The great adagio is darkly ruminative, with the main theme approached in a more legato fashion than usual and with the controversial cymbal crash at the climax treated in a recessed rather than a brazen fashion. Its final elegy,

with the Wagner tubas, makes a particularly poignant impact under the circumstances. The scherzo is wonderfully rugged in its opening and closing sections, and the central portion is touchingly bucolic. The high point of the finale is the splendidly assertive execution of the unison recitatives.

All in all, this recording is a fine souvenir of Karajan's interpretive mastery in Bruckner, which he retained to the very end. I confess, however, my continued partiality to Riccardo Chailly's Berlin Radio Symphony CD on London, a luminous reading in superb sound. *D.H.*

CHOPIN: Ballades: G Minor, Op. 23; F Major, Op. 38; A-flat Major, Op. 47; F Minor, Op. 52. Scherzos: B Minor, Op. 20; B-flat Minor, Op. 31; C-sharp Minor, Op. 39; E Major, Op. 54. Earl Wild (piano). CHESKY © CD44 (69 min).

Performance: *Inspiring*
Recording: *Outstanding*

These are large-scale, dramatic readings, generating excitement from far below the surface, and as free of gimmickry as of cliché. One senses long and intimate commitment, reflection, and out-and-out love for music and musicmaking—as well as an apparently unlimited resource of sheer vigor that seems to contradict the figures that tell us Earl Wild turned seventy-five last November. In any event, he continues to be one of the masters of the great Romantic repertory, and that vigor is as much to the point as the reflectiveness in his playing of these Chopin works.

It is not merely a matter of checks and balances but of the emotional range that is more than implicit in this music. Wild doesn't overindulge, but he doesn't hold back, either. Not for him the supposedly elegant understatement or suppressed sighs in the form of wispy filigree. This is not the sort of playing one can imagine in a salon; it is clearly proportioned for the concert hall, for a space in which storms can rage and the lyric passages can soar out of them. It is, in a word, gutsy. It will upset some listeners who have very set ways of regarding Chopin as all gossamer; they will find Wild's way too muscular, too "Lisztian" by half. But such a notion is unrealistically confining in respect to both Chopin and Liszt. Those who listen with open ears and open hearts can only find stimulation.

Resistant ears and hearts may indeed be *pried* open by Wild—and by the brilliant realism of Chesky's sound. In addition to its musical virtues, the disc strikes me as one of the finest recordings of a piano I have yet heard—as uncluttered and direct as the playing itself, and ideally focused to give us the perspective of the best seat in the hall rather than the inside of the instrument. *R.F.*

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DONIZETTI: *L'Elisir d'Amore* (see Best of the Month, page 76)

MOZART: *Così Fan Tutte*. Karita Mattila (soprano), Fiordiligi; Anne Sofie von Otter (soprano), Dorabella; Thomas Allen (baritone), Guglielmo; Francisco Araiza (tenor), Ferrando; Elzbieta Szmytka (soprano), Despina; José Van Dam (baritone), Don Alfonso; Ambrosian Opera Chorus, Academy of St. Martin in the Fields, Neville Marriner cond. PHILIPS © 422 381-2 three CD's (191 min).

Performance: *Bright and lively*
Recording: *Elegant*

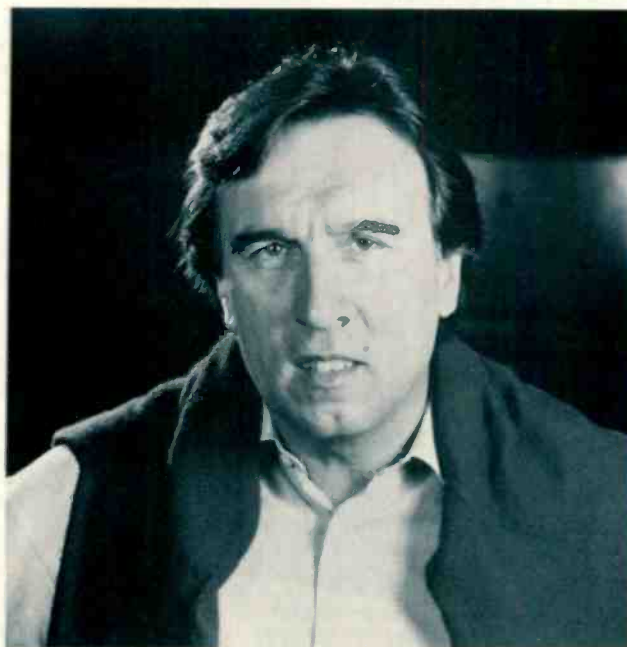
Nobody seems to have noticed it, but both of Mozart's successful German musicals have the same story (European girl abducted by wicked Oriental potentate who turns out to be a good guy), and all three of his Italian comedies with Lorenzo da Ponte have the same theme (the male obsession with seduction and the susceptibility of women thereunto). Why, then, has *Così Fan Tutte* engendered so much serious nonsense about its subject—not merely in the last century or two but even in the liner notes to this current release? *Così* is an elegant and farcical satire on male machismo written by an Italian and set by a Viennese. The eighteenth-century Viennese (no strangers to male vanity) were more amused by it than by any of Mozart's other Italian comedies.

