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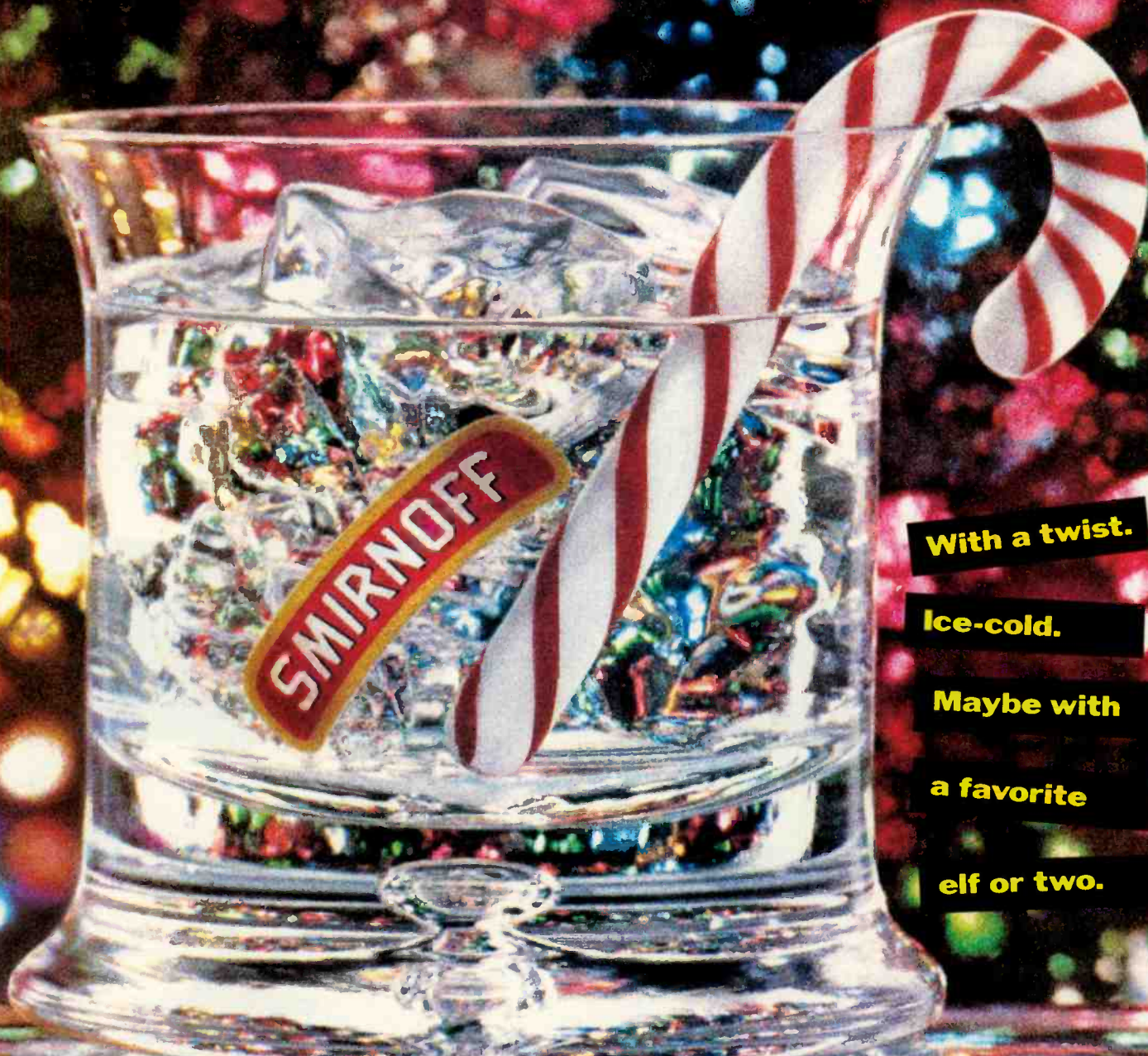
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Cover: The Pioneer PD-M92 compact disc changer (see page 74).
Design by Sue Llewellyn, photo by Bill Ashe Studio
(lamp and table courtesy of Lee's Studio Gallery, New York).

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CIRCLE NO. 8 ON READER SERVICE CARD

by Rebecca Day and William Livingstone

SURROUND SOUND

Even when you're not watching a movie or another video program, music benefits from extra ambience channels. The National Public Radio program *Audiophile Audition* (now underwritten by Maxell and Elektra Classics) will feature a surround-sound special as its December 16 show. Check local listings of NPR stations. . . . The composer/conductor Henry Mancini and the Mancini Pops Orchestra have returned to the RCA Victor label with the album "Mancini in Surround—Mostly Monsters, Murders & Mysteries," billed as the first album ever recorded and mixed in Dolby Surround. . . . Telarc used the Stereosurround production format developed by Shure HTS in recording Spies' new jazz cd "By Way of the World."

OUTBOUND DAT

A Sony Walkman digital audio tape recorder is scheduled to be in stores by the end of the year. Priced at \$850, the TCD-D3 comes with a carrying case, AC adaptor/battery recharger, rechargeable battery, patch cord, optical digital connecting cable, and a 60-minute DAT cassette. Sony's first DAT player/tuner for the car, the DTX-10, goes on sale in December for \$1,100. Features include eighteen tuner presets, music search, intro scan, repeat play, programming of selections, and a controller for trunk-mounted cd changers.

DEALS

Polk Audio has signed a letter of intent to acquire AGI Electronics Ltd., the holding company for KEF Electronics and Boothroyd-Stuart, which makes Meridian components. If the agreement is consummated, Polk and KEF will retain their separate design and marketing approaches, the companies said. . . . Sansui Electronics, itself purchased last year by the British conglomerate Polly Peck International, has bought U.K.-based Mission Electronics.

MUSIC NOTES

John Denver's new album, "The Flower that Shattered the Stone," is being distributed by American Gramophone, a company that shares Denver's environmental concerns. . . . Celebrating its fiftieth anniversary, Broadcast Music, Inc., a performing-rights organization, released a list of the fifty most-performed songs in its history. At the top are the only two that have reached five million performances, *Yesterday* by John Lennon and Paul McCartney and *Never My Love* by Richard and Donald Addrisi. . . . Celebrating hundredth anniversaries this season are the Chicago Symphony and Carnegie Hall in New York. . . . As part of its observance of the bicentennial of the death of Mozart, Deutsche Grammophon has released twenty-five budget cd's of his masterpieces played by some of DG's most famous artists, including Claudio Abbado, Karl Böhm, and Herbert von Karajan.

FUTURES

Kodak is developing a Photo CD system that transfers film images to compact discs. A special cd player recovers the images and sends them to a TV monitor. Photo CD players will also be able to play conventional audio discs through a stereo system. The Kodak players, which will be manufactured by Philips, are expected to be available in 1992 for between \$400 and \$500. . . . InSight Telecast, based in Palo Alto, California, has developed a subscription-based vcr programming system that includes an on-screen electronic guide, one-touch recording by program title, and retrieval of recordings by title. Recorders incorporating the technology are expected to be available to consumers early in 1992.

CHRISTMAS DISCS

Our annual list of holiday gift suggestions begins on page 91, but right at press time there was a deluge of new Christmas cd's. They include "Christmas with the London Brass" (Teldec) and "The Christmas Album" by the

Canadian Brass (Philips). Deutsche Grammophon presents the carols most popular in the United States in Musica Sacra's "Christmas Carols," and MCA offers a similar program in "We Three Kings" by the Roches. You can jazz up the holidays with the Kevin Gibbs Trio's "Christmas Presence" and "The Charlie Byrd Christmas Album," both from Concord. New albums of African-American spirituals include "Ride On, King Jesus!" with Florence Quivar and the Harlem Boys' Choir (EMI) and "Black Christmas" with Thomas Young, Vanessa Ayers, and Robert Mosely (ESSAY). Pianist João Carlos Martins performs on "Bach for Christmas" (Tomato), and on "A Child Is Born" the singers are the choir of the National Shrine of the Immaculate Conception in Washington, D.C. (VQR Digital).

Christmas staples in unfamiliar guise are Mozart's transcription of Handel's *Messiah* with Michel Corboz conducting the Vocal and Instrumental Ensemble of Lausanne (Erato) and excerpts from Tchaikovsky's ballet *The Nutcracker* played by various New Age musicians (Narada). CBS leads the wave of country albums with Dolly Parton's "Home for Christmas" (Columbia) and Charlie Daniels's "Christmas Time Down South" (Epic).

Two collections from Capitol, "Christmas for the 90's" Volumes 1 and 2, feature such artists as Wild Rose, Garth Brooks, the Gatlin Brothers, and Tanya Tucker. A similar anthology from RCA, "Home for the Holidays," includes tracks by K.T. Oslin, Foster & Lloyd, and Keith Whitley. Most of these albums are also available on cassette, but only a few on LP. Merry Christmas and Happy New Year!



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July 1989, Vol. 12, No. 7

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Hi-Fi News & Record Review

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LETTERS

CD Listening Tests

Ken Pohlmann's CD player comparison in October was very well done. The match-offs prove what I have been telling people for some time: Although low-level player output distortions may be audible at times, particularly if special test signals are used and the gain is adjusted upward as the tone volume drops, musical signals played back at normal levels will reveal that most properly functioning CD players, even the cheaper ones, sound nearly alike.

Although a comparison was made between the players under test and some earlier models using the fade-to-zero test, with the conclusion that those earlier models were deficient in some way, there is the possibility that they would have fared better in comparison with the current champs if music programs had been used instead.

HOWARD FERSTLER
Tallahassee, FL

Actually, there was no direct comparison between the players under test and any others. Two earlier-generation units were compared with each other, using a fade-to-zero tone, as part of the screening procedure to select the listening panel for the published comparisons. In this particular test, the auditors were able to distinguish more readily between the older CD players than they could between the newer ones.

As you point out, the distortions revealed by this type of test are very much harder to hear when music is used instead of a low-level sine wave fading into the background noise. None of our controlled listening comparisons of CD players, from the earliest to the most recent, has demonstrated more than tiny sonic differences between models (when there have been any at all) with music. We agree that similar results would probably follow from a comparison of old and new players as well, provided all were well designed and working properly.

Tweaking

Keith Jarrett (October "Letters") seems to long for something that will cause his CD's to "approach the sound of LP's." By this I assume he is referring to clicks and pops, inner-groove distortion, high-frequency distortion, and those

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.

subtle speed errors caused by warps and eccentric pressings.

BRUCE G. TAYLOR
Kensington, CT

I can't believe that letters still pour in about the miracles of Armor All, car wax, green ink, and lizards' tails. Isn't it amazing that these treatments just happen to flip all the right bits and give us smoother strings, better ambience, longer decay, more accurate timbre, heightened dynamics, and more "thereness"?

Read my bits—real improvements in CD sound can only be achieved by improvements in the players themselves.

HARRY CONDOS
Norwalk, CT

Mono CD's

In purchasing compact discs, I have had difficulty determining whether an album was recorded originally in stereo. I have stopped buying CD's that do not indicate that they were, which limits my purchases. Many older CD's have no stereo identification. Any tips on how to avoid mono?

JOHN E. BLAIR
Knoxville, TN

Any record company that adheres to any kind of truth-in-labeling policy will identify a mono recording as such somewhere on the package. Very rarely, however, will you find a stereo recording so designated, as the assumption is that any recording made since the early Sixties is in stereo. So you're pretty safe buying any CD that doesn't say "mono."

Systems

My stereo system is finally the way I want it, and I'd like to submit it to STEREO REVIEW for a "Systems" feature. What is the procedure?

CHRIS DOUGLAS
Brentwood, MO

We welcome submissions for "Systems." Take several snapshots of the equipment from various angles showing how it fits into the room. List all components by model number, and tell us your objectives in putting the system together. Send the material to Rebecca Day, Stereo Review, 1633 Broadway, New York, NY 10019.

Covering the Basics

I am a recent subscriber, and I would like to commend you on your many well-written and informative articles. In particular, I am impressed with the quality and thoroughness of the Hirsch-Houck Labs equipment test reports. Probably like most of your readers, however, I am a bit stupid when it comes to audio

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LETTERS

engineering, even though I have a background in electronics and understand most of the jargon.

Without writing a textbook, maybe you could provide an article or series of articles explaining the most important technical parameters and how best to use these parameters in comparing different brands. Sounds like a horrendous

undertaking—or maybe you could just recommend a good book.

GREGG FRANKLIN
Urbana, IL

Starting in October 1989, we have run in most issues a series called "The Basics," by Contributing Editor Ian G. Masters, that explains basic audio terminology and

describes types of audio components, how they work together, and what factors affect their performance. And we can indeed recommend a good book: Understanding Audio and Video by Editor at Large Michael Riggs, published jointly by Pioneer Electronics and STEREO REVIEW. Copies are available for \$5.95 through Pioneer dealers, or you can order by phone or mail (add \$1 for shipping and handling); call (toll-free) 1-800-767-3737 or write to Pioneer Program Headquarters, P.O. Box 427-370, Tustin, CA 92681.

The Met's "Rings"

There is a glaring error in Eric Salzman's October "Best Recordings of the Month" review of James Levine's new recording of *Das Rheingold*. He states that the Metropolitan Opera *Ring* cycle it derives from was "the first at the Met in fifty years—since the glory days of Flagstad and Melchior."

Mr. Salzman must have attended the famous Schneider-Siemsen production of the *Ring* at the Met with Birgit Nilsson in the 1960's. The cycle began under the baton of Herbert von Karajan, who relinquished it to Erich Leinsdorf in 1968 or so for the balance, after getting booed for his *Rheingold* and *Walküre*. And then the entire *Ring* was repeated in March 1975 with Sixten Ehrling conducting.

ALAN J. BRODER
New York, NY

Mr. Salzman originally wrote that "The much-acclaimed James Levine Ring cycle . . . at the Metropolitan Opera was the first such in fifty years," meaning that it was the first to be received favorably by critics and the public in that time. In editing, his "such" was changed to "at the Met," which is, of course, incorrect. We very much regret the error.

Thank You

STEREO REVIEW readers are warm-hearted indeed. We have received almost a thousand pair of headphones in response to our letter, which you so kindly published a few months ago. This includes 800 pair donated by the Koss Corporation of Milwaukee. It guarantees that every blind and handicapped talking-book borrower in New Mexico can borrow headphones when needed.

ALISON P. SEIDEL
Manager, Talking Book Library
Santa Fe, NM

Correction

The price given for the Onkyo TX-SV90PRO audio/video receiver in the November issue ("Three Top Audio/Video Receivers") was incorrect. The list price is \$1,099. □



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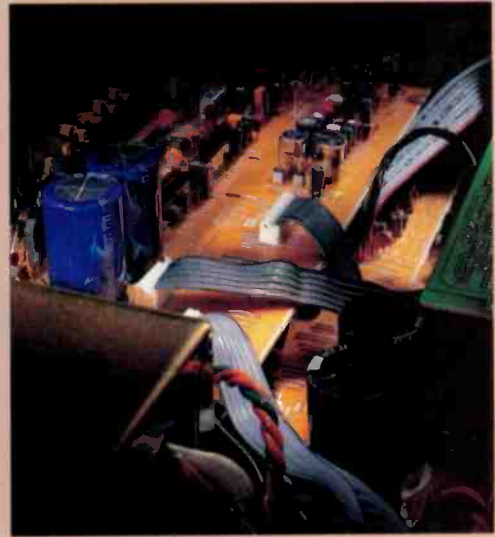
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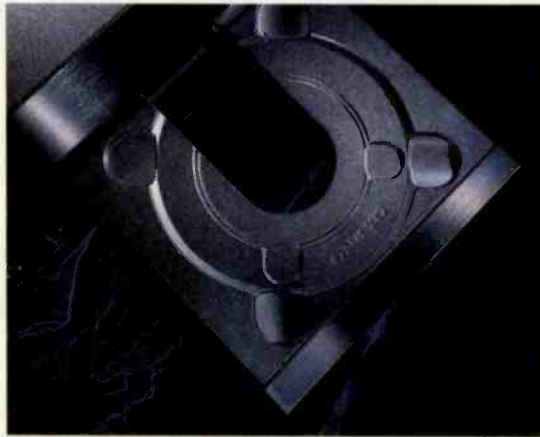


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Artistry in Sound

Technology without quality is meaningless.

"It would be very easy for our engineers to add a lot of flashing lights and dials to our equipment but 'bells and whistles' are not what we're all about," Ted Green said. Mr. Green, Onkyo's National Sales and Marketing Manager, is on the firing line in the battle to design electronics equipment for today's critical, value-oriented enthusiasts. And because Onkyo is an engineering-driven firm, their emphasis is on quality and substance, not glitz and glamor.

"Consumers can quickly hear, see and feel the difference between Onkyo equipment and the competition," Mr. Green added. "Look at the front and you won't be overwhelmed by LEDs or buttons. Our components are made to be used—easily. Lift an Onkyo receiver and you'll immediately notice the increased weight from the metal chassis, heavy duty transformer and heat sink. And Onkyo has always featured the most up-to-date technology," Mr. Green stated. "Throughout the design, engineering and manufacturing process, our objective is to deliver the finest quality at a better feature per dollar ratio than any other components on the market."



Metal chassis, metal faceplates, even metal transports in the CD players add up to structural integrity throughout the entire Onkyo line.