This recording comes hard on the heels of Neville Marriner's new *Magic Flute* and follows not long after Daniel Barenboim's exceptional *Così*. Like those, and like many other opera recordings today that are conductor-centered, it lacks roots in the theater. Dramatically, it is an improvement on Marriner's *Flute*, which uses actors for the dialogue and lacks a consistent point of view. At least here the performers seem to be having fun. The outstanding singer is Thomas Allen, who portrays Guglielmo with superb timing and musical phrasing. José Van Dam is a mildly philosophical Alfonso. Francisco Araiza's singing is somewhat variable, but he is the most stylish Mozartean in the cast. The women get a B-plus; only Anne Sofie von Otter is at ease in her character. The playing is bright, the tempos lively.

As in the *Flute*, Marriner deals with the opera in a very inconsistent way; I certainly expected much more attention to Mozartean performance practice. The truth is that a real feeling for dramatic ensemble, character, theatrical concept, and stylish performance practice cannot be tossed together in a recording studio. It takes a long period of working together and a strong hand at the helm. *E.S.*

MOZART: *Piano Concerto No. 20, in D Minor (K. 466); Piano Concerto No. 25, in*

ABBADO'S RAVEL



CLAUDIO ABBADO'S unhurried survey of the orchestral works of Ravel, undertaken with the London Symphony Orchestra when he was its chief conductor, is now complete with Deutsche Grammophon's release of a disc containing two ballet scores Ravel produced at about the same time, his masterwork *Daphnis and Chloe* and the orchestral version of the *Valses Nobles et Sentimentales*. This *Daphnis* not only marks the completion of Abbado's Ravel cycle but is its true culmination as well. It is, in fact, one of the finest things the conductor has given us since he started making recordings, and one of DG's finest reproductions of an orchestra. It also takes a highly individual approach that may not be to every listener's taste, but so great a score calls for more than a single representation in any comprehensive collection.

Abbado's is a conspicuously cooler, more stylized realization than any of the great interpretations recorded before, as if, in a sense, we were regarding the tale from the vantage point of antiquity—statues and urns rather than human drama. It is more a dramatic *telling* of the tale than a re-enactment of it. Within that frame, there is no lack of animation or color. The orchestral playing is on the very highest level in terms of both brilliance and subtlety, as are the wordless contributions of the LSO Chorus, and DG's sonics have these elements in ideal

balance. The company has outdone itself, too, in providing no fewer than eighty-three index points (in twenty-four tracks) cued to specific sections of the ballet. Each section is described in the annotative booklet in words from the score (translated by Felix Aprahamian).

If the inclusion of so many cue points gives this *Daphnis* an obvious advantage over some earlier CD versions that present the work in a single track, the addition of the *Valses Nobles et Sentimentales* provides a still more substantial advantage over those discs that offer *Daphnis* all by itself. In the *Valses*, too, Abbado's approach is definitely cooler than the norm, but again provocative for its freshness and elegance, and again the orchestra is at the very top of its form. Anyone's "basic" *Daphnis*, I think, would have to be Monteux's, recorded with the same orchestra some thirty years earlier and splendidly preserved in London's midprice CD transfer, and in the *Valses* my loyalty to Reiner on RCA is similarly preserved. But Abbado's versions are among the very few worthy of standing beside those, and the sound quality is quite an enticement in its own right. *Richard Freed*

RAVEL: *Daphnis and Chloe (complete); Valses Nobles et Sentimentales*. London Symphony Chorus and Orchestra, Claudio Abbado cond. DEUTSCHE GRAMMOPHON © 427 679-2 (70 min).