ONKYO... Built to be Better

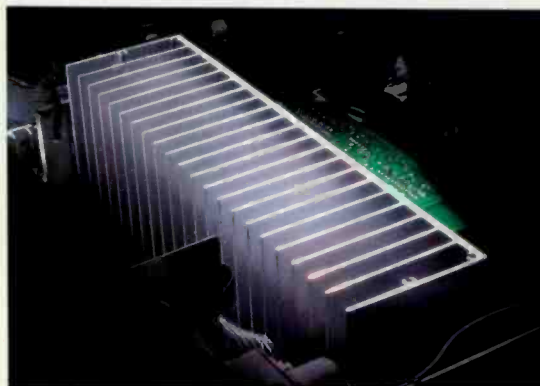
Quality is a word used by companies in many different industries. But what does it really mean to someone buying new hi-fi components? If you love music, it's the ability to experience the full dynamic range of a compact disc or cassette. Or drive a pair of sophisticated speakers to their utmost potential. Or hear the dramatic impact of a movie soundtrack on a Dolby Pro Logic system. All of the buzzwords and acronyms mean nothing, unless there is a proven real-world result that you can hear and appreciate, not simply a fancy decal on a faceplate, or slick slogan in an ad.

Onkyo's mandate couldn't be more clear. Onkyo will *never* make sacrifices or take shortcuts that impact upon the music you'll enjoy in your home. Whether it's a CD player, receiver, cassette deck or other component, if it bears the Onkyo name, you can be sure the quality was designed and built in, starting right at the drawing board. Onkyo's

demanding engineers oversee every step of manufacture so the end results are award-winning products that perform well and, just as importantly, are a lasting value... from the least expensive models to the top-of-the-line. In fact, the long-term reliability of all Onkyo components—when compared to the competition—is far superior.

What makes Onkyo better? Here are some reasons why...

Many hi-fi companies will use plastic parts in critical areas to keep down your initial cost. The price may be attractive *at first* but you'll lose the structural integrity of Onkyo's metal chassis or the accuracy of their die-cast aluminum CD tray... deficiencies that will unquestionably affect the sound heard in your home. The next time you're in a store, check out the vast number of components that utilize plastic or some other synthetic in their faceplates and chassis. Then examine Onkyo. It's easy to see why Onkyo sounds well made.



Heat sinks sound as if they belong in a high tech kitchen, but Onkyo's heavy duty versions prevent thermal overload when you've pumped up the volume.

Power Plays

One of the most important functions of any receiver or amplifier is the ability to provide sufficient power during key musical moments. It's really simple: the larger, more powerful the transformer, the more critical current is supplied. Without proper power, you won't be able to drive loudspeaker systems or components to their peak ability. A shortcut here severely impacts upon music quality. Onkyo's heavy duty power supplies are renowned for their ability to handle the most demanding and complex musical passages, which is why you'll find all our amps and receivers rated into 4 ohms (and in some cases even 2 ohms), the ultimate test of a power supply. And although a transformer may not have as much sex appeal as a flashy display, it's infinitely more vital to the bottom line—performance—which is why you buy a component in the first place. Consequently, Onkyo engineers are always in the forefront of technical advances in component power. One of these is the breakthrough Anti-Electromagnetic Interference (AEI) transformer that produces even lower distortion levels and more power than toroidal transformers found in high end, high priced separates.

Independent Thinking

Dedicating power supplies to perform specific tasks in components won't create banner headlines, but again, it makes for a better quality product.

In a CD player, the independent power supplies control the transport, analog and digital circuits. This prevents any spurious signal interference and resulting distortion. The independent power supplies Onkyo uses in its cassette decks eliminate interference between the meter electronics and the recording circuitries. As a result, the music signal retains its purity both in recording and playback.

As well as its "independent thinking" in terms of power, Onkyo also believes in being discrete. Virtually all Onkyo components use



At the heart of every Onkyo receiver and amplifier is an oversized, heavy duty transformer. When it comes to power, Onkyo refuses to take any shortcuts.

discrete output devices (individual transistors, resistors and capacitors) rather than Integrated Circuits (ICs) that combine all three into a less costly format. The drawback to ICs occurs in its impact on overall performance. Using discrete outputs involves more time and money, but the results are well worth it.

Technology with Imagination

While Onkyo maintains a "nuts and bolts" approach to insure basic quality, the company continues to be on the cutting edge of sonic technology as well. Two of Onkyo's highly regarded breakthroughs were Accubias which automatically fine tunes the bias on a cassette and the Automatic Precision Reception (APR) system for receivers and tuners. Critics feel APR delivers the best possible FM reception. In digital

audio, Onkyo created AccuBit technology and now has introduced AccuPulse, the most advanced single bit digital-to-analog conversion (DAC) system available. Here again, Onkyo engineers refused to take short cuts and used two separate chips for the DAC and digital filter, cutting down on potential interference. The result is natural, true-to-life sound that finally achieves the real world musicality digital audio has promised since its inception.

Buyers Guide

Quality is what dictates a component's performance. It should also be what dictates your product choice. The next time you look at hifi equipment, remember to look for some of the differences pointed out here. You'll find that quality and Onkyo are one in the same.



While most manufacturers use Integrated Circuits to save money, Onkyo uses costlier power transistors, resistors and capacitors because of their better performance characteristics.

Home Theater Powerhouse



The New Onkyo TX-SV70PRO— The Classic Blend of Technology And Quality

As The Wall has tumbled down between East and West, so has the demarcation between audio and video. Nowhere is this more apparent than the A/V receiver, a powerful component that is fast becoming the heart of the new home theater. Onkyo is one of the premier designers of award-winning A/V receivers and continues to lead the way with superior quality and easy-to-use features. The new TX-SV70PRO is the latest example of the Onkyo engineer's art.

As the centerpiece of a state-of-the-art audio/video system, many demands are made upon an A/V receiver; the TX-SV70PRO is more than up to the task. There are five audio and four video inputs to handle a wide variety of components—ranging from turntables to laser disc players. To take advantage of the

best Hollywood soundtracks with Dolby Stereo, the TX-SV70PRO has a built-in Dolby Pro-Logic decoder. Pro-Logic is an active Dolby Stereo decoding system that delivers more realistic sound effects in your living room. By adding a discrete center channel between the front speakers as well as the rear surround channel, your sofa will seem like orchestra seats in your favorite theater. To power the speakers required for a spectacular Dolby system, the TX-SV70PRO offers five discrete amplifiers with 85 watts for the front speakers, 85 for the center and a powerful 30 for the rear pair.

Not only does the TX-SV70PRO provide power on the spec sheet, it delivers it where it counts most—in your home. The new Onkyo A/V receiver has the same heritage of all Onkyo receivers and amplifiers—heavy duty transformer, massive heat sink, and discrete outputs using top-quality resistors,

transistors and capacitors.

And, there are conveniences that make living with technology much easier. The TX-SV70PRO comes with a universal remote control that can learn the commands of remotes from other equipment—even other manufacturers. On-screen displays make it easy for the critical adjustments necessary for the best picture and sound quality. As an added benefit is Onkyo's special room-to-room capability. By adding optional infrared remote sensor in another room, you'll be able to listen to the tuner or CD player in one part of the house while other family members watch a movie or television. The new TX-SV70PRO is packed with real-world conveniences and leading edge technology... from Onkyo, a company that only knows how to make components one way—the right way.

ONKYO®

200 Williams Drive, Ramsey, N.J. 07446 201-825-7950

CIRCLE NO. 47 ON READER SERVICE CARD

NEW PRODUCTS

AUDIOSOURCE

The SS-Three surround-sound processor from AudioSource includes Dolby Pro Logic circuitry and a 30-watt rear-channel amplifier with a toroidal power transformer. There is also a line output for use with a higher-powered rear amplifier as well as center-channel and subwoofer line outputs. The subwoofer output has a level control for matching the SS-Three with any amplifier configuration, and the subwoofer crossover frequency can be switched

between 80 and 150 Hz. Other features include switchable digital delay, automatic sequential test tones, and auto balance and auto calibration for left and right input signals. Besides Dolby Surround, Hall and Matrix surround modes are provided. Front-panel controls are duplicated on the supplied full-function remote control. Price: \$399. AudioSource, Dept. SR, 1327 N. Carolan Ave., Burlingame, CA 94010.

Circle 120 on reader service card



TDK

TDK's "Ultimate Guide to Recording from Compact Discs" is a 71-minute CD that explains how to make good CD dubs. Narrated by VH-1's Bobby Rivers, the disc discusses the importance of setting proper recording and bias levels and of keeping tape heads clean, the benefits of noise reduction, and different tape types. It includes a reference-tone system to help adjust recording levels for nineteen types of music. To get a copy, send your name, address, and a \$3 check payable to TDK = CD to: TDK Disc, c/o DBA Productions, Dept. SR, 3rd Floor, 50 W. 17th St., New York, NY 10011.



INTERMATIC

The Intermatic Whole Home surge-protection kit includes the EG240RC circuit-breaker panel protector, the EG6EC TV and VCR protector, the EG3C single-outlet surge suppressor, and the EG111B telephone and fax protector. They are said to respond within one nanosecond, absorbing an overload and permitting normal voltage to flow again through the line. All of the components are UL-listed and exceed IEEE specifications. They come with a three-year limited warranty. Intermatic, Dept. SR, Intermatic Plaza, Spring Grove, IL 60081-9698.

Circle 122 on reader service card

PIONEER

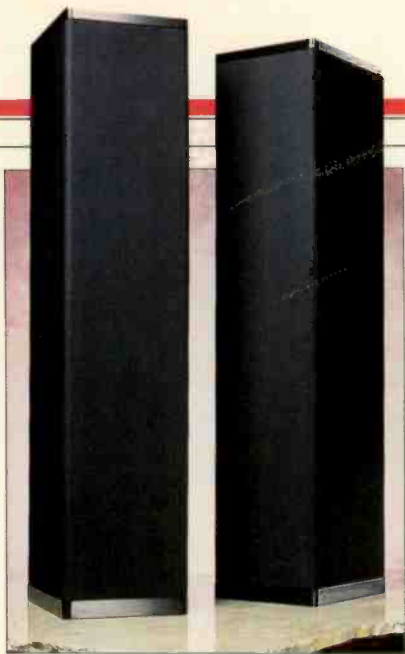
The Pioneer VSX-D1S audio/video receiver includes Dolby Pro Logic and a multiroom function that enables different users to listen to separate sources at independent volume levels. Rated to deliver 130 watts into each front channel and 40 watts each through the center and rear channels, the receiver can also be set to deliver 70 watts each to the center, left, and right front channels and 50 watts to each rear channel. There are five audio and six video inputs, with cross-dubbing facilities, as well as S-video terminals. The unit's digital signal processor stores five ambience modes—labeled Jazz, Dance, Church, Hall, and

Theater—as well as Dolby Pro Logic surround parameters; users can alter the settings and store the results as options. The tuner has thirty station presets and custom memory tuning for as many as five categories of music. The optional MR-100 remote-sensor unit is required for multiroom operation of compatible Pioneer components; if the receiver is used with equipment from other manufacturers, the MR-101 remote emitter is also needed. Prices: receiver, \$1,350; MR-100, \$80; MR-101, \$60. Pioneer Electronics, Dept. SR, 2265 E. 220th St., Long Beach, CA 90801.

Circle 123 on reader service card



NEW PRODUCTS



DEFINITIVE TECHNOLOGY

The BP-10, Definitive Technology's first loudspeaker, is a full-range, bipolar radiator said to offer the extended bass response, high efficiency, and flexible placement of conventional box speakers. Frequency response is rated as 20 to 28,000 Hz, sensitivity as 88 dB. Nominal impedance is 6 ohms. Each speaker has a 1-inch, dual-chamber, aperiodic dome tweeter and a 6½-inch, mineral-filled, homopolymer-cone, cast-basket woofer on each side, flush-mounted on narrow baffles. The baffles are rounded and covered with frameless black grille "socks" to minimize diffraction. The speakers are 42 inches high with solid wood or black-lacquered end caps. Price: \$1,000 to \$1,100 a pair. Definitive Technology, Dept. SR, 11105 Valley Heights Dr., Baltimore, MD 21117.

Circle 124 on reader service card



UNIVENTURE

Univenture's Diplomat Portfolio stores compact discs without their jewel boxes. It holds forty-eight CD's in patented Safety-Sleeves constructed of a high-grade clean-room material that's said to protect discs better than jewel boxes. The zip-close portfolio weighs 6 pounds full. Price: \$69.95. Univenture, Dept. SR, 6145 Scherers Pl., Suite A, P.O. Box 570, Dublin, OH 43017.

Circle 127 on reader service card

GENEVA

Geneva Group's VCR-160 VHS video head cleaner and VCR-165 Beta head cleaner use a nontoxic, nonflammable cleaning solution that is said to contain no ozone-layer-depleting chlorofluorocarbons. The tape is made of highly compressed spun-bound polyester that closely resembles videotape. Each cassette has 60 feet of tape, enough for fifty-two 10-second cleanings. Price: \$19.95 for both VHS and Beta versions. Geneva Group, Dept. SR, 9909 S. Shore Dr., Plymouth, MN 55411.

Circle 125 on reader service card



SAS

The SAS Bazooka T62A is a powered version of the company's T62 car subwoofer. Its electrical connections and mounting straps can be disconnected easily to remove the speaker from the car. Its 6½-inch driver has a rated frequency response of 20 to 50 Hz or 20 to 250 Hz ± 1 dB, depending on the crossover setting. Sensitivity is given as 100 dB. The amplifier is rated for 40 watts (mono) into the T62A's 4-ohm load. When it is used with an optional Bazooka slave unit, the output is 80 watts into 2 ohms. The T62A measures 18½ x 6¼ x 8 inches. Price: \$299. Southern Audio Services, Dept. SR, 10053 Barringer Ct., Baton Rouge, LA 70809.

Circle 126 on reader service card



AIWA

Aiwa's XC-M800 carousel-type compact disc changer incorporates dual 18-bit linear digital-to-analog converters and eight-times-oversampling digital filters. Operating features include continuous playback of up to five discs, random

play, three-way repeat, and thirty-two-track programming. The changer comes with a twenty-seven-button remote control. Price: \$420. Aiwa, Dept. SR, 35 Oxford Dr., Moonachie, NJ 07074.

Circle 128 on reader service card

WHAT SETS OUR CAR CD APART FROM THE COMPETITION.



ACTUALLY, OUR TOUGHEST COMPETITION DOESN'T COME FROM ANOTHER COMPANY. IT COMES FROM THE ENTERPRISING YOUNG MEN YOU SEE PICTURED HERE. BUT AFTER WATCHING THESE GUYS DEFACE

AND MAKE OFF WITH CAR STEREOS FOR SO MANY YEARS, PIONEER DEvised A BRILLIANT IDEA. INTRODUCING DETACHABLE FACE SECURITY.™ AND IT COMES IN THE INCOMPARABLE FORM OF CAR CD. THE FACE AND ACCOMPANYING CARRYING CASE ARE COMPACT, FITTING EASILY IN YOUR POCKET. AND THE SYSTEM FEATURES BUILT-IN HIGH POWER. AS WELL AS SUPERTUNER® III™ FOR EXCEPTIONALLY CLEAR FM RECEPTION. SO BEFORE THE COMPETITION RIPS YOUR FACE OFF, GIVE US A CALL AT 1-800-421-1404. AND THEN RIP IT OFF YOURSELF.

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NEW PRODUCTS



SHARP

Sharp's SA-R56AV audio/video receiver is rated at 55 watts per channel minimum rms into 8 ohms from 20 to 20,000 Hz with less than 0.08 percent total harmonic distortion. Its tuner features twenty FM and ten AM presets and auto scan. There are inputs for CD, phono, and a laserdisc player or VCR as well as tape loops for an audio deck and a VCR. Other features include a surround-sound ambience circuit and Sharp's X-Bass bass extender. The sixty-five-key remote control can operate other Sharp products. Price: \$350. Sharp Electronics, Dept. SR, Sharp Plaza, Mahwah, NJ 07430.

Circle 129 on reader service card

ROLYKIT

The Rolydisc CD storage box from Rolykit comes in twenty- and forty-disc sizes. Made of sturdy plastic, the boxes have roll-top closures that are said to resist dust. Units can be connected horizontally or vertically and mounted on a wall or stacked on a table or shelf. Price: \$17.99 for the twenty-disc size, \$29.99 for the forty-disc size. Rolykit, Dept. SR, 303 E. Wacker Dr., Suite 412, Chicago, IL 60601.

Circle 130 on reader service card

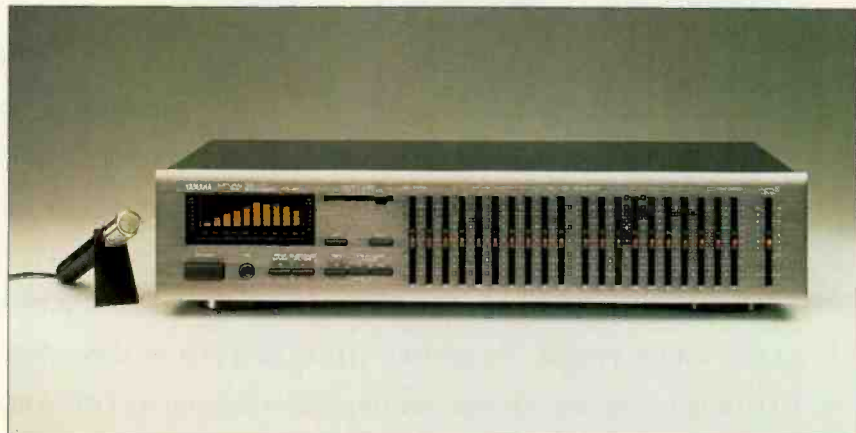


YAMAHA

The Yamaha EQ-550 ten-band graphic equalizer includes a pink-noise generator and a spectrum analyzer. Each band covers an octave, and the adjustment range is ± 6 dB. The spectrum analyzer shows irregularities in room response. It can also be used in recording applications to display the levels of different frequencies in the source. Other features

include a front-panel mike input, a tape-deck selector, an EQ On/Defeat switch, a master output-level control, and a switchable infrasonic filter. The EQ-550 is available in either titanium or black finish. Price: \$399. Yamaha Electronics, Dept. SR, 6722 Orangethorpe Ave., Buena Park, CA 90620.