C Major (K. 503). Arturo Benedetti Michelangeli (piano); North German Radio Symphony Orchestra, Cord Garben cond. DEUTSCHE GRAMMOPHON © 429 353-2 (69 min).

Performance: *Disappointing*
Recording: *Likewise*

In the last eight or ten years Deutsche Grammophon has probably made a greater number of live recordings than any other major company, and it has managed to issue nearly all of them

without including the applause, whose presence really becomes tiresome with repeated listening. On this new disc, though, recorded live in Bremen, Germany, in June 1989, we get the applause *before* K. 466 as well as *after* both concerts—even though the clapping is on separate tracks and could easily have been eliminated.

The concert, I'm afraid, was not much of an "event." Arturo Benedetti Michelangeli's very name may continue to inspire excitement, but anyone listening

with honest ears will find the gestures hollow here. Both performances are solos with accompaniment rather than the integrated statements these dramatic and symphonically conceived works call for, and there is precious little in the way of real vitality in either one of them. The solo playing is stiff and uninvolved; one notices the exceptional regard for tone but misses any real feeling for the music. The orchestral contribution, except for the finale of K. 503, is undistinguished and none too evenly recorded. *What, one must wonder, was all the clapping really about?* R.F.

MOZART: Violin Concerto No. 2, in D Major (K. 211); Violin Concerto No. 7, in D Major (K. 271a); Rondo in C Major (K. 373). Cho-Liang Lin (violin); English Chamber Orchestra, Raymond Leppard cond. SONY CLASSICAL © ST 44913, © SK 44913 (53 min).

Performance: *Elegant*
Recording: *Pellucid*

With this disc Cho-Liang Lin and Raymond Leppard complete their traversal of the five remarkable violin concertos Mozart produced in his nineteenth year, adding for good measure the C Major Rondo from his first months in Vienna. While the K. 211 concerto is no match in substance or interest for the last two of the series—K. 218, also in D Major, and K. 219, in A Major (the "Turkish" Concerto)—Lin makes the most of what there is, and he does so with the greatest elegance and taste. In Mozart's own words, things go "like oil." Leppard provides knowing and caring support, and Sony's new "high-definition sound" technology produces an exceptionally clear recording.

If the K. 373 rondo, with its ingeniously elaborated material, makes for a most enjoyable filler, the K. 271a concerto, though pleasing enough, may not be genuine Mozart. The musicological consensus is that the virtuosic element in the solo writing is rather ahead of its time. Sir Donald Tovey may have put it right when he noted (in his *Essays in Musical Analysis*) that the score is "not in a perfectly satisfactory state of preservation; but, if it is a forgery, it is an exceedingly clever one." D.H.

MOZART: Symphony No. 38, in D Major (K. 504, "Prague"); Symphony No. 39, in E-flat Major (K. 543). English Baroque Soloists, John Eliot Gardiner cond. PHILIPS © 426 283-2 (66 min).

Performance: *Meticulous*
Recording: *Excellent*

Though a champion of original instruments, John Eliot Gardiner has never aimed at authenticity for its own sake but strives for performances that are alive and immediate. He has achieved these ends here by means of creative solutions quite different from those of Christopher Hogwood, who made his pioneering venture with these late Mozart sympho-

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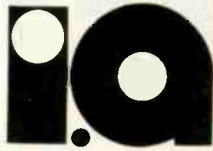
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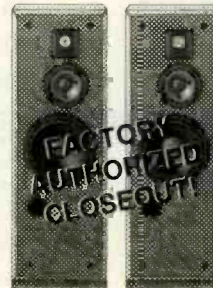
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nies for L'Oiseau-Lyre in the early 1980's. Hogwood's orchestra for the "Prague" Symphony is a small one, of Mozartean proportions; Gardiner's sounds at least twice as big. But it doesn't really matter who is right, only who is more convincing. By that criterion, Gardiner has the edge. His tempos are often slightly slower, with greater contrast from one movement to another. Hogwood takes the slow introduction to the first movement of No. 39 briskly; Gardiner gives the music a grandeur and staleness more typical of modern-instrument performances.