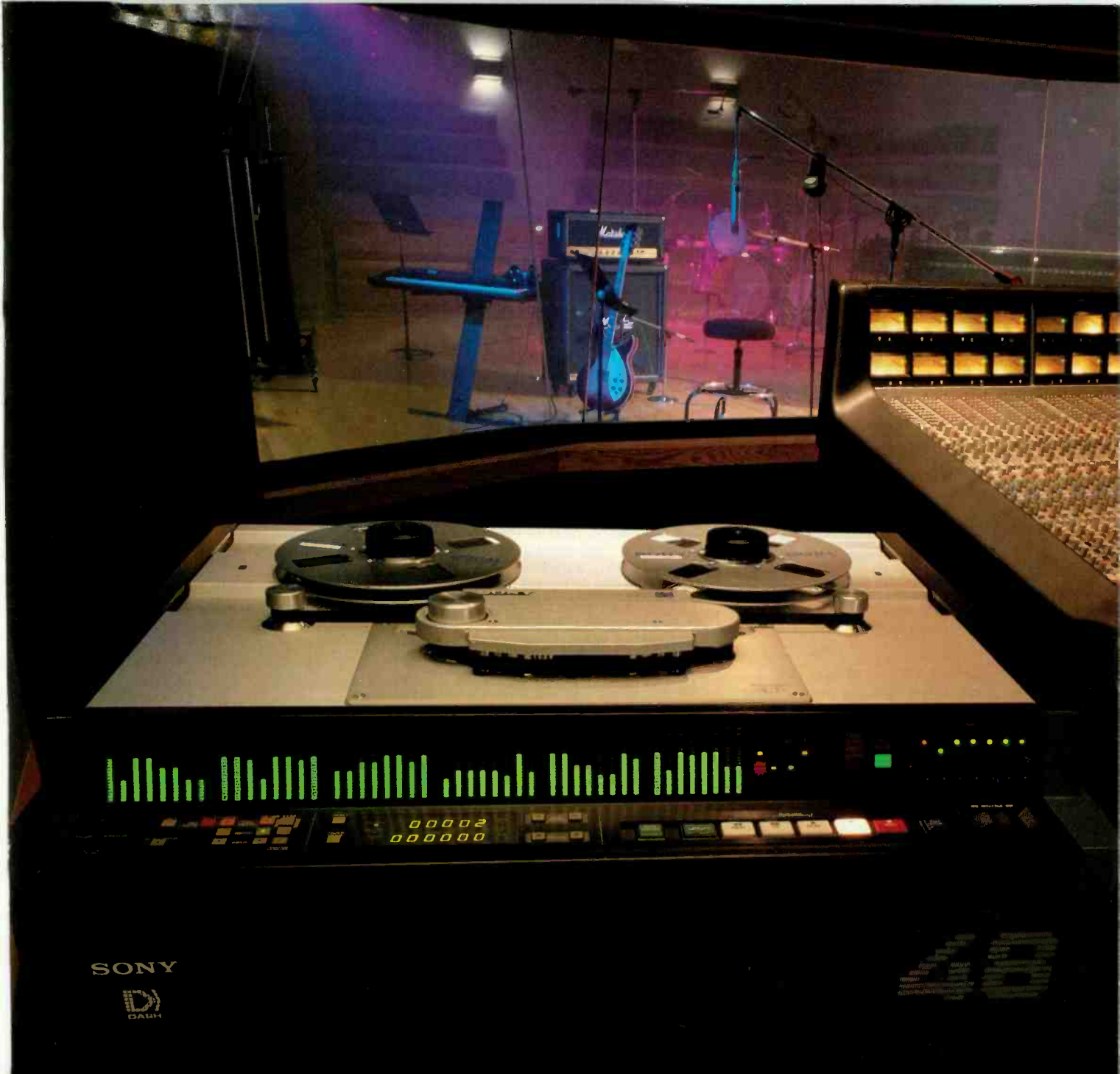
Circle 132 on reader service card



PSB SPEAKERS

PSB's HW-1 speaker is a two-way, in-wall system. Its 6½-inch woofer has a weather-resistant polypropylene cone to protect against indoor moisture or steam, and the tweeter is a ¾-inch, ferrofluid-filled soft dome. Frequency response is rated as 56 to 20,000 Hz ± 2 dB, sensitivity as 89 dB at 1 meter with a 1-watt input. Impedance is 8 ohms. The system comes with a paper template to help users cut the necessary wall openings. A mounting depth of 3¼ inches is required for proper fit in walls measuring from ¾ to 1½ inches thick. An optional rough-in kit is available for new-construction installation. Dimensions are 12 x 8½ x 3¾ inches. Price: about \$300 a pair. PSB Speakers, Dept. SR, 633 Granite Ct., Pickering, Ontario L1W 3K1, Canada.

Circle 131 on reader service card



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The Hit Factory Recording Studios, New York City.

by Ian G. Masters



Dolby Dilemma

Q *The manufacturers of prerecorded cassettes have made decoding Dolby into a real guessing game. Sometimes Dolby B (or Dolby C) is clearly marked, but I have also seen tapes with just the double-D Dolby logo and others with the logo and just the word Dolby. Others say "Dolby System" or "Dolby NR" or "DNR" or "Dolby HX Pro," and I seem to remember seeing some that said "Dolby Stereo." How do all these relate to each other and to the Dolby B switch on my cassette deck?*

THOMAS HUFF
Silver Spring, MD

A Most of the confusion arises because at one time only one type of Dolby noise reduction, Dolby B, was available to the public, although the record companies are none too clear even today. Normally, however, unless Dolby C (or, soon, Dolby S) is specified, you should use Dolby B decoding.

Putting the unqualified double-D logo on a tape was clear enough when there was only one version, and the same for just the word Dolby and the phrases Dolby System and Dolby NR (NR simply stands for noise reduction). But Dolby NR and DNR are different things. DNR is a proprietary system designed to reduce noise during playback of an unencoded signal; it has nothing to do with Dolby noise reduction.

Dolby HX Pro is a system used only during recording to increase headroom and reduce high-frequency distortion. It requires no playback decoding, though tapes recorded with Dolby HX Pro normally have one of the Dolby noise-reduc-

tion systems applied as well and should be decoded in the usual way during playback. The phrase Dolby Stereo refers mainly to movie soundtracks recorded with Dolby surround sound, but it is sometimes used on videocassettes with a stereo linear soundtrack using Dolby B noise reduction.

S/N vs. Dynamic Range

Q *It appears that signal-to-noise ratio (S/N) and dynamic range both refer to the difference between the softest and loudest sounds and are thus interchangeable. Are they, or is there a difference?*

CLYDE ROBERSON
Bowie, MD

A The two terms are often confused, but they represent two separate, although related, audio characteristics. Signal-to-noise ratio is the relationship between a component's inherent noise, as measured in a narrowly defined fashion (which should be stated as part of the specification), and a particular signal level. This signal could be the absolute maximum a piece of equipment can put out before it explodes, but it is normally a more usable level. With an amplifier it is normally an output of 1 watt into 8 ohms; in the case of a tape recorder, it's usually a specified level of distortion.

In almost all instances, a component can handle levels higher than the one specified for S/N, even if only briefly or at an elevated distortion level. The extra level is called headroom, and it is included in the measurement of a component's dynamic range, which is the relationship between the maximum level it can handle and its noise floor. Actually, we are able to hear sounds quieter than the noise, and this should increase the dynamic range even more, but since this extended lower level is very difficult to measure the conventional noise figure is used.

In any event, S/N is the more precise specification, though dynamic range usually has a bigger number.

Dual Phono Cartridges

Q *I have had difficulty finding a pre-amplifier with two phono inputs, so I connected the outputs of both my phono cartridges to a single input by means of Y-connectors. The result has been a constant audible hum when I play either turntable. Is there any way to get rid of it?*

JOHN L. MCCUNE
Flemington, NJ

A A phono cartridge is a pretty delicate thing electrically. Not only does it put out a very low-level signal, making it more susceptible to hum and other nasties than other parts of an audio system, but it also works best when the

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Just buy any Sony home, car or portable Digital AudioTape (DAT) player* between now and January 31, 1991 and send in a copy of your receipt plus this coupon. The Colors of Jazz, four great digital tapes with a retail value of \$80, will be yours. Four free.

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Date Purchased _____

Purchases must take place between October 1, 1990 and January 31, 1991. All forms must be filled out completely and requests for the free prerecorded DAT package must be postmarked no later than February 28, 1991.
Void where prohibited by law. Limit one \$80.00 value tape set per Sony consumer DAT player purchased. Offer valid only in the Continental U.S. (excluding Alaska and Hawaii). Please allow 6-8 weeks for delivery. Sony reserves the right to substitute the package or any title based upon supply or availability.
*Car and portable DAT players available in December, 1990. See your authorized Sony DAT retailer for further information.

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source, without the hiss, wow and flutter, or distortion of conventional cassettes.

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Whether you're on a budget or just seeking maximum value, don't be fooled by bargains that sound cheap at the store—they just might sound cheap when you get home.

Even Denon's most economical receivers, such as the DRA-335 and DRA-435, preserve sound quality *first*. (This is Denon's Design Integrity principle.) Both of these receivers employ electronic switching and elegant circuit topology for the most direct signal paths. This not only lowers noise and distortion; it greatly enhances reliability.

For superior audio quality, the finest components are used throughout the signal path, including polypropylene and polystyrene capacitors and metal film resistors. Competitive receivers use skimpy transformers and IC output stages, which restrict your system's dynamic

range. Denon's discrete output transistors and substantial transformers give the DRA-335 and DRA-435 the power to drive even the most "difficult" speakers.

At Denon lower cost need not preclude important features. Both the DRA-335 and DRA-435 feature Variable Loudness and full Integrated System (IS) remote control of a CD player, CD changer and cassette deck. The 16-station programmable tuners of the DRA-335 and DRA-435 feature improved AM NRSC deemphasis.

Even though the Denon DRA-335 and DRA-435 receivers pack in so many features for the price, never forget the real reason to buy a Denon: Sound.

For Product Information

34504

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DENON

The first name in digital audio.



load it sees falls within quite narrow limits in terms of impedance and capacitance. It's not surprising, then, that hooking two cartridges in parallel has given you less than satisfactory results.

Virtually all the components I have encountered with duplicate phono inputs in fact contain single phono-preamp sections; only the input jacks are switched. You might try the same thing with an external switch (DB Systems of Rindge Center, New Hampshire, makes a suitable switchbox), or you could buy a phono-only preamp for one of your turntables and feed it to a high-level input on your regular preamp.

If you want to play both turntables at the same time, however, you should consider a mixer. Many mixers have their own phono preamps built in, and nowadays these can be very good. This solution also enables you to combine the phono signals with those from other sources, such as a tape deck or CD player.

CD Pinholes

Q *When I hold some of my compact discs up to the light, I can see pinholes through them. Are they okay, or should I take them back to the store?*

TROY BARNES
Delta, British Columbia

A Don't worry. The reflective aluminum layer in a CD can vary considerably in thickness from disc to disc. When held up to a light, some discs are opaque, others you can easily see through, and a few have surface discontinuities, or pinholes. While pinholes can certainly be considered flaws, they are nothing to be concerned about, as even the minimum number of missing bits of recorded data that a CD player must be able to replace is much greater than is lost in a pinhole. The error-correction circuits in most players exceed the minimum performance level by a considerable margin.

Speaker Types

Q *I am not clear about the difference between bass-reflex and acoustic-suspension speakers. Is one design more appropriate than the other for playing certain kinds of music?*

ROGER HEDIN
Fargo, ND

A A bass-reflex speaker contains a port (also called a duct or a vent) that allows energy from the rearward motion of the speaker cone to escape the enclosure in a controlled fashion, enhancing the output from the forward motion at the bottom of the speaker's range. An acoustic-suspension speaker uses a sealed box in which the pressure created by the rear motion acts as a sort

of spring that controls cone motion, again in the low frequencies. At one time, acoustic-suspension speakers tended to be smaller and less sensitive than bass-reflex models, but such distinctions are largely a thing of the past.

There was also a time when many felt that bass-reflex speakers were particularly adept at reproducing rock music

and acoustic-suspension designs were touted as classical speakers. It's now generally conceded, however, that all types of music are served best by a speaker with flat response, low distortion, and good dispersion. That has nothing to do with which design has been chosen; there are many superb speakers using each type of enclosure. □



Unfortunately, a large percentage of audio and video components do have problems. In fact, one of today's leading manufacturers has a VCR breakdown rate of almost 22% after one year.

Luckily, there's an easy and affordable way to protect yourself against unexpected repair bills. A ComponentGuard Extended Warranty.



ComponentGuard offers complete parts and labor protection for up to 5 years on over 120 different kinds of products.

So, don't suffer from costly unexpected repair bills on your components. Get a ComponentGuard Extended Warranty with your next purchase—and get a piece of mind guarantee at the same time.

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100 Summit Lake, Valhalla, N.Y. 10595 1-800-421-9820

by Ken C. Pohlmann



TRUCKIN'

IF you're one of those timid around-town drivers with a Garfield doll hanging in your rear window and an "I brake for Unicorns" bumper sticker, if you never go more than forty-five, use only two radio presets, and think subcompacts are really cute, stop right here. Read no further. This column isn't for you.

Okay, for the rest of you, particularly you long-haul big-riggers who weld extra gas tanks in your Peterbilts and keep your radar detectors humming, this is for you. Specifically, I've got three serious new car stereo pieces for you. Each offers features that are unique in the car audio market.

Now that car CD players have broken through to the mass market, more and more installations have one. The problem is that thieves are increasingly breaking through windows to pluck these cherries. Sure, you can buy a removable unit, but who wants to lug it around? Pioneer cunningly solves the problem with the DEH-80 CD tuner and its detachable face. The unit itself remains in the dash, but its front control panel pops off and slips into your pocket. A thief sees a blank plate in the dash; even if he knows there's a CD tuner buried in there, it's useless without its faceplate. In addition, because the player remains firmly planted, it is

not subjected to excessive handling—which could cause misalignment of the laser pickup.

The DEH-80 has a nicely designed double floating-suspension system that keeps the laser on track even on rough roads. Its tuner has twenty-four presets and automatic station select. The DEH-80 even beeps at you when you turn off your engine, to remind you to detach the face. At \$540, this is one great car CD tuner.

The Technics CQ-ID90 cassette tuner has something no other car radio has: ID Logic. Suppose you're hauling a load of pork bellies from Des Moines to Miami, and you're anxious to stay tuned to rock-and-roll all the way down. You simply hit the ROCK key, and as you drive the tuner finds the strongest rock music stations along the way, switching from one to the other as signal strength varies. Moreover, the head unit displays each station's call sign, city, and state.

To perform this trick, the CQ-ID90 contains a 2-megabit memory with information on more than 4,500 AM stations and 4,900 FM stations in more than 5,100 cities across the U.S. Stations are classified in broadcast categories: classical music, country/western, rock, jazz, easy-listening, and talk. A microprocessor sorts everything out, so that when you're driving through Palm Beach, say, the radio knows that the signal at 94.3 MHz is WMXQ, a rock station. As you travel, you use direction keys to move through the memory's "map" of the U.S. That way, when you hit New York City the radio knows that 93.1 MHz is now WPAT, an easy-listening station.

The memory is fixed, so as stations change their formats, you'll find your smart tuner making more and more goofs. Fortunately, an updated memory chip can be plugged in. The CQ-ID90 eliminates the age-old problem of finding a station that plays the kind of music you like. If you're a long-haul driver, that should be worth \$650 to you. And if it's not, there's a rumor that PRS Corporation, inventor of ID Logic, has a second-generation system in the works that could cut the price substantially.

It sure is fun to drive places while listening to music. But sometimes you wish you were listening at home, or maybe in a concert hall or amphithe-

ater. The Eclipse EQS-1000 outboard processor can work that miracle for you. It is the world's first car stereo component with the power of digital signal processing (DSP). In particular, its DSP chip is programmed to take a stereo signal from the source head unit, compute early-reflection, reverberation, and equalization data for a given type of listening locale, process the original signals accordingly, and direct the result to six output channels. Depending on the type of locale selected—concert hall, live club, church, or stadium—the processor uses different algorithms to simulate the acoustics. For example, a church acoustic would call for moderate delay times between reflections and lots of reverberation. A stadium would re-

The Eclipse EQS-1000 outboard processor lets you optimize the input signals for your own vehicle's installation and create simulated room acoustics exactly suited to your taste.

quire extremely long delay times and almost no reverberation.

Although the EQS-1000 comes with factory-preset programs, you'll want to enter your own settings using the comprehensive front-panel controls. That way you can optimize the output signals for your own vehicle's installation and create simulated room acoustics exactly suited to your taste. If you tweak everything properly, the effect is stunning. For only \$800, you can make a sport coupe the size of Carnegie Hall and still parallel park.