Yet there is nothing conventional about Gardiner's interpretation. Every layer of the orchestration, every phrase, every nuance has been deeply considered and meticulously explored. It is a performance full of revelations, but it occasionally seems rather mannered. While Gardiner's thorough rethinking of the music forces you to consider it afresh as well, you sometimes wish he'd relax and let the music flow. (Frans Brüggen does just that in his performances on Philips, but at times to the point of blandness.) The ideal authentic-instrument coupling of these works is yet to come, but Gardiner's is certainly the best so far. *D.P.S.*

SHOSTAKOVICH: *String Quartets: No. 7, Op. 108; No. 8, Op. 110; No. 9, Op. 117.* Brodsky Quartet. TELDEC © 244 919-2 (60 min).

Performance: *Hair-raising*
Recording: *Very clean*

The Brodsky Quartet from Great Britain is another of those young chamber groups that credits its clothing designer on its album covers. But the cynicism that this inspires is immediately dispelled by the group's playing. In this second installment of its Shostakovich cycle, the Brodsky Quartet displays not only the intelligence and virtuosity you'd expect from four bright young string players but also the most distinctive tonal sheen since the postwar Quartetto Italiano, along with a high energy level that's exciting in itself.

The group's approach to these Shostakovich works is somewhat black and white; that is, they bleach out much of the music's color, allowing the thematic events to emerge in stark relief, if with somewhat less detail than in other readings. The playing has such clarity and musicality that even the most furious moments are spellbinding. The Fitzwilliam Quartet, in its recordings on London, may look deeper into these works, which seem more like suites meditating on the brutality of existence than string quartets in the formal sense. But the Brodsky's cooler, less pathos-laden approach is equally valid and, in some ways, more thrilling. *D.P.S.*

TCHAIKOVSKY: *Symphony No. 5, in E Minor, Op. 64; The Tempest, Op. 18.* Saint Louis Symphony Orchestra, Leonard

Slatkin cond. RCA © 60425-4-RC, © 60425-2-RC (72 min).

Performance: *Mixed bag*
Recording: *Good Tempest*

Leonard Slatkin's recording of the Tchaikovsky Fifth, with its ample rubato and cadential pull-ups, is decidedly free-wheeling—at the opposite interpretive pole from, say, the almost brutally straightforward reading by Georg Solti with the Chicago Symphony on London. Except for some neatly articulated violin work midway in the waltz movement, the execution by the Saint Louis Symphony is fairly run of the mill, and the 1988 recorded sound, rather low in level and a bit shy of presence in the violins, also seems to fall short of the standard for this orchestra's recordings.

As for *The Tempest*, Slatkin's broad-gauge interpretation is very effective in the opening seascape and later love music. He also kicks up a splendid storm along the way. The recorded sound seems superior to that of the Fifth Symphony in terms of space and tonal body.

A choice of preferred recordings of this work is not easy. With the vital James DePriest version on Delos you also get *Hamlet* and the *1812*. The Claudio Abbado-Chicago Symphony recording on CBS is coupled with a not altogether satisfying "Little Russian" Symphony. Maybe one day someone with good programming sense will give us a single CD with all three of Tchaikovsky's Shakespearean pieces. *D.H.*

VERDI: *Quattro Pezzi Sacri; Pater Noster.* Choir of King's College, Cambridge; Cambridge University Music Society; London Philharmonic Orchestra, Stephen Cleobury cond. ARGO © 425 480-2 (46 min).

Performance: *Inner intensity*
Recording: *King's College Gothic*

Verdi sung by boy sopranos in the Gothic precincts of a medieval English university? The idea is not as far-fetched as one might think. These exquisite final thoughts from the Italian master show his study and love of the music of Palestrina; in fact, three of the five pieces are *a cappella*. Only the *Stabat Mater* is really theatrical in tone. The *Te Deum*, the other piece with orchestra and my favorite, synthesizes the composer's illustrative, dramatic, and emotional genius with an intensely personal and exalted vision.