By the way, it would be really nifty if the CQ-ID90 could talk to the EQS-1000. That way when the radio located a particular type of music, the processor could automatically supply a suitable ambience program. Maybe next year.

Meanwhile, all three of these components are great little companions for those long hauls. I suppose even small-time commuters would find their features handy. But promise me one thing: If you install one of these big-rig pieces in your subcompact, lose that Garfield thing. □

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“The sound was superb...”

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*Rich Warren, Chicago Tribune
June 1, 1990*

SIMPLICITY

“...utter simplicity of operation...”

Hans Fantel, The New York Times
June 24, 1990*

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“Bose breaks the mold...”

*Rich Warren, Chicago Tribune
June 1, 1990*

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**WHO WOULD BUY A CAR
CD CHANGER THAT
DOESN'T PLAY 12 DISCS?**

Panasonic presents a 12-disc CD changer for more selection and more miles of uninterrupted digital sound.

Only a dummy would want to settle for anything less than up to 12 straight hours of music and the convenience of 12-disc random programmability.



The CX-DP15 CD changer offers you that and has incredibly high quality components, such as: a 2 DAC system with one DAC per channel, High Slew Rate Low Pass Filter, Oxygen Free Copper Audio Cables, Gold Plated Connectors, MASH* Circuitry and Quadruple Oversampling Digital Filter.

In other words, it sounds very good.

Also, this CD changer is so flexible it can connect to virtually any existing car stereo with the CY-RM15 or the CY-RM16 controllers.



However, if you also want a new car stereo, there's the CQ-L40 and the CQ-L30 cassette receivers. They both have 50 Watts maximum power, wireless remote, are removable and connect directly to the CD changer to give you full system control.

But don't listen to us, listen to the system.

We're confident that our customers are intelligent enough to make the right choice for themselves.

*Technics developed the MASH one bit DAC. NTT (LSI Labs) invented MASH technology. NTT has applied for trademark registration for MASH.



Panasonic
just slightly ahead of our time
CIRCLE NO. 82 ON READER SERVICE CARD

THE RIGHT STUFF

Choosing a system that does all you need at a price you can afford—the twelfth in a series on the basics of audio.

BY IAN G. MASTERS

FASCINATING though the subject may be on its own merits, most of us learn about audio mainly to help us buy equipment. But knowing what makes stereo components tick is just a start; there is such a broad selection available that deciding exactly what is right for you can be a major challenge. If you take a logical approach, however, buying stereo equipment need not be a harrowing experience.



Not only are there thousands of different components on the market, but prices range widely as well, even for devices that seem similar. Although that may be confusing, it also means that you will almost certainly be able to find something that meets your needs at reasonable cost. Your first priority, therefore, should be to establish a budget. Although price is a notoriously unreliable guide to audio quality, what you are willing to spend will determine to some degree what sort of system you end up with, what components it will contain, what extras you may need, and where you will make the purchase. For example, systems made up of **separate electronic components** are often more flexible than ones that use **combined components** such as receivers or integrated amplifiers, but they also cost more. And systems that contain multiple speakers, exotic signal processors, or more than one source of music will likely cost more than those that do not, so you may defer purchase of such extras in the interest of buying better quality in your "base system." And some dealers offer better prices than others, but this might involve a sacrifice of service or warranty coverage.

Deciding what you want the system to do is the next stage. The most important considerations are the uses to which you intend to put your system and the extent you anticipate adding to it over the years. Some buyers go for simplicity: Although they insist on good sound, they don't want to twid-

The Best Audio Tape



▶▶ No one has a longer or more distinguished history of leadership and innovation in metal tape than TDK. So when we introduced the MA-R back in 1979, it instantly became the benchmark all other metal tapes would be measured against.

Since that time, however, the evolution of digital recording sources has progressed far beyond what anyone ever expected. Beyond what even the most advanced metal tapes in the world are capable of reproducing.

Which is why we created the new MA-XG. A tape which is not only the best audio tape in TDK's history.

But the best tape in recorded history.

DIGITAL MUSIC DEMANDS PERFECTION IN A CASSETTE.

Music from digital sources is dynamic to say the least. It can go from absolute silence to maximum loudness instantaneously. And for an audio cassette to reproduce its

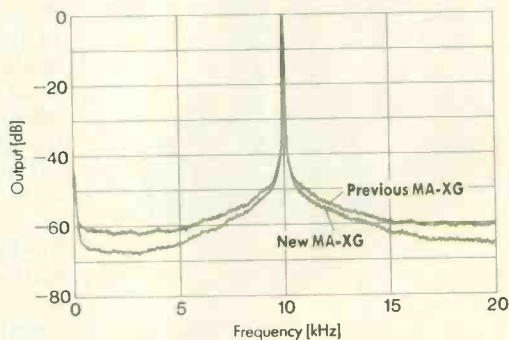
power and dynamic range accurately and free from distortion, the audio tape has to have extremely high output capability or what is known as MOL (Maximum Output Level).

But digital music can also go from maximum loudness to absolute silence instantaneously. And the lack of background hiss makes the clarity of the pianissimos and the transparency of the passages that linger and fade striking. To convincingly reproduce this kind of delicacy requires a tape with extremely low bias noise. Otherwise, music signals which are softer than the tape noise will be masked and inaudible.

The perfect recording tape then, for CDs and other digital sources, is one with the highest possible output and the lowest possible noise. The kind of tape it was almost impossible to design. Almost.

THE WORLD'S BEST DUAL-LAYER PURE METAL TAPE.

Rather than settle for a tape which compromises output for low noise, or low noise for output, TDK opted for a tape that compromised nothing. So the MA-XG combines two separately "tuned" layers of ultrafine Finavinx magnetic particles. The bottom layer utilizes a unique high-density Finavinx particle designed for *highest possible output*. The upper layer consists of *low*



MODULATION NOISE SPECTRUM

In Recorded History.

noise ultrafine Finavinx particles arranged in a high-density coating with the help of TDK's proprietary particle orientation technology.

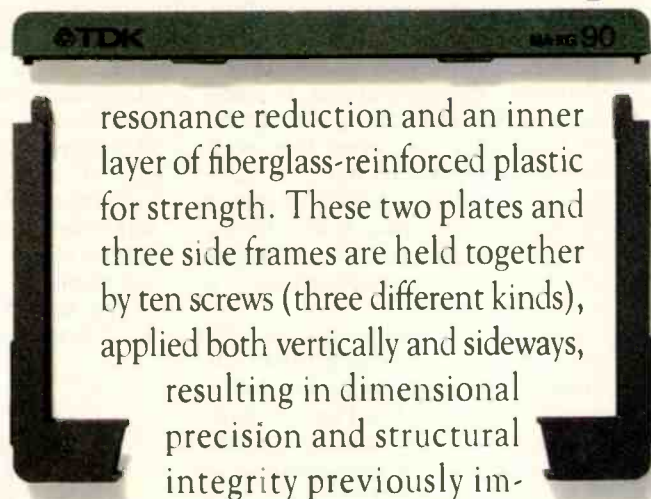
What this unique design results in is a metal tape with the highest output (+7.5 dB at 315 Hz) and the lowest noise (-59 dB) of any analog cassette. Or more simply put, the ultimate "digital ready" tape.

A MECHANISM AS SOPHISTICATED AS THE TAPE.

You don't even have to listen to the MA-XG to know how advanced its design is. Just hold it in your hand. Its extra heavy-weight RS-III mechanism



utilizes an unprecedented super-rigid five-piece construction which provides the ultimate defense against vibration and the sound-smearing effects of modulation noise as shown on the modulation noise chart. The unified dual-layer molded face plates consist of a non-rigid plastic outer layer for



resonance reduction and an inner layer of fiberglass-reinforced plastic for strength. These two plates and three side frames are held together by ten screws (three different kinds), applied both vertically and sideways, resulting in dimensional precision and structural integrity previously impossible to achieve. It even employs a system of internal sound stabilizer weights and super high-precision guide pieces to ensure maximum vibration attenuation and the highest degree of azimuth accuracy.

AUDIO MAGAZINE AGREES MA-XG IS THE BEST EVER.

That the TDK MA-XG is the ultimate recording tape is not just our opinion. It's a belief shared by the ultimate authority: *Audio* magazine. After an exhaustive test of 88 audio cassettes (the results of which were published in the March 1990 issue), *Audio* found the MA-XG to be not only the best of any metal (Type IV) tape, but the best of any tape. Period.

So, if you're going to record digital music, make sure you record it on the new MA-XG. Because the best music in recorded history shouldn't lose anything in the translation. ◀◀

 **TDK**

As Serious As You Can Get.

THE BASICS

dle controls constantly. The simpler the equipment, the better in such a case, so a receiver might be a good bet for the electronics portion, as it combines all the essential functions in one unit with a minimum of fuss. In many cases, higher power *per dollar* can be obtained with a receiver than with separate components, but at a sacrifice of flexibility. Certainly a receiver will take up less space than separate components, and this can be important if either space or appearance is a big factor for you.

Separates, on the other hand, enable you to mix components from different manufacturers or to start with a simple system and build on it as your budget permits. The range of controls and functions available on separates is also somewhat greater as a rule, so if you are looking for elaborate control options, this may be the way to go. You will pay something of a premium for the privilege, however.

The choice of speakers is of prime importance, but at this stage you need only consider the basic requirements and limitations, such as maximum size for your listening room. You may wish to use more than the conventional stereo pair, and this will affect not only your choice of speakers but of amplifiers as well. For surround sound or ambience enhancement, you will need a power amplifier with enough channels, or enough separate amplifiers, to drive all your speakers. If, on the other hand, you plan to use extra speakers to extend coverage or for simultaneous listening in another room, you will have to select an amplifier that can handle the extra current drain.

Beyond the basic electronics and speakers that all systems require, you will need something to feed into the system—a program source—but which one you choose, at least to begin with, depends on several factors.

Until quite recently practically every hi-fi system included a turntable for playing vinyl records, and if you have built up a collection of LP's over the years it may be sensible at first to use those as your primary source of music. If your collection of vinyl is small or nonexistent, however, it may make more sense to forget the turntable and build your system around a cassette deck. Not only is everything you might consider buying on vinyl also available on tape, but a tape deck

has several distinct advantages over a turntable. For one thing, the tapes you play at home can also be used in your car or portable player. For another, a cassette deck can record as well as play, which increases the flexibility of your system considerably. The range of features available on cassette decks is vast, reflecting that format's increasing popularity. As with any other sort of audio component, you should choose a deck that does all you want and no more.

The star of the audio component world is the compact disc player, and



prices for these now tend to be comparable to those of turntables and cassette decks. Unlike the case with some other parts of the system, you need not be unduly concerned about differences in sound quality when looking at CD players—the audible differences between well-designed models are negligible to nonexistent and usually apparent only in direct A/B comparisons, if then. Features and functions do differ, however (along with prices), so begin your selection process armed with some idea of just what you want the player to do.

Specific Choices

The narrowing of the field up to this point should eliminate a large number of unsuitable pieces of gear, but plenty

of choices will remain. Now the process of choosing specific components begins. Where possible, you should pick more than one candidate in each category, because the dealer you eventually buy your system from may not handle all the brands you select.

Don't talk to a dealer, however, before doing some research. Find out what's on the market and what will fit your needs. Hi-fi magazines are a good place to start. Read the advertisements, the product reviews, and any other references to specific pieces of equipment to get a basic idea of what's out there. This research will probably have to take place over a period of time, as no one issue of a magazine does more than scratch the surface of the products that are available. A trip to the library to browse through back issues may be in order.

If you are not familiar with individual hi-fi brands when you start your search, you probably know someone who is. Most audio fans have very definite views on products and are only too willing to share them. Perhaps such opinions should be taken with some salt, but they are valuable nonetheless, particularly if the person you consult recommends something he himself has purchased and is happy with. You may also get some useful tips on good retailers in your area.

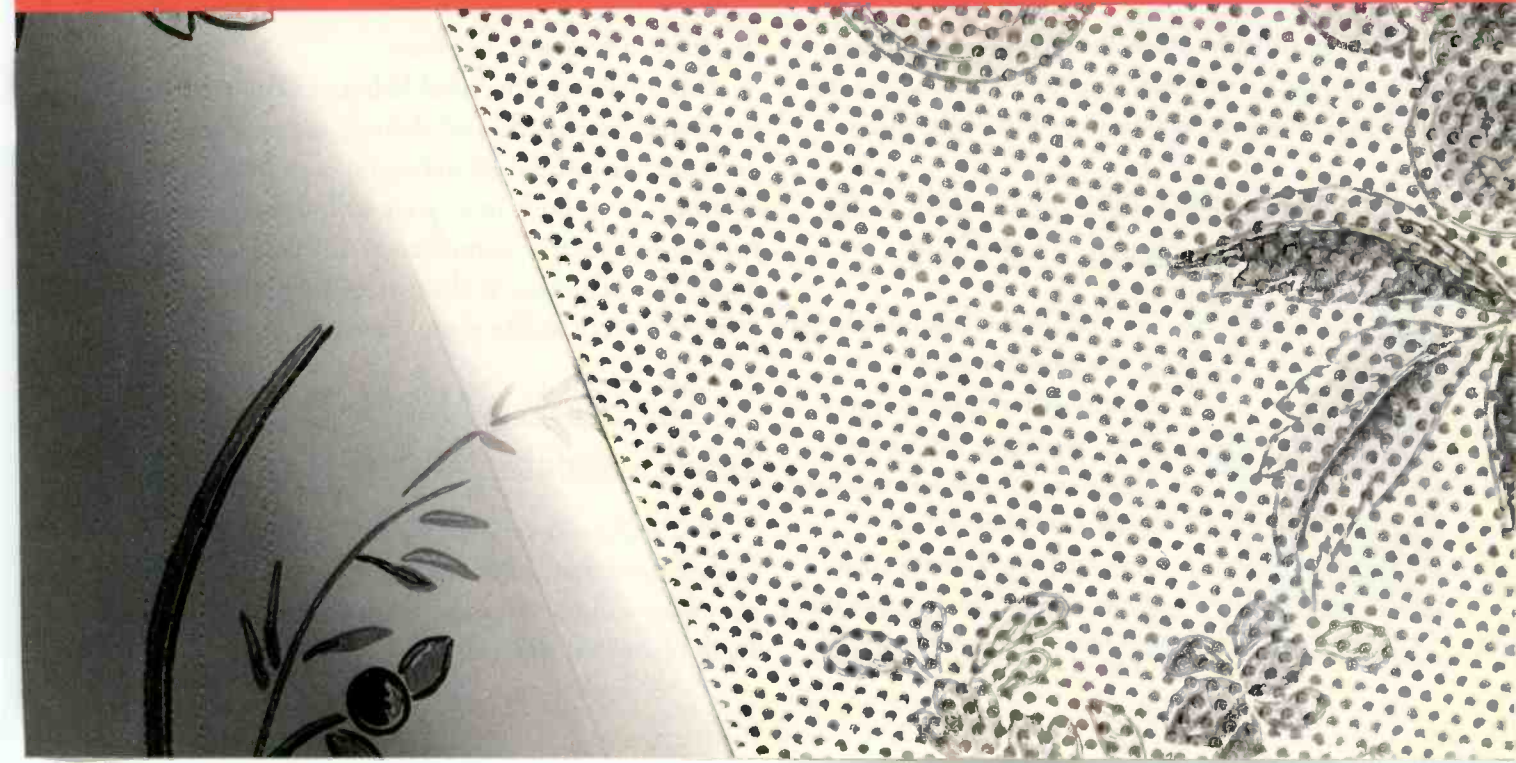
Beyond Research

Everything up to this point comes under the heading of paperwork. Now comes the time to look at some potential purchases. Take a few days to wander through the audio shops and find out who sells what. The more stores you visit, the better your view of what's going on in the audio market, both in terms of the products you can buy (which may not necessarily correspond to the ones you have read about) and the prices you are likely to have to pay for them. Don't be afraid to ask questions of the dealer. You're a potential customer, and worth his time (and many dealers are audiophiles who love to talk about audio).

It's a good idea to pick up as much product literature as you can during this preliminary trek. Most retailers have racks of brochures, reprints of product reviews, and so forth, which are there for potential customers like you. Try to gather literature on every piece of equipment you are seriously



Sound so big you can feel it...



Today's New World of Home Entertainment

In just the past couple of years, there has been a remarkable number of new products that have heightened the quality and widened the variety of home entertainment. The development of the compact disc has led to a significant improvement in overall sound quality and convenience to the music lover. Amplifiers have become more powerful and pure. And, of course, Polk Audio has been setting new standards for loudspeaker performance with a wide range of innovative products.

Recently, bringing video and audio together as a total entertainment concept has become an exciting reality. Surround sound systems and sophisticated home theater systems rival the experience of a live concert or a night out at the movies.

High quality music systems and now in many cases video systems are becoming an important part of one's home environment. More and more people are installing sound systems throughout several rooms in their homes, in some cases creating one centralized entertainment room from which other rooms are supplied with music.



...from speakers you can barely

To take full advantage of all these entertaining offerings, an entirely new kind of high performance loudspeaker system was developed by Polk Audio.

The Legendary Sound of Polk Can Now Be Heard, Not Seen.



Polk Audio has introduced a new generation of loudspeakers. Loudspeakers that, as always, live up to Polk's reputation for sounding remarkably like a live performance. But this new generation of loudspeakers is

The AB 900 subwoofer can be mounted almost invisibly in new or existing construction. Only the small (3 1/4"W x 4 1/4"H) decorative grille is seen.

designed to be heard, not seen.

Polk's new Architectural Reference Built-In Loudspeakers (AB Series), delivers superior sonic performance without intruding on your living space. Designed to be built-in to your walls and, if desired, painted to match or complement any color of your decor, the AB Series is the perfect solution to delivering high quality sound throughout your home.

The Speakers May Be Hidden, But You'll Recognize the Sound as Pure Polk.

Polk engineers set out to create a series of loudspeakers that, while hidden from view, would reproduce a dramatic sound stage with the energy and depth of concert hall realism.



Polk's AB 700 Speaker System, built into this listening area, delivers astonishing realism without physically intruding on the living space.

see.

For each AB system, ambitious performance goals were achieved. The open, 3-dimensional sound that has become a hallmark of Polk is recognized instantly, even in the smallest of systems. Nearly perfect high-frequency dispersion makes speaker placement less critical, and a flat frequency response provides endless listening without psychoacoustic fatigue.

Polk's superior components, including midbass drivers featuring trilaminate polymer diaphragms and hemispherical soft dome tweeters, set the AB systems apart from any other built-in speakers currently available. In the tradition of Polk Audio, each driver benefits from extensive research and development using the most sophisticated computer testing programs. As always only the finest grade components and materials are used to insure long term, trouble free operation.

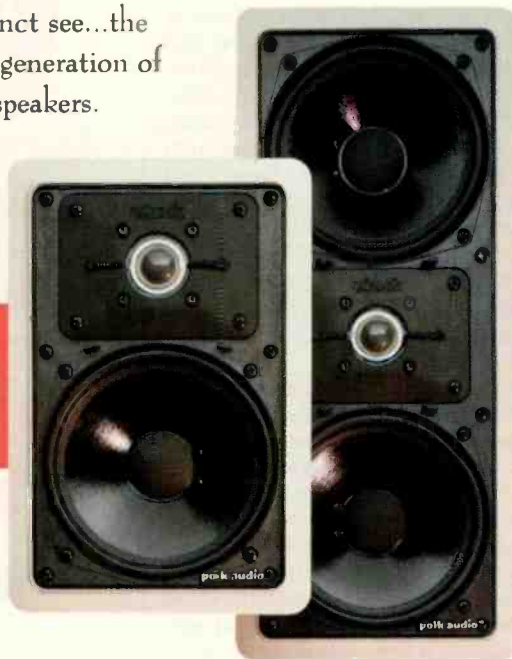
Where to buy Polk Speakers? For your nearest dealer, see page 151.

Even in the most basic of systems, the AB Series provides quality bass reproduction. By choosing models with additional midbass drivers or by adding one or more subwoofer systems, one can achieve a truly remarkable sound that dramatically recreates the excitement of a live performance.

Ask Your Polk Dealer/Installer for More Details

Polk's Architectural Reference Built-In Loudspeakers have been designed for easy installation into existing structures as well as new construction. Many Polk dealers have created home environment listening areas to demonstrate the superior sound of the AB Series. Ask to listen to these remarkable new loudspeakers.

You'll hear but
may not see...the
next generation of
loudspeakers.



The AB 700 requires a 9 3/4" H x 6 1/4" W x 3" D cutout. The AB 800, with two midbass drivers, requires a 15 1/2" H x 6 1/4" W x 3" D cutout.

polk audio

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CIRCLE NO. 90 ON READER SERVICE CARD

THE BASICS

considering so you can take it home and consider it at your leisure.

Where to Buy

Choosing the right dealer is as important as choosing the equipment. In your preliminary walk through the shops, one of your main tasks should be to select the store where you will make your final purchase. Although you could assemble your system from components bought at several different stores, it's usually better to deal with one outlet. For one thing, you are likely to get a better price if the whole system is bought from one retailer. For another, you are in a better position to ask the dealer to install the system if he has sold it all to you (he will also be familiar with all the pieces in such a case).

You may simply like a particular dealer more than the others, and this can be a valid basis for choosing him, as it is his job to make you happy; if he accomplishes this in the initial stages, you are likely to get good service from him thereafter. But if he doesn't sell the products you are interested in, you will end up with a system that falls short of what you want. Of course, he may suggest alternative components that are just as good, and that's fine as long as you know they really are comparable.

The prices a store offers are obviously of very great importance as well. A single piece of equipment can vary widely in cost from store to store, and it is to your advantage to get the best deal you can. But bear in mind that the trade-off is often service: An extremely low price may be attractive until you find out that the dealer who offers it is unable or unwilling to give you any information on the equipment, or to repair it if it breaks. It's usually worth a little bit extra to deal with a store that will look after what it sells.

The Listening Test

Poring over all the available information could go on forever, but eventually the time comes to choose the components you are going to buy. The first step is to pick your speakers. These, more than anything else, will determine how your system will actually sound, and so the bulk of your time should be spent in making the right speaker choice.

There are some excellent speakers

that cost relatively little, and some very expensive horrors, so your best guide to speakers is your own hearing. If you like a speaker, it will be good for you no matter what its price tag. You have to listen correctly, however. There are many circumstances in which good speakers can be made to sound bad and bad ones can sound better than they really are.

When you are comparing speakers, listen to them in a room that's approximately the same size as your own listening room, and ask the dealer to



place them in about the same position as they will be at home. The sound a speaker produces is affected by its environment to a very large extent, so it is important to duplicate as nearly as you can the surroundings of your home when auditioning speakers in the store. Speakers should also be playing at precisely the same level. Tiny level differences—ones that may not even be directly perceptible—tend to favor the louder speaker.

It's also wise to take along some of your own recordings when you audition speakers. Two or three discs or

tapes covering different types of music should be under your arm every time you walk into an audio store.

Control Central

The basic electronics should be chosen next. Here the main considerations are features—what the equipment will do—and power output. The selection of features can extend from the choice of two or three tape-monitor circuits or built-in surround sound to the question of whether or not you require phono capability. Only you can decide what you need, but every extra switch, knob, and integrated circuit costs money, and buying things you will never use will leave you less to spend on other, more important parts of the system.

The power output you will require depends mainly on the speakers you have chosen. Some speakers are very sensitive—they produce lots of acoustical output for very little power—so the amount of power available from the amplifier is not too critical. A good many speakers are fairly insensitive, however, and considerable amounts of power are required to drive them to high volume levels. Cutting back on amplifier power for the sake of features you may never use might seriously degrade the sound you end up with.

Finally, decide on your program sources. Whether you choose to focus your system on CD's, LP's, tapes, or all three, it's very possible to achieve fine performance for only a few hundred dollars per source. Such low-price components may not be exotic, or even state of the art, but high performance is readily available from many manufacturers at such prices. If you decide to include a turntable in your system, one thing that makes sense is to spend a little bit extra on a good phono cartridge. Many turntables come with a cartridge already mounted, but it may be of less than top quality. A few extra dollars will replace it with a better model, and that's worthwhile because the sound your system produces will be only as good as the signals it has to work with. In addition, a better cartridge will go a long way toward preserving your precious vinyl records.

NEXT: Putting an audio system together and making it work properly.

The ultimate in sound...
The ultimate in savings...

8 COMPACT DISCS
FOR THE PRICE OF 1

Prince: Graffiti
Bridge 34107

M.C. Hammer:
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34621

Nelson: After The
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WITH NOTHING MORE TO BUY...EVER!

Madonna: I'm Breathless (Sire) 00572

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Jeff Healey Band: Hell
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tions (Elektra) 00921

Poison: Flesh &
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Paula Abdul: Shut
Up And Dance
(Virgin) 80326

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

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

Joe Cocke: Live!
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INXS: Kick
(Atlantic) 53606

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son (MCA) 00547

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(Motown) 00738

Damn Yankees
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Diana Ross & The
Supremes: 20 Great-
est Hits (Motown) 63867

The Cure: Disintega-
tion (Elektra) 01109

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(Atlantic) 12014

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(Novus) 73646

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Sdtk. (EMI) 34631

Whitney Houston: I'm
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Snéad O' Connor: I
Do Not Want What I
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(Chrysalis) 33512

Pat Metheny:
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(Geffen) 73522

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Lone Wolf
(Warner Bros.) 64311

The Who: Who's Bet-
ter, Who's Best
(MCA) 00790

Great Love Songs Of
The '50s & '60s, Vol. 1
(Laurie) 20768

Crosby, Stills, Nash &
Young: Greatest Hits
(Atlantic) 30230

Galway: Greatest Hits
(RCA) 73233



Jon Bon Jovi:
Blaze Of Glory
(Mercury) 44490

Carly Simon: Have
You Seen Me Lately
(Arista) 20912

James Taylor:
Gt. Hits (Reprise) 23790

Travis Tritt:
Country Club
(Warner Bros.) 60195

Vixen: Rev It Up
(EMI) 54615

Boogie Down Produc-
tions: Edutainment
(Jive) 63675

Days Of Thunder/
Sdtk. (DGC) 43603

Buddy Holly: From
The Original Master
Tapes (MCA) 20069

Best Of John
Williams/Boston
Pops: By Request...
(Philips) 25360

AC/DC: Back In Black
(Atlantic) 13772

Quincy Jones: Back
On The Block
(Warner Bros.) 64116

Music Of Bali
(Nonesuch) 44671

Chicago: Gt. Hits ('82-
'89) (Reprise) 63363

Mamas & Papas: 16
Gt. Hits (MCA) 80183

Winger: In The Heart
Of The Young
(Atlantic) 00570

Randy Travis:
Heroes And Friends
(Warner Bros.) 74597

Keith Sweat: I'll Give
All My Love To You
(Elektra) 51603

Spyro Gyra: Fast For-
ward (GRP) 00829

Solti: Tchaikovsky,
1812 Overture
(London) 25179

Anthrax: Persistence
Of Time (Island) 83468

Beach Boys: Made In
U.S.A. (Capitol) 64143

Best Of Eric Clapton:
Time Pieces
(Polydor) 23385

Garth Brooks: No
Fences (Capitol) 73266

Traveling Wilburys:
Vol. 1 (Wilbury) 00711

John Hiatt: Stolen
Moments (A&M) 44540

Def Leppard: Pyroma-
nia (Mercury) 70402

Pat Benatar: Best
Shots (Chrysalis)
44319

Heart: Brigade
(Capitol) 64305

Depeche Mode: Viola-
tor (Sire) 73408

Dionne Warwick
Sings Cole Porter
(Arista) 53326

Bruce Hornsby: A
Night On The Town
(RCA) 63689

Solti: Tchaikovsky,
1812 Overture
(London) 25179

Anthrax: Persistence
Of Time (Island) 83468

Beach Boys: Made In
U.S.A. (Capitol) 64143

Best Of Eric Clapton:
Time Pieces
(Polydor) 23385

Garth Brooks: No
Fences (Capitol) 73266

Wilson Phillips
(SBK) 00726

Kenny G: Live
(Arista) 64505

Aerosmith: Pump
(Geffen) 63678

The Time:
Pandemonium
(Paisley Park) 52225

Clint Black: Killin'
Time (RCA) 01112

Larry Carlton: Collec-
tion (GRP) 00838

Gershwin, Overtures/
McGinn (Angel) 70391

Ratt: Detonator
(Atlantic) 63335

Lynyrd Skynyrd's
Innyrds (MCA) 01150

Larry Carlton: Collec-
tion (GRP) 00838

The Neville Brothers:
Brother's Keeper
(A&M) 63513

Janet Jackson's
Rhythm Nation
(A&M) 72386

Simon & Garfunkel:
Concert In Central Pk.
(Warner Bros.) 44006

Linda Ronstadt: Cry
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by Julian Hirsch



TESTING AMPLIFIERS

AMPLIFIER performance ratings can mean almost anything—or nothing at all—depending on how they were derived. Long-time audiophiles will recall the chaotic conditions of the Sixties and early Seventies. Bizarrely unrealistic amplifier power ratings were used by many manufacturers in a “war of numbers” that ended only in 1974, when the Federal Trade Commission set standards for the specification of amplifier power in advertisements and published ratings.

The FTC ruling (which is occasionally ignored these days, unfortunately) was not a true test standard but an attempt to curb false or misleading advertising. True test standards completely define the conditions of measurement, so that the data can be replicated by anyone testing the same equipment by the standard method. The first industry-wide standard was issued by the Institute of High Fidelity Manufacturers (IHFM) in 1959 and updated by the successor organization, the Institute of High Fidelity (IHF), in 1966. It was extensively revised again in the Seventies and was finally adopted as the current Electronic Industries Association (EIA) Standard RS-490 in 1981.

Standard RS-490 defines all the terms applicable to amplifier testing and the conditions of measurement. These conditions include the control settings, source and load impedances, signal frequencies and levels, and the pertinent specifications of the test instrumentation. In many cases, a particular specification can be presented either graphically (distortion over a range of frequencies or levels, for example) or as a single-valued rating.

A complete set of performance specifications for an integrated amplifier involves some twenty-eight different ratings, an ensemble that is as formidable to interpret as to measure. Recognizing this, the standard divides these measurements into seven primary ratings and twenty-one secondary disclosures, which may be given if applicable or omitted from the overall specification.

In our amplifier tests, we cover all the primary ratings (some of them slightly modified) and several of the secondary ratings. Some are measured across a range of frequencies or power levels, and others are measured for a specific frequency or power output. Our choice of specific tests is based on their *audible* significance to the user.

Obviously, the tests applied to a power amplifier or a preamplifier are merely subsets of the complete procedure that would be used for an integrated amplifier. When the component has special features, such as dynamic noise reduction or digital signal processing, that are not amenable to standard tests, we usually have to rely on subjective impressions.

From the standpoint of audible effects, only a few ratings have much

significance. The most important ones are *frequency response* and *A-weighted signal-to-noise ratio* (S/N). Even a slight difference in frequency response at audible frequencies can be heard; the importance of the difference depends on its degree, the frequency range in which it occurs, and the listener's perception of it. The importance of noise depends mainly on the same factors, especially spectral characteristics. For example, a 180-Hz buzz from power-line harmonics is far more audible than a smooth hiss having the same measured level.

Most other specifications have little or nothing to do with the sound quality of an amplifier but may have considerable influence on its suitability for a given music system. For instance, *sensitivity*—the signal level required at each input for a standard 1-watt output—indicates whether the amplifier will be compatible with its associated components, such as a tuner or phono cartridge (the standard 2-volt nominal output of a CD player insures compatibility with any amplifier having a “CD” input). The *maximum-input-signal* rating is normally important only for the phono input, where it has a bearing on its suitability for use with a high-output cartridge that might overload the phono-input stage on a high-level passage. A few amplifiers have a limited phono-input capability at some frequencies, typically at one extreme of the audible range.

In most amplifiers, a high-level input cannot be overloaded, but some receivers using electronic volume controls (instead of a conventional knob-operated control) can be overloaded, or at least driven into distortion, by a high-level signal, even with the volume setting reduced.

Interestingly, *power output* is much less important than most people think. The maximum power requirement in a stereo system depends on the speaker sensitivity, the room size and acoustic treatment, the types of music to be played, and the user's personal taste. In ordinary listening, few people will tax the power capability of even a modest amplifier. *Average* output levels exceeding a watt or two are unusual, since they usually preclude conversation in the same room.

Program *peaks*, however, can be many times higher, if only for brief instants. This is the rationale for the

Tested This Month

NAKAMICHI CDPLAYER 2
COMPACT DISC CHANGER

TRIAD SYSTEM FIVE
SPEAKER SYSTEM

SOUNDCRAFTSMEN
PRO-CONTROL THREE
PREAMPLIFIER

JVC XL-Z431
COMPACT DISC PLAYER

POLK AUDIO RTA 15TL
SPEAKER SYSTEM

20 CLASS A
CIGARETTES

MAGNATUDE.

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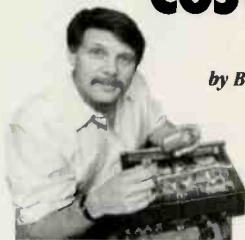
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HOW MUCH SHOULD A GOOD AMPLIFIER COST?



by Bob Carver. part 2

All power amplifiers with the same power output are neither created nor priced equally. Why? I and other members of the

scientific audio community know that only four factors determine an amplifier's sound:

1. CURRENT OUTPUT
2. VOLTAGE OUTPUT
3. POWER OUTPUT[†]
4. FREQUENCY RESPONSE at the loud-speaker terminals (transfer function)

In spite of what you may have been told, that's it. Period. These factors transcend the non-science of tubes vs. solid state, MOS-FETs vs. bi-polar, Class A vs. AB, etc. In last month's ad, I covered factors 1-3: the need for high simultaneous current and voltage with robust power output. For further explanation, get our new White Paper, "The Magnetic Field Story Parts I, II & III" by calling 1-800-443-CAVR.

Transfer function is the effect an amplifier's output impedance has on real world frequency response. Don't confuse this with the amplifier's specified bandwidth — which may be flat "DC to light" — which is measured with a resistor load. I'm referring to the frequency response curve that occurs when an amplifier interacts with a given pair of cables and speakers. This response curve is anything but flat. It is the unique fingerprint that gives the amp warmth, bass quality, upper register definition, breadth and sound stage. It determines the amplifier's most important sonic characteristics.

Carver is capable of making one amplifier design sound like another to within 99 parts out of 100 by adjusting the transfer function. For example, we've used Transfer Function Modification to closely emulate the sound of my tube Silver Seven in our TFM-42/45 solid state designs. The same process has been used to give our TFM-22/25 and TFM-15 a warm, "tube" sound with rich rolling bass and soft, yet detailed treble. "TFM" consists of painstaking measurement and adjustment which finetunes output impedance and frequency response. Needless to say, we must start with highly capable power amplifier designs (i.e. high current/high voltage) before the Transfer Function Modification Process.