For this recording, the all-male King's College Choir seems to be mingled with another chorus that includes women and other grownups, enabling conductor Stephen Cleobury to bring the bright, heavenly boys' voices to the fore or to use a richer, fuller choral sound as appropriate. There is rapture, but rapture arising from an inner intensity. One might think of the record as a kind of posthumous honorary degree from Cambridge, awarded to the old maestro with affection and great admiration. *E.S.*

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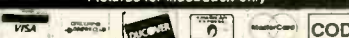
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HCC 4200	188	8691 RT	189
HCC 4300	188	8692 RT	189
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ENCORES

AFTER a concert he conducted in Chicago in the spring of 1960, about a year before his death, Sir Thomas Beecham was asked to name his own favorite among his recent recordings. Without hesitation, he specified the Symphony No. 1 of Mily Balakirev, a work whose undeserved neglect he was determined to rectify.

Asked about a similarly neglected Sibelius title, he settled back in his chair, puffed on his cigar, and said grandly, "Oh, we've done enough for Sibelius." And indeed he had. It was in England that the great Finnish composer enjoyed his most effective and most consistent support, and no one did more for his cause, in concerts and recordings, than Beecham.

The Balakirev symphony and no fewer than ten Sibelius titles are among the seven midprice CD's (also available on cassette) in the initial release of EMI/Angel's new Beecham Edition, and they are every bit as welcome now as when they were first issued on LP. Even *more* welcome, in fact, since the sound quality in most cases represents a significant improvement over the respective LP's.

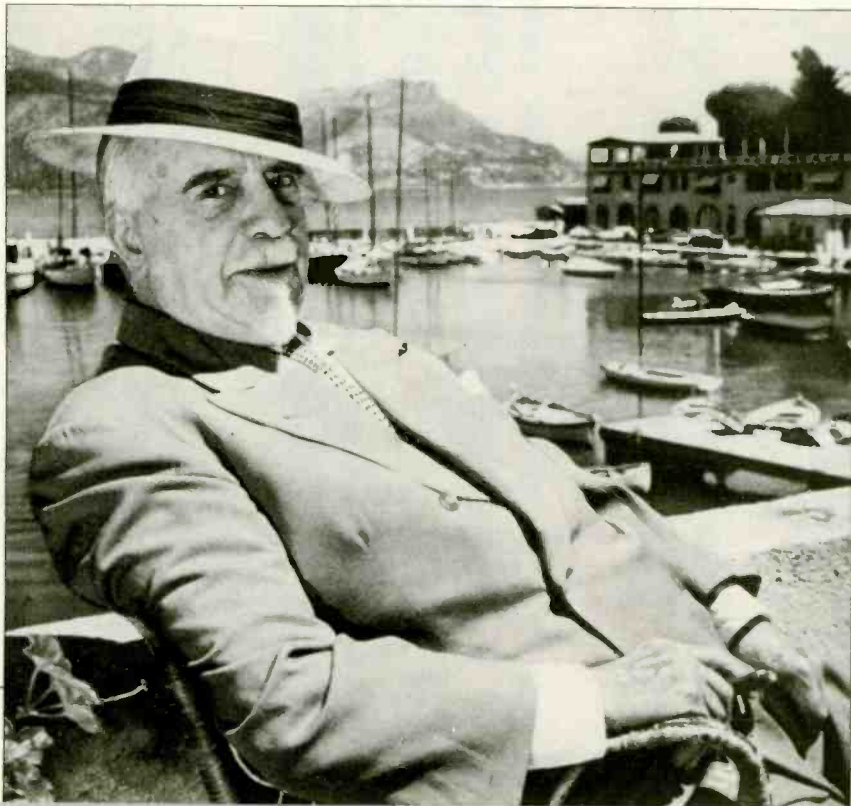
After putting out a few scattered Beecham reissues on CD in the last few years—among them a two-disc set of all the Delius he recorded in stereo, his *La Bohème* with Victoria de los Angeles and Jussi Björling, and some treasurable Berlioz and Bizet—EMI has shown its seriousness about the new project not only by giving it a name but by arranging with CBS Records to include recordings

Sir Thomas made for the American company during the early 1950's. Some of the material has never been issued in our country before.