Carver solid state power amplifiers have suggested retail prices of from \$399 to \$1000. Because of my patented power supply, which delivers extraordinary current and voltage, and Transfer Function Modification, I honestly think that you needn't pay more to get superb audio amplification.

Bob Carver

Bob Carver

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TECHNICAL TALK

dynamic headroom rating, basically a measure of the maximum power available at 1,000 Hz without clipping for a period of 20 milliseconds, repeated twice per second. The short burst is supposed to approximate the duration of typical music transients, and the dynamic headroom (expressed in decibels, or dB) is the ratio of the power output during these bursts to the amplifier's rated power output.

Clipping headroom is a measure of an amplifier's continuous power capability. It is usually measured at 1,000 Hz with both channels driven simultaneously into 8-ohm loads. We also make this measurement with 4-ohm loads and, when possible, with 2-ohm loads. Since most receivers, and many separate amplifiers, are not designed to drive 2 ohms safely, we may load

An amplifier's power output is much less important than most people think. In ordinary listening, few users will tax the power of even a modest amplifier.

only the measured channel with 2 ohms, leaving 4 ohms on the other, to avoid blowing a fuse (or damaging the amplifier, as sometimes happens).

One of the primary amplifier ratings is the input impedance. This is of minor importance for a high-level input unless the impedance is unusually low (10,000 ohms or less), which can attenuate the lowest frequencies. It is more important for a moving-magnet (MM) phono input, since the frequency response of a cartridge is usually affected by its load. In this case, we measure the resistive and capacitive components of the phono-input impedance, specifying the resistance in ohms and the parallel capacitance in picofarads. A cartridge manufacturer usually specifies the preferred load into which its product will deliver the rated frequency response. A lower value of resistance will usually reduce the high-frequency level, and a high capacitance will introduce a peak at some fairly high frequency, followed by a steep drop in output at still higher frequencies.

The output impedance, or damping

factor, of a power amplifier is sometimes specified by its manufacturer, but since it is of no significance to the user, we do not measure it. So long as the damping factor (the quotient of 8 ohms divided by the source impedance of the amplifier's output) exceeds about 10, there is no further advantage to a higher value. In fact, the resistance of even a premium speaker cable will prevent the true damping factor from exceeding about 100, regardless of the amplifier's measured damping factor.

You will notice that I have not mentioned total harmonic distortion (THD), which is one of the primary amplifier ratings. This does not mean that the THD is unimportant, since genuinely high distortion will degrade sound quality, but rather that its importance is often grossly exaggerated. We do measure the THD, usually including noise but sometimes excluding it. Even a very low level of distortion is easy to measure with modern test instruments, and it is frequently emphasized in manufacturers' literature as an indication of the technical sophistication of their amplifiers. We measure THD principally to verify the manufacturers' ratings, which frequently state a minuscule level. Usually, these ratings prove to be justified, although sometimes they are not (perhaps because not all manufacturers follow the procedures of RS-490). The fact is, however, that few if any listeners could distinguish between two otherwise identical amplifiers whose respective distortion ratings were 0.001 and 1 percent. Either figure is an impressive specification that, like so many others, has little to do with how a component sounds.

Some really important amplifier characteristics are difficult or impossible to measure or verify. By my standards, reliability is the paramount characteristic of any product (not only a hi-fi component). It is totally impractical to evaluate reliability from tests of a single sample over a limited time.

A second important characteristic involves the ergonomic design, or human engineering, of the product. Unfortunately, evaluating ergonomics is as personal a matter as judging sound quality, and one person's preference or dislike may not agree with another's. In our reports I give my views; you, our readers, will have to make your own decisions. □



URNS CASSETTES INTO DINOSAURS.

Introducing DAT from Technics. An audio advance of historic proportions is about to make conventional cassette technology seem positively prehistoric.

Because with the new DAT (Digital Audio Tape) deck from Technics, the tape medium enters an era of accuracy, fidelity and flexibility rivalling that of CDs. DAT operates on much the same digital principles as CDs, so there's a real improvement over

your analog cassettes. Greater dynamic range. Extended frequency response. Higher signal to noise ratio. Finer resolution of detail. And unlike some other DAT decks, Technics employs MASH* technology — allowing for even more accurate reproduction of low-level signals.

The Technics DAT deck also has convenience features no cassette deck can offer. With its Learning Search, the deck has the ability to do a fast search at up to 400 times normal speed. An amazingly convenient editing function

allows you to program the deck to skip unwanted sections of tape. Along with a host of other features you'll appreciate whether you're recording from your CD player, cassette deck, turntable or tuner.

All told, DAT is the tape format for the truly discerning listener. The DAT recorder from Technics. The next big step in the evolution of the species.

Technics
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*Technics developed the MASH one bit DAC. NTT (LSI labs) invented MASH technology. NTT has applied for trademark registration for MASH.

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NAKAMICHI CDPLAYER2 COMPACT DISC CHANGER

Julian Hirsch, Hirsch-Houck Laboratories

THE Nakamichi CDPlayer2 appears to be a typical front-loading compact disc player, differing from most others principally by the relatively small number of its visible buttons and controls. Despite its basically conventional appearance, however, it is one of the few truly unique CD players to appear in some time.

Behind the seemingly ordinary disc drawer is a mechanism that can automatically play a sequence of as many as six discs in addition to providing single-play operation. The CDPlayer2 is functionally similar to a magazine-loading CD changer except that the magazine is fixed inside the player.

Instead of the cumbersome process of swinging out a hinged compartment from a conventional magazine, placing a disc in it, and swinging it back into the magazine, then repeating the process for each additional disc, you load the Nakamichi CDPlayer2 one disc at

a time through a normal disc drawer. The disc-drawer button is pivoted about its center, and pressing either end opens the drawer for loading a disc. If you then press the upper end (STORE), the mechanism automatically loads the disc into a slot of the internal magazine, and the drawer reopens to receive another disc. When the magazine is full, or no more discs are to be loaded, you press the other end of the button (LOAD/EJECT) to close the drawer, and the player is ready for use. To play a single disc, the LOAD/EJECT end of the button is used as in a conventional CD player. The six discs in the magazine, along with a seventh in the single-play slot, can be played in sequence, giving the changer an effective seven-disc capacity. It can also handle 3-inch discs, without adaptors, but only in its single-play mode.

The display window, to the right of the drawer, normally shows the numbers of the occupied magazine slots,

the total number of tracks on the current disc, the current track number, the elapsed time in the track, and the operating status of the machine.

In addition to the multifunction disc-drawer control, there are three similar flat, pivoted controls. The DISC(1-6)/DISC(SINGLE) button selects either single-play or multiple-play operation and provides access to any of the six slots in the storage magazine. The forward/reverse track-skip control and the play/pause/stop control are much the same as on other CD players.

The front-panel headphone jack has a volume control that affects the variable-level line output in the rear of the player. A second pair of rear jacks supplies a fixed-level output, and there is also a coaxial digital output jack.

In addition to the basic functions controlled from the front panel, the CDPlayer2 has a full complement of features operated from its infrared remote-control unit, which also duplicates all the front-panel operating controls except those involving loading or removing a disc. (A small motor operates the volume knob when it is adjusted from the remote control.)

A TIME button on the remote toggles the display through four modes: elapsed time in the current track (the

TEST REPORTS

default setting), elapsed time on the current disc, remaining time on the disc, and the total number of tracks and time on the disc. When a disc is loaded, the display initially shows all of its track numbers (to a maximum of twenty) and deletes the numbers as the tracks are played.

The repeat mode repeats all tracks on a disc indefinitely, and the random mode plays them in random order. These modes apply to both single- and multiple-disc operation. Although the front-panel track-skip button can be used to select any track, the remote control has a numerical keypad that gives convenient direct access to any numbered track.

The player can be programmed from the remote control to play as many as fifty tracks on any of the loaded discs in any order or to skip as many as fifty tracks and play the remaining ones in their normal order. A CALL button on the remote control can be used to check the status of the memorized sequence (including its total playing time) and to add, delete, or modify any entry in the memory. In multidisc op-

eration, the DISC SCAN button plays the first 10 seconds of each track on every disc in the magazine.

The CDPlayer2 also has a Memory Synchro Recording feature, usable with Nakamichi tape decks equipped with a remote terminal, that enables

The Nakamichi CDPlayer2 is functionally similar to a magazine-loading changer except that the magazine is fixed inside the player.

the player to control the tape deck so that any combination of tracks from any of the loaded discs can be recorded most efficiently in the available tape space. The CD player's remote control has a number of keys dedicated to this feature and to other functions associated with compatible Nakamichi components.

The CDPlayer2 uses two high-precision, glitch-free 18-bit digital-to-analog (D/A) converters in each channel,

operating over different level ranges to yield 20-bit resolution and good linearity down to the lowest signal levels. An eight-times-oversampling (352.8-kHz), 20-bit digital filter is also used to insure consistent performance over the full dynamic range. Other features include a magnetic mechanism to clamp the playing disc firmly as it rotates, minimizing the focusing errors that must be corrected by its servo circuits. Interference and noise are minimized by separate power-transformer windings and regulators for the analog and digital circuits and by isolated grounds that keep the two sections of the unit apart.

The Nakamichi CDPlayer2, finished in black, measures 17 inches wide, 14 $\frac{1}{4}$ inches deep, and 4 inches high. It weighs 17 pounds, 10 ounces. Price: \$649. Nakamichi, Dept. SR, 19701 S. Vermont Ave., Torrance, CA 90502.

Lab Tests

The CDPlayer2's output level from a 0-dB (maximum-level) test track measured 2.08 volts at the fixed-level jacks and at the variable-level jacks set to their maximum output. Channel levels were matched within 0.01 dB. Frequency response was down 0.1 dB at 15 and 11,000 Hz and 0.25 dB at 20,000 Hz. De-emphasis error was a maximum of -0.17 dB at 16,000 Hz. Interchannel phase shift was a maximum of 0.25 degree at 20,000 Hz.

At a 0-dB recorded level, the total harmonic distortion plus noise (THD + N) was 0.003 to 0.004 percent from 20 to 2,000 Hz, increasing to 0.01 percent at 10,000 Hz and 0.056 percent at 20,000 Hz. At 1,000 Hz, the THD + N was 0.002 percent from -30 to -90 dB, rising to 0.004 percent at 0 dB. Low-level linearity was excellent, with amplitude errors of no more than +0.15 dB at -90 dB.

The noise spectrum from a zero-infinity (no-signal) track was -115 to -120 dB from 20,000 Hz down to 1,000 Hz, but the noise was overshadowed by power-line-hum harmonics at lower frequencies. Although the 60-Hz component was below the noise level, the 120-Hz harmonic was about -98 dB, and the 240-, 360-, and 480-Hz harmonics were each about -108 dB. The wide-band (A-weighted) noise level was -108.6 dB. Dynamic range (EIAJ) was 98.4 dB, and quantization noise was -88.1 dB. Channel separa-

FEATURES

- Eight-times oversampling (at 352.8 kHz) and 20-bit digital filtering
- Quadruple 18-bit D/A converters for 20-bit resolution
- Loads and stores as many as six discs for automatic play from internal magazine plus conventional single-disc load/play
- Programmable to play (or skip) as many as fifty tracks from loaded discs
- Front-panel volume control for headphone jack and rear variable-level analog outputs; motor-operated for remote adjustment
- Fixed-level analog line outputs and coaxial digital output on rear
- Display of current disc and track numbers, elapsed time in track, elapsed and remaining time on disc, total tracks and time, operating status
- Infrared remote control for programming functions, volume adjustment, other operating features; keypad for direct access to numbered tracks
- Random-play and repeat modes
- Disc Scan to audition first 10 seconds of each track on all discs
- Interface with compatible Nakamichi cassette decks for automatic taping of selected tracks

LABORATORY MEASUREMENTS

Maximum output level: 2.08 volts

Total harmonic distortion at 1,000

Hz: 0.01% at 0 dB, 0.0023% at -20 dB, 0.002% at -60 dB

Signal-to-noise ratio (A-weighted): 108.6 dB

Dynamic range: 98.4 dB

Channel separation: 110 dB at 100 Hz, 105 dB at 1,000 Hz, 80 dB at 20,000 Hz

Maximum interchannel phase shift: -0.25 degree at 20,000 Hz

Frequency response: -0.25 dB at 11 and 20,000 Hz

Low-level linearity error: -0.11 dB at -70 dB, +0.11 dB at -80 dB, +0.16 dB at -90 dB

Speed error: -0.0035%

Slewing time: 2.5 seconds; 7 seconds between discs

Impact resistance: top, C; sides, B

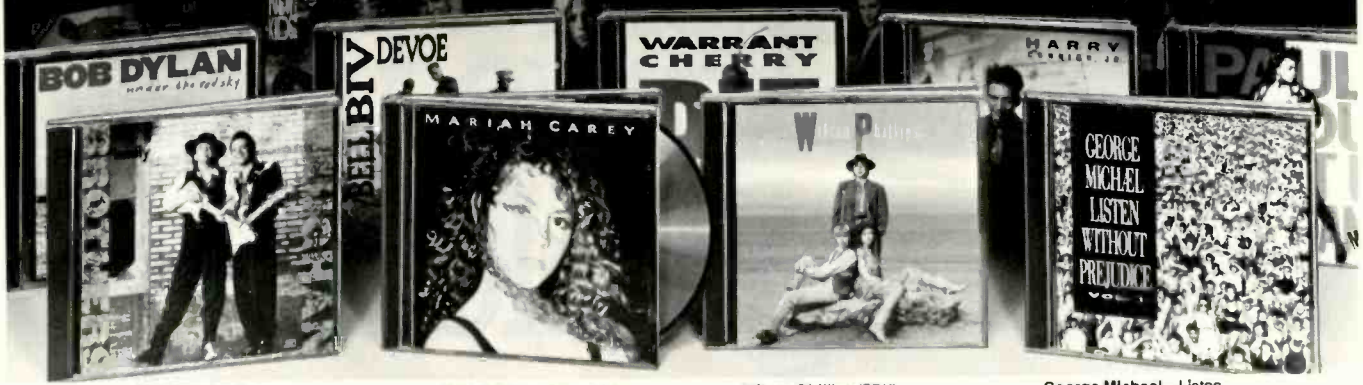
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| Jackson Browne—The Pretender (Asylum) 292-243 | Eagles—Greatest Hits 1971-1975 (Asylum) 287-003 | Linda Ronstadt—Greatest Hits (Asylum) 286-740 | Barry Manilow—Greatest Hits (Arista) 219-477 | Simon & Garfunkel—Greatest Hits (Columbia) 219-477 | Brahms: Violin Concerto; Bruch: Concerto No. 1; Nadja Salerno-Sonnenberg; De Waart, Minnesota Orch. (Angel) 401-135 |
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| Bonnie Raitt Collection (Warner Bros.) 409-466 | Pat Metheny Group—Question And Answer (Geffen) 408-286 | Brando Marsalis—Music From Mo' Better Blues (Featuring Terence Blanchard) (Columbia) 410-928 | Sinead O'Connor—I Do Not Want What I Haven't Got (Chrysalis) 405-001 | The Best Of Luther Vandross—The Best Of Love (Epic) 400-473/390-476 | Billy Idol—Charmed Life (Chrysalis) 386-789 |
| Aerosmith—Greatest Hits (Warner Bros.) 306-225 | Carly Simon—Have You Seen Me Lately? (Arista) 411-066 | | Ricky Van Shelton—RVS III (Columbia) 402-040 | Winger—In The Heart Of The Young (Atlantic) 406-678 | Paula Abdul—Shut Up And Dance (The Dance Muses) (Virgin) 400-264 |
| James Taylor—Greatest Hits (Warner Bros.) 291-302 | | | Poison—Flesh & Blood (Capitol) 408-963 | | Rolling Stones—Sticky Fingers (Rolling Stones Rec.) 350-645 |
| Warrant—Cherry Pie (Columbia) 411-389 | | | | | The Police—Every Breath You Take... The Singles (A&M) 348-318 |



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Optional: RM-3 rack-mount adapters; white front panel & knobs

Shortly after it was introduced, the Adcom GFP-555 preamplifier won widespread critical acclaim for outperforming other preamps costing two and three times more.

Never satisfied to rest on its reputation, Adcom has upgraded this superior product to make it better than ever. Born from the lineage of the affordable GFP-555 and inspired by the no-compromise GFP-565, the new GFP-555 II, together with any of Adcom's power amplifiers, will provide the serious music listener with a new, higher level of musical performance at a very reasonable cost.

Superior Dynamics

By increasing the size of its power supply and by lowering the output impedance, musical contrasts are dramatically detailed and lifelike.

Adcom's new custom-designed linear gain amplifiers are many times faster than the frequency components in musical signals, easily meeting the demands of the latest digital recording technologies.

A new tone control circuit has also been created for greater symmetry. And for audio purists, the tone controls are out of the signal path except when needed.

Altogether, these improvements deliver the thrill of an emotionally satisfying, live performance.

Improved Performance Features

The new GFP-555 II has been enhanced by several improvements:

1. A front panel control for easy and instant use, on demand, of signal processors.
2. 1% Roederstein resistors and film capacitors to reduce noise and distortion to inaudible levels.
3. Front panel, six-source input controls allow listening to one source while recording another.
4. Choice of two outputs: MAIN allows the use of tone controls and filters with the protection of coupling capacitors; or BYPASS (the purist's approach), a direct coupled output for the shortest, simplest gain path.