Beecham's recording with his Royal Philharmonic Orchestra of Sibelius's music for *The Tempest*—fourteen of the eighteen numbers in the two concert suites—has been a collector's item for more than thirty years. It was issued in England on a short-lived Philips 10-inch LP at the end of 1955 (Philips being American Columbia's trans-Atlantic partner at the time); only three excerpts found their way to our shores, in a grab-bag of encore pieces. Now we have it all at last, and, while the sound is a bit thick, it is a splendid account of music we never get to hear in our concert halls. With it on CDM-63397 is more monophonic Sibelius: four of the *Scènes historiques* (*Festivo* from the Op. 25 set, all of Op. 66), the *Intermezzo* and *Alla marcia* from the *Karelia Suite*, and the prewar *Finlandia* with the London Philharmonic, Beecham's only recording of that work.

The four Sibelius works Beecham and the RPO recorded in stereo at the end of 1955, in observance of the composer's ninetieth birthday, are on CDM-63400: the Symphony No. 7; another of the great sets of theater music, the suite from *Pelléas et Mélisande* (from which Sir Thomas customarily omitted the third number, "By the Sea"); the magnificent valedictory tone poem *Tapiola*; and the lesser-known earlier one, *The Oceanides*, which was recorded at the composer's request. All of this is Beecham at his best, in more than acceptable sound.

Sir Thomas Beecham



The last Sibelius in this batch is a 1954 live performance of the Second Symphony with the BBC Symphony Orchestra, paired with a live one of Dvořák's Symphony No. 8 with the RPO from 1959, both appearing in the U.S. for the first time (CDM-63399). The Sibelius is especially exciting, justifying the storm of applause and cheering, but not as valuable musically as the two all-Sibelius discs—or the Balakirev.

The first of Balakirev's two symphonies, as rich in both color and wonderful tunes as Rimsky-Korsakov's *Scheherazade*, and a good deal fresher, had an incomparably persuasive champion in Beecham. His affection for the music is apparent in every bar, his orchestra was at the very top of its form, and the early-stereo recording stands up well. The disc also includes the CBS/Philips mono recording of Balakirev's tone poem *Tamara*, not quite as fetching as the symphony but abundantly appealing in its own right (CDM-63375).

Sir Thomas's sure instinct for French music is celebrated in a delicious collection of short works, mostly on the lighter side, all in very good stereo sound. The highlights of CDM-63379 are an especially stylish performance of Delibes's ballet suite *Le Roi s'amuse* (which includes the once famous *Passepied*), with the RPO, and a downright adorable one of Fauré's *Dolly Suite* (orchestrated by Henri Rabaud), played by the French Radio Orchestra.

Other items on this disc are Fauré's Pavane, Bizet's *Carmen Suite* No. 1, Debussy's *Afternoon of a Faun*, and *Le Rouet d'Omphale* by Saint-Saëns. We might have wished for Sir Thomas's exceptional account of his own suite from Bizet's *La Jolie Fille de Perth* instead of the *Carmen Suite*, and I hope that gem will turn up later in the series.

The two remaining discs, both mono, are somewhat less striking than those already mentioned but are nonetheless representative of Beecham's characteristic blend of elegance and vitality. On CDM-63380 he conducts spirited and warmhearted accounts of Tchaikovsky's Symphony No. 4 and *Nutcracker Suite*; on CDM-63398 there are engaging ones, recorded a bit earlier and less vividly, of symphonies by Schubert (the *Unfinished*), Beethoven (No. 8), and Mendelssohn (No. 4, the *Italian*).

In 1979 St. Martin's Press marked the centenary of Sir Thomas's birth with a slim volume of *Beecham Stories*. Some of the best stories, for reasons the sensitive reader may imagine, were not included in that collection, but the appearance of the Beecham Edition, and the thoughtfulness evident in the processing and the packaging, must encourage the expectation that EMI will not leave out any of the best recordings.