A Better GFP-555 or a Less Expensive GFP-565?

The GFP-555 II is both. Designed to take the place of the highly successful GFP-555, it is actually an ingenious, less costly version of the GFP-565, with undiminished musicality and sonic impact.

Ask your authorized Adcom dealer for a demonstration of this remarkable stereo component. You'll be glad that Adcom can never leave well enough alone.

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CIRCLE NO. 60 ON READER SERVICE CARD

tion was 110 dB at 100 Hz, 105 dB at 1,000 Hz, and 80 dB at 20,000 Hz. The frequency (speed) error was -0.0035 percent.

The CDPlayer2 was quite sensitive to moderate finger tapping on its top cover, which caused mistracking and dropouts. It was able to track through 1,500-micrometer data interruptions, but 2,000-micrometer defects caused mistracking. The slewing time from Track 1 to Track 15 of the Philips TS4 test disc was 2.5 seconds, about average for a CD player. A disc change required about 7 seconds from the end of a track on one disc to the start of one on the next disc. Headphone volume was very good.

Comments

The performance (and sound) of the Nakamichi CDPlayer2 was first-rate. It is probably one of the easiest CD players or changers to use, with a nearly irreducible minimum of controls. Nevertheless, few other players can match its versatility.

The instruction manual leaves nothing to the imagination, providing step-by-step guidance through the changer's many operating capabilities. The unit's basic performance as a CD player, without regard for its special operating features, was as nearly ideal as you are likely to find. Nakamichi has certainly demonstrated that a well-designed multibit D/A converter is capable of all the performance refinement of the new 1-bit converters. Which approach is "better" (a term that is probably meaningless when you reach this level of performance) will doubtless be argued for some time, but the CDPlayer2 is clearly representative of today's state of the art.

The ingenious multidisc system even gives you the opportunity to amaze your friends, as Nakamichi did at its press introduction, by playing a single disc, unloading it, then playing six more (preloaded) discs. The effect is startling, to say the least.

The CDPlayer2 is a bit more expensive than most other CD changers, but it is measurably (if not audibly) better also, and it has a special appeal of its own. It carries on the Nakamichi tradition of doing the best job the company knows how to do, even if it differs from competitors' approaches or costs more. A very fine player!

Circle 140 on reader service card



TRIAD SYSTEM FIVE SPEAKER

Julian Hirsch, Hirsch-Houck Laboratories

THE System Five from Triad Design, Inc., is a small two-way speaker suitable for service as a primary speaker in a moderate-price system or as a side or rear speaker in a surround-sound system. It measures only 12 inches high, $6\frac{1}{8}$ inches wide, and $5\frac{1}{8}$ inches deep, and it weighs a mere 7 pounds. Its Danish-made drivers include a $5\frac{1}{4}$ -inch woofer, which has a treated-paper cone and a rubber surround in a vented enclosure, and a $2\frac{1}{2}$ -inch tweeter with a polypropylene cone and a ferrofluid-cooled voice coil. The crossover, at 2,800 Hz, has a 6-dB-per-octave (first-order) slope.

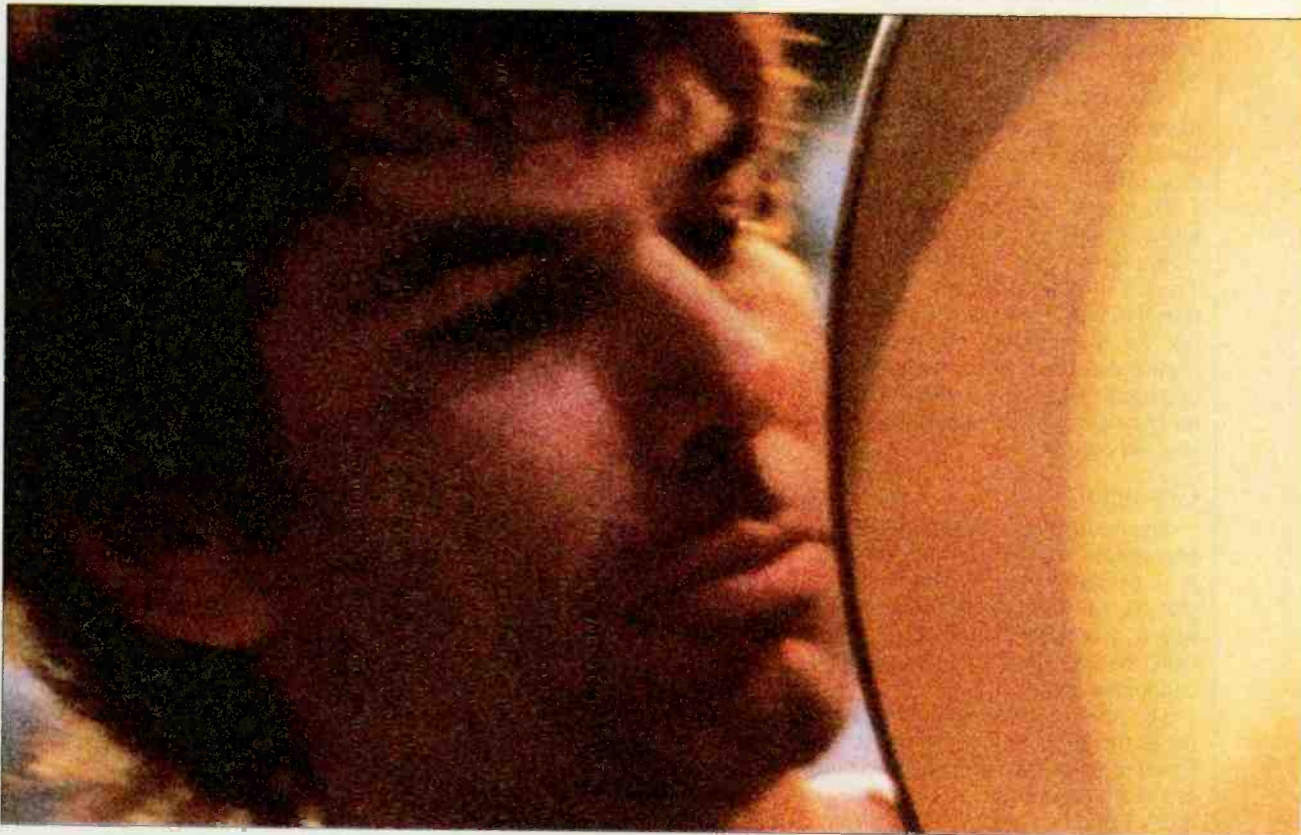
The bass port is located on the front panel of the cabinet. By using a curved

plastic vent tube, Triad was able to provide the required duct length in the smallest possible cabinet. The specifications claim a useful response down to 55 Hz. The connecting terminals, multiway insulated binding posts that accept dual banana plugs, are on the rear panel.

The cabinet is available in a variety of standard finishes, including light oak, medium oak, or walnut veneer with a lacquer finish and a lightly textured paint in white, red, yellow, blue, green, or black. Exotic veneers are available on special order at extra cost.

Our test samples were finished in black paint, which had a slightly glossy surface. The attractively styled

Why You Can't Listen To Mickey Hart And Chew Gum At The Same Time.



Get a free Up Close CD sampler featuring Mickey Hart and six other songs produced by Hart for Rykodisc's "The World" series. Send check or money order for \$4 (U.S. funds) to cover

Grateful Dead drummer Mickey Hart's latest solo effort from Rykodisc, *At The Edge*, requires active listening, concentration, undivided attention. So much so that even chewing a stick of Juicy Fruit detracts from the listening experience.

Total concentration such as this is a lot to ask from the record-buying masses. But for impassioned fans of percussive music, *At The Edge* is well worth the effort.

Since experiencing *At The Edge* demands such attention



from the listener, paying attention to how it was recorded became all-important to Hart. His aim was to create something new by blurring the boundaries between natural and electronic sound through digital processing.

Take for example the track "Sky Water," in which individual rain drops were digitally recorded using close-miking techniques, then "tuned" to the composition. A sophisticated digital reverb was also used to create the ethereal, open sense of space for "Sky Water." Within that space,

The subtleties of percussive music are extremely difficult to record. And equally hard for some speakers to repro-



duce. The Boston T930 is the exception. Its CFT5, 1-inch soft-dome tweeter reproduces overtones with extreme



shipping and handling to: Boston Acoustics, Dept. S5, P.O. Box 625, Holmes, PA 19043. Allow 4-6 weeks for delivery. Offer good until Dec. 31, 1990 or while supplies last.

clarity. And the 6 1/2-inch midrange handles a wide sonic range to ensure no dips



in critical midrange response. Finally, the T930's 10-inch woofer produces bass that is

tuned metal drums move across the soundscape from left to right as they are struck.

On another selection, "Pigs In Space," Hart and collaborator Aírto Moreira utilized a custom-made electronic panner to quickly move a vocal chant between the left and right stereo channels. This reverberating chant is underscored by an instrument called The Beast - a large steel cylinder suspended in the air and struck softly by large mallets to create a deep, resonant tone.

full, deep and free of distortion. The T930 typifies what



we call the Boston Sound: Tight. Clean. Smooth.

The inspiration for *At The Edge* came while writing the companion book, *Drumming at the Edge of Magic*. Hart learned that percussion had been a part of man's expression, long before the spoken word. *At The Edge* attempts to awaken man's long-forgotten dreams of the past.

Visit a Boston Acoustics dealer and hear Mickey Hart on a pair of T930 Tower speakers.

Music this good should be heard on speakers this good.

BostonAcoustics

TEST REPORTS

grille (also black on our samples) is made in two sections that fit flush with the cabinet edges. The speaker is sold in mirror-image pairs.

The system's ratings include an 8-ohm nominal impedance, sensitivity of 88 dB sound-pressure level (SPL) at 1 meter with a 1-watt input, frequency response of 75 to 16,000 Hz \pm 3 dB, and power handling of 75 watts continuous or 150 watts on music peaks. Price: \$450 a pair with a paint finish and \$440 a pair with a standard wood finish. Triad Design, Dept. SR, 9106 N.E. Marx Dr., Portland, OR 97220.

Lab Tests

We placed the Triad System Five speakers on stands, well away from a wall, for our measurements, although in listening tests we preferred them on shelves against a wall.

The averaged room response of the two speakers was flat within \pm 2.5 dB from 120 to 8,000 Hz (from 1,700 to 8,000 Hz the total variation was only 1 dB). The response rolled off below 120 Hz to $-$ 10 dB at 100 Hz. Between 8,000 and 15,000 Hz there was a dip and peak of \pm 2.5 dB, followed by a rolloff at higher frequencies.

The close-miked woofer response was quite similar to the low end of the room curve, with a $-$ 3-dB point at 100 Hz. The port response (corrected for its size relative to the cone) was impressively flat down to below 30 Hz. A combination of the port and cone outputs would give the impression that this diminutive speaker maintained a strong response to the lowest audio

Although a speaker of this size cannot be expected to withstand high power levels without distortion, the Triad System Five acquitted itself very well in our tests.

frequencies. Our listening tests suggested, however, that a 55-Hz limit was more realistic (and still very good performance for a speaker of this size).

System impedance was 6.5 ohms minimum at 50 and 180 Hz, reaching maxima of 16 ohms at 26 Hz, 20 ohms

at 110 Hz, and 23 ohms at 1,800 Hz. Triad's 8-ohm rating appears to be well justified. The sensitivity, with an input of 2.83 volts of pink noise, was 89 dB SPL at a 1-meter distance.

Horizontal dispersion was very good between 5,000 and 12,000 Hz at angles up to 45 degrees off-axis. In the 3,000- to 5,000-Hz range, there was a greater output-level change over that angle, perhaps owing to crossover effects. The group delay of the system varied about \pm 0.2 millisecond from 1,500 to 22,000 Hz.

The woofer's distortion at a constant input of 3.2 volts (equivalent to a 90-dB SPL in our sensitivity measurement) was under 0.5 percent from 150 to 3,000 Hz. It rose steeply at lower frequencies, to 1.2 percent at 100 Hz, 5 percent at 60 Hz, and 10 percent at 30 Hz. The distortion in the port output was high throughout its operating range (from 100 Hz down), with readings ranging from 3 percent at 100 Hz to 20 percent at 40 Hz.

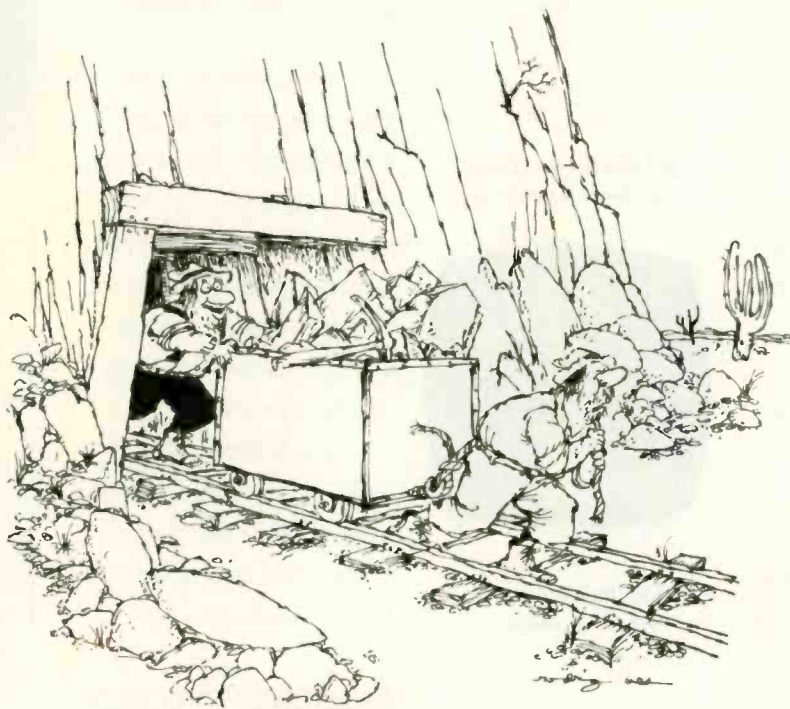
Although a speaker of this size cannot be expected to withstand high power levels without considerable distortion (or damage, if carried too far), the Triad System Five acquitted itself very well. Driven by a single-cycle tone burst, its output waveform was not significantly distorted up to the point of amplifier clipping at power levels of 380 watts at 100 Hz, 600 watts at 1,000 Hz, and 800 watts at 10,000 Hz, into respective load impedances of 19, 11.5, and 9 ohms.

Comments

Most of the time the sound of the Triad System Five gave no obvious clues to its size or price. Of course, recordings with strong, deep bass content did not produce their full impact, but otherwise the sound was balanced and smooth.

The speakers' low-frequency performance was substantially improved by placing them against a wall. We also used them with a powered subwoofer, crossing over at 100 Hz, which resulted in a very potent and well-balanced, full-range sound quality. But even on their own, these handsome little speakers did a most creditable job. They would never be mistaken for the usual mass-market or rack-system minispeakers. In all, very good value for the price.

Circle 141 on reader service card



"Trust me, Bill. This time I'm sure this stuff'll turn out to be some valuable, exotic speaker material!"

PATTERN SURROUND HOME THEATER



Atlantic
TECHNOLOGY

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THE IMPORTANCE OF THEATER SOUND

Movies seen on television are entertaining but often forgettable. Movies experienced in a theater tend to be more involving and persist longer in memory. The difference in emotional impact is due not only to picture size but to *sound*. In a well equipped movie theater you don't merely watch the picture; you are enveloped in the sound field of a dozen or more loudspeakers, all fed from a Dolby Stereo processor with Surround-Sound decoding that puts you into the action. Acoustic cues tell your ears that you are in the desert with the wind howling around you, or in orbit with a spaceship passing overhead, or in a tropical forest with dew dripping from the leaves. Sound is the ingredient that changes movie watching from a passive accompaniment to popcorn into an experience that involves you actively, emotionally, and even physically.

BRINGING IT ALL HOME

For the past few years, videophiles have been reproducing this theater experience in the comfort of their own homes by combining television with elaborate multi-speaker Dolby Surround sound to create exciting video home theater systems. While these systems are spectacular, they come at great expense; both in terms of money (several thousand dollars), and in terms of space. These videophiles have had to clutter their living rooms with a myriad of decoders, amplifiers, bulky speakers, and complex wiring.

A NEW AND DIFFERENT APPROACH

Now, thanks to several technological breakthroughs, Atlantic Technology presents the



Pattern Surround Home Theater. This new system provides *everything* you need for great movie sound—all of the speakers, amplifiers, cables, and precise Dolby Pro Logic Surround decoding, along with a remote control — all at a fraction of the cost of earlier systems.

The Pattern Surround Home Theater is unique in another respect: *its remarkably small size*. Now you can have great stereo and surround sound without filling your living room with clutter. The Pattern speakers are so small that you'll hardly notice their presence — until you turn down the lights to watch a movie and the entire room fills with powerful and spacious sound.

Finally, the Pattern Surround Home Theater is amazingly easy to install. You won't need to hire the neighborhood audiophile or gadget whiz to figure out which widget connects to what. The system goes together simply by plugging a few color-coded wires into clearly labeled sockets.



ABOUT THE PRO LOGIC SYSTEM

In movie theaters, Dolby Stereo goes beyond mere two-channel stereo and creates lifelike sonic dimensions to enhance on-screen action. In addition to the usual left and right audio channels, a rear "surround" channel immerses you in ambience and special effects.