Richard Freed

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Stereo Review, 1987

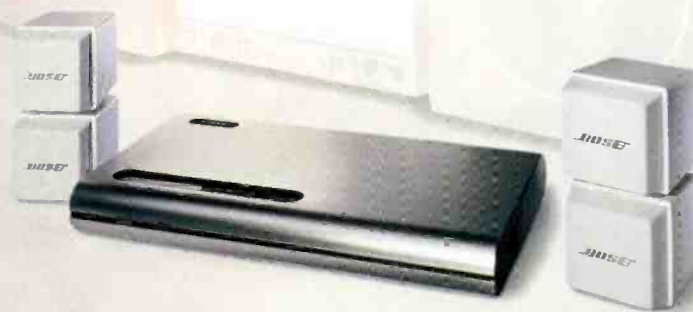


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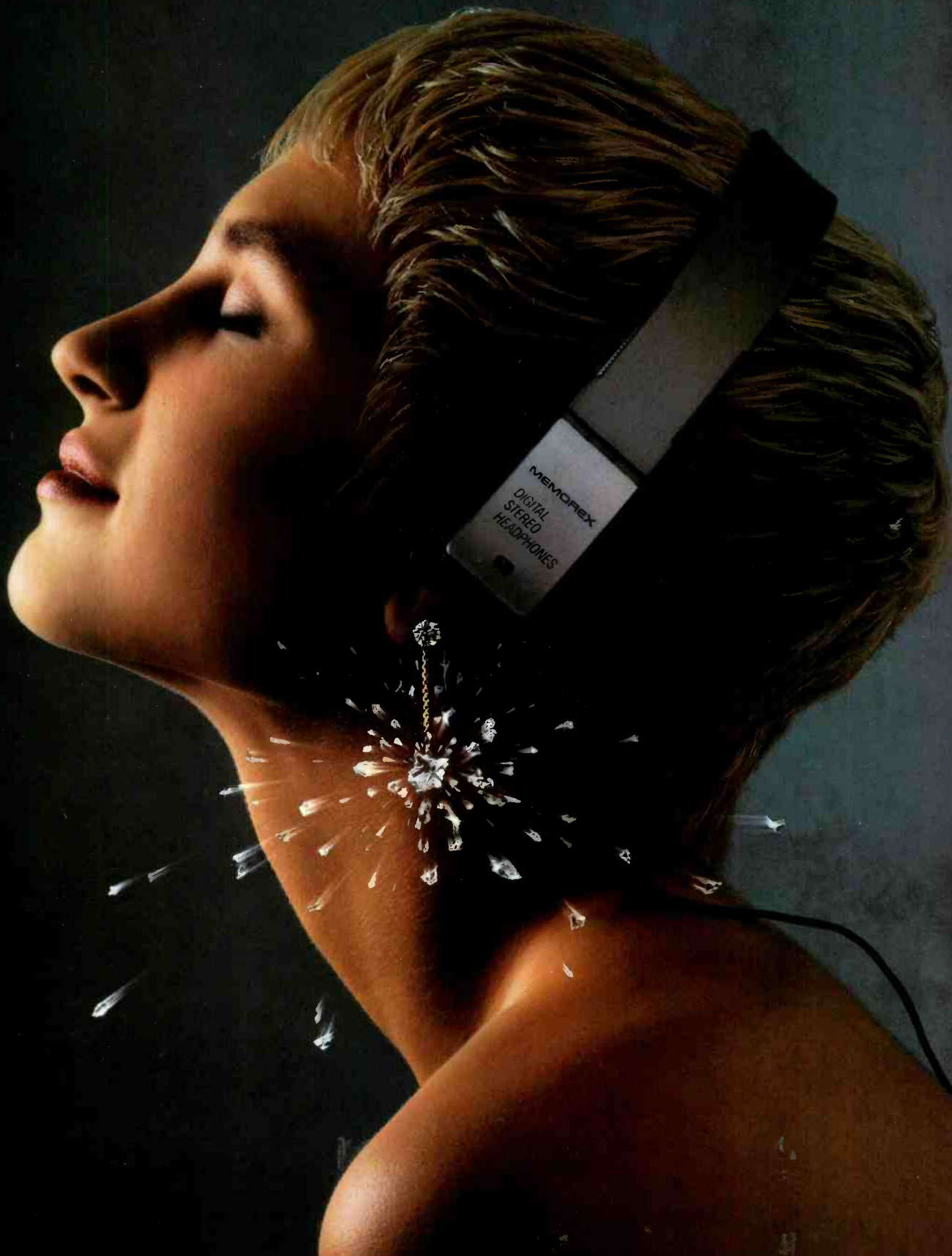
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