In the home, a Dolby Surround system unlocks the potential of movie soundtracks as found on stereo tapes, laser discs, and an ever-increasing number of network broadcasts. (In the past year and a half, several networks have begun producing and broadcasting everything from sporting events to weekly drama series in Dolby Stereo.) The original generation of decoders (as well as those found in some receivers), simply play the surround channel through additional rear speakers. This at least restores the vital front-to-back dimension.

The newest and most advanced surround decoders utilize Pro Logic, a very sophisticated signal processing technique. Besides offering more accurate channel steering technology, the Pro Logic system allows the use of one more channel: Center. The result is absolute pinpoint accuracy of channel location for everyone in the room. For example, primary dialog is heard only in the center, where it belongs.



Not long ago, separate Pro Logic decoders were very expensive (\$1000 and up). The amount of discrete circuitry necessary to separate and "steer" all of the channels was staggering. Recently, however, all of the circuitry has been placed on one VLSI (Very Large Scale Integration) chip, dramatically reducing the required size of the decoder. By using this chip, along with over 40 other ICs, Atlantic Technology has been able to develop a compact, yet sophisticated, Pro Logic decoding system that is fully remote controlled.

Despite the sophisticated circuitry inside, Atlantic Technology's Pro Logic decoder is remarkably simple to use. Except for an input level adjuster, all controls are performed on the hand-held remote. These include a switch for the test signal to help you balance the center and surround channels, a master volume control for all channels, individual volume adjustments for the bass, center, and surround. One other useful feature which is operated via the remote control is Theater Compensation. When activated, this circuit adjusts the acoustics of the entire system to

match the characteristics of some soundtracks.

Although the remote commander is deceptively simple, it gives you more flexibility and control from your chair than any presently available surround-sound system.

THE PATTERN SPEAKER/AMPLIFIER SYSTEM

In conjunction with the decoder, the second key to the Pattern Surround Home Theater is its unique combination speaker/amplifier system. For the various channels, it utilizes five separate satellites (with two speakers per satellite) and a subwoofer for the deep bass. All of these speakers are powered by six separate amplifiers that are conveniently located in the subwoofer cabinet itself. This unique engineering approach enables the Pattern Surround Home Theater to reproduce the entire spectrum of sound in a remarkably small package.

The small size of the Pattern satellites is ideal for providing detailed imaging of dialog and special effects, while the subwoofer is capable of producing more volume and bass power than most people would expect from a system this size.

HOW IT'S DONE

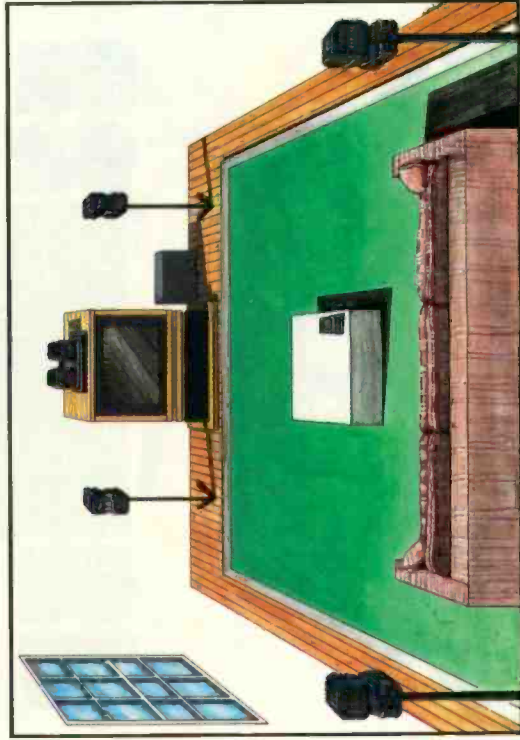
The five built-in amplifiers have a total power of 120 watts, but the system can play considerably louder than this rating suggests. How can this compact, afford-

able system produce such big, clear sound? There are two primary reasons:

1. **A clever division of responsibilities:** Middle and high frequencies, everything from the male voice range up to the highest harmonic overtones, (including all of the harmonic cues for stereo imaging and spaciousness) are handled by five small, but very efficient, satellite speakers, while a strong low frequency foundation is provided by

dual eight-inch woofers in a separate cabinet.

2. **A patented low frequency system:** The bass amplifier also contains a proprietary dynamic signal processor that extends the low-frequency response of the woofers, producing thunderous bass that you can feel as well as hear. An "excursion limiter" prevents the woofers from being overdriven by strong bass peaks, so you can't hurt the system by playing it too loud. At any volume level the woofers automatically deliver as much bass as possible, without damage.



AT HOME IN ANY HOME

The Pattern Surround Home Theater system from Atlantic Technology provides theater-quality Dolby Surround Sound with stunning quality at a remarkably low price. Until now, Dolby Pro-Logic surround systems of this caliber have been so costly, and so laborious to install, that they have been marketed mainly with expensive big-screen projection TV systems. In view of its modest cost, compact size, and easy hookup, the Pattern surround system is an ideal companion for video screens of *all* sizes — from 13 to 100 inches. Indeed, the sonic and emotional impact of wide-range surround sound becomes all the more obvious when it accompanies a good small to medium size television.

Even if you live near a movie theater with excellent Dolby Stereo and surround sound, you owe it to yourself to discover how exciting, pleasurable, and emotionally involving both movies and Dolby Stereo encoded broadcasts can be with the Pattern Surround Home Theater. Without it, you just aren't experiencing these productions as their creators intended.



GENERAL SPECIFICATIONS

Total Amplifier Power	120 W (Bridged)
Frequency Response	(usable) 30 Hz - 20 kHz (±3 dB) 38 Hz - 20 kHz (3r environment)
Sensitivity	100 mV for 93 dB Sound Pressure Level at 1 Meter
Input Impedance	Low Level Inputs - 10 kΩ High Level Inputs - 2 kΩ
Amplifier Controls	Master Volume, Bass Level, Front (R & L, Surround, Center (±6 dB))
SATELLITES (S)	3" High Efficiency Drivers in Dual Chambers 100 Hz - 20 kHz
Controlled Response (By active equalization)	12 dB per octave - high pass at 100 Hz (Fourth Order Butterworth)
Controlled by active crossover	
BASS SYSTEM DESIGN	
Powered, with Active Equalization	Two 8" Long Throw Drivers 4 layer voice coil
Active Crossover System	24 dB per octave - low pass at 100 Hz (Fourth Order Butterworth)
Dynamic Bass Equalization Resonance Point	35 Hz
Maximum Dynamic Bass Boost	9 dB
SURROUND DECODER MODULE	
Modes	Stereo (L, R, Sub only) Dolby Pro Logic (All channels)
Number Source Inputs	3 Line Level 1 High Level
Time Delay	Digital, 30 mS
Outputs	Front (R & L) Center Surround Bass Optional bass phase invert
Front Panel Controls	Input Level Adjust (R & L)
Remote Control Functions	Power (On/Off) Noise Sequencer Mute Stereo Pro Logic Theater Compensation Individual Volume (Surround/Center/Bass) Master Volume

PHYSICAL SPECIFICATIONS

SATELLITES (Front & Surround) (Center)	4 X 7.25 X 4 in (W x H x D) 9.25 x 4.25 x 4 in
WOOFER MODULE (W x H x D)	21 x 13.25 x 10.25
PRO LOGIC DECODER (W x H x D)	12.75 x 2 x 8.75

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JOCK P. LEUNG

SOUNDCRAFTSMEN PRO-CONTROL THREE PREAMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

THE Soundcraftsmen Pro-Control Three preamplifier employs complementary metal-oxide-semiconductor (C-MOS) digital-control electronic switching for operation free of noise and distortion. Switching is done directly at the required point in the circuit, close to the signal input and output jacks, for minimum crosstalk and noise pickup. The Pro-Control Three provides fully independent selection of program sources for listening and recording. Two square buttons step through the available sources sequentially, and parallel horizontal rows of lights (green for LISTEN, red for RECORD) show the status of the selectors.

Inputs include CD, tuner, phono, and two tape decks. Two buttons in the center of the panel are marked LOOP and DIRECT. The first controls an external-processor loop, which can be used to insert an accessory such as an equalizer into either the listening or recording signal path or bypass it entirely. The

DIRECT button bypasses the tone controls and the external-processor loop, providing the shortest possible signal path through the preamplifier, from input to output.

The other panel controls are a large volume knob, with a highly visible green LED index pointer, and smaller, center-detented knobs for the bass and treble tone controls and the balance control. The power switch, a square button like the signal selectors, is immediately below the stereo headphone jack.

The rear apron of the preamplifier contains twin rows of input/output jacks (the phono input jacks are gold plated) and two AC outlets, one of them switched. Its 600-watt rating far exceeds the typical rating of a preamplifier's switched outlet (100 watts or so), giving it the ability to control the power to all the other system components, including a fairly powerful amplifier.

An unusual and convenient feature of the Soundcraftsmen Pro-Control

Three is its two pairs of output jacks. In addition to the regular (NORMAL) outputs, it has a pair of outputs of opposite polarity (INVERTED), which allow the preamplifier to drive almost any stereo power amplifier as if it were a bridged-mono power amp with roughly three times its normal per-channel power rating.

The made-in-California Soundcraftsmen Pro-Control Three is an attractively styled unit with a sculptured charcoal-gray front panel and exceptionally legible white markings. Optional wood side panels are available. Removing the cover revealed one of the cleanest interiors we have found in a comparably priced hi-fi component. Virtually the entire preamplifier is constructed on one circuit board; the input/output connectors are attached to its rear edge, and a display/control board is attached to the front panel and the main circuit board. Almost all of the active circuit elements are integrated circuits, the major exception being in the phono preamplifier, which consists entirely of discrete-transistor circuits. The only visible wires in the preamplifier connect the circuit board to the power supply.

The Soundcraftsmen Pro-Control Three measures 19 inches wide, 10½ inches deep, and 3½ inches high, and it weighs 15 pounds. Price: \$549; wood side panels, \$30. Soundcraftsmen,

The Nakamichi The End of the Single-vs.



Choosing a CD player isn't as easy as it used to be. The best single-disc players are often very expensive and unnecessarily complicated. Changers offer multi-disc convenience. But because they're generally not designed for the serious listener, they cut corners off performance. They make it difficult to play just one CD. And their mechanisms are slow and clunky.

You could partially solve this dilemma by buying both a single-disc player *and* a changer. But now, thanks to Nakamichi, there's a much better solution.

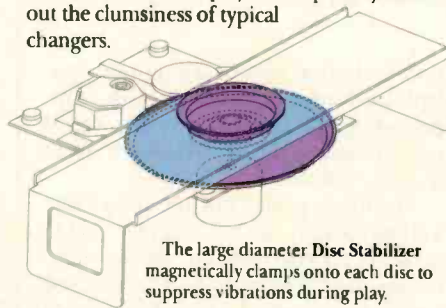


The MusicBank System™ lets you load up to six discs for multi-play yet always accommodates a seventh single-play disc. You can easily load or eject discs via a familiar single-disc tray.

Take a close look at Nakamichi's new CDPlayer2, for example. On the surface, it looks like a conventional single-disc player (only less cluttered and generally more pleasing to the eye of most beholders). Look inside, however, and you'll find something totally

unique: the Nakamichi MusicBank System™.

The MusicBank System employs an ingenious "1+6" stocker mechanism that provides advanced multi-disc playback capability without the clumsiness of typical changers.

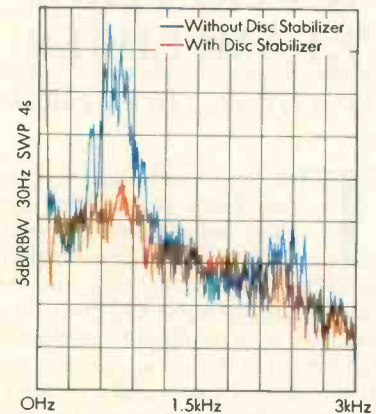


The large diameter Disc Stabilizer magnetically clamps onto each disc to suppress vibrations during play.

You can store up to six CDs in the MusicBank System, loading and unloading discs just as you would with a single-disc player. You can play a single CD at any time without juggling discs. And you don't even have to remove the single disc to play any of the stored discs.

You also get a full complement of easy-to-use single- and multi-disc programming capabilities, including delete play, 3-way random play, 3-way repeat play, and a 50-program memory. There's even Nakamichi's convenient **Synchro Recording** feature that automates CD dubbing with virtually any Nakamichi remote-controlled cassette or DAT deck. And whatever you ask of the MusicBank System, you'll find it responds quickly, smoothly, and quietly.

But forget about CDPlayer2's multi-disc capability for a moment. When it comes to sonic performance, CDPlayer2 must be com-



Measurements of focus servo error with and without the Disc Stabilizer reveal a dramatic improvement.

pared to the most ambitious, high-end single-disc players—the ones that typically cost hundreds, and even thousands, of dollars more.

CDPlayer2 uses Nakamichi's newly developed **Enhanced Linearity 20-bit D/A Converters**. Unlike other so-called high-resolution systems, it is an innovative and real solution to the problem of converter precision. With this new technology—plus an 8-times oversampling digital filter, improved linear-phase 3rd-order

CDPlayer2 comes with a full-function wireless remote control.

MusicBank System: Multi-Disc Player Dilemma.

Bessel-type active analog filtering, and numerous other Nakamichi refinements—CDPlayer2 sets a new standard for musical accuracy. You'll hear musical detail, soundstage precision, and ambience you never knew existed on your CDs.

To further assure even the finest musical subtleties are preserved, CDPlayer2 has a large-diameter, magnetically chucked Disc Stabilizer. It suppresses the effects of external vibrations and dampens disc resonances that can lead to excessive focus servo activity and sonic smearing.



The OMS-2000's optical transport mechanism provides absolute positioning with unrivaled precision.

As impressive as CDPlayer2's internal features may be, the full story goes considerably beyond what lies behind its front panel. After all, advanced CD player technology of this kind is not developed overnight. CDPlayer2 and, for that matter, all other Nakamichi CD players and digital audio products, benefit from years of fundamental research that has put Nakamichi at the forefront of optical disk and digital signal processing technologies.

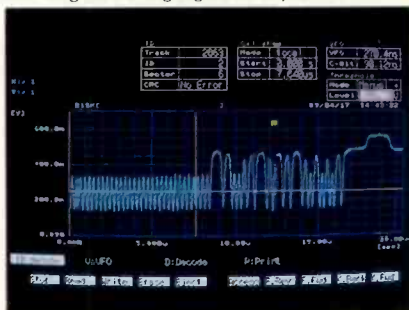
Just to put things into perspective, for a few hundred thousand dollars more than CDPlayer2 you can own a Nakamichi OMS-2000 optical disk analysis system. This remarkable read/write instrument can handle virtually every type of optical disk medium that has been or will be developed. The optical transport and disk drive mechanism are designed and manufactured by Nakamichi to unheard-of levels of precision—many orders of magnitude greater than that required for CD players. And through a sophisticated computer interface, the system permits a vast array of revealing measurements to be made. The list of companies using the OMS-2000 reads like a *Who's Who* of data industry giants.



The Nakamichi OMS-2000 optical disk analysis system has become the *de facto* standard in the data storage industry.

In fact, Nakamichi can rightfully claim a 95 per cent market share in optical disk analysis equipment of this type.

It was Nakamichi's experience in developing the OMS-2000 that revealed, for example, the importance of keeping the signal path between the laser and the signal processing circuitry as short as possible. Accordingly, the RF amplifier in CDPlayer2 is mounted right at the optical transport rather than remotely on the main circuit board as it is with conventional players. This, together with a new high-stability servo circuit developed with the aid of the OMS-2000, delivers much improved CD tracking and imaging accuracy.



The OMS-2000's computer interface enables measurements that have yielded invaluable data and insights on optical disk technology.

But Nakamichi also knows that fine audio components cannot be developed in the laboratory alone. That's why the Nakamichi headquarters research and development facility includes a lavish concert hall and special listening room. They provide a "live vs. reproduced" reference standard against which Nakamichi engineers can continually judge the success of their designs.

You can be the judge when you visit your Nakamichi dealer. Audition CDPlayer2 or CDPlayer3, both featuring the MusicBank System. If you don't need multi-disc capability, ask about CDPlayer4. Compare them to other players for musical accuracy, ease of use,

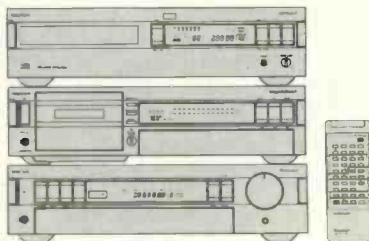
smoothness of operation, construction quality, versatility, and value. After that, the choice will be easy.



The ultimate reference standard: the Nakamichi Concert Hall and Listening Room are extravagant, yet essential, "test equipment" in the Nakamichi product development cycle.



Write or call for complete information on Nakamichi's new line of CD players, cassette decks, and receivers.



MusicBank System™ is a trademark of Nakamichi.

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TEST REPORTS

Dept. SR, 2200 S. Ritchey St., Santa Ana, CA 92705.

Lab Tests

The frequency response of the Soundcraftsmen Pro-Control Three, measured through its CD input, varied less than 0.15 dB overall from 10 to 30,000 Hz and was down 0.5 dB at 100,000 Hz. Switching to the direct mode, bypassing the tone controls, improved the response to an impressive +0, -0.1 dB from 10 to 100,000 Hz and ± 0.02 dB from 20 to 20,000 Hz. The phono section's response was within ± 0.4 dB of the standard RIAA equalization characteristic from 20 to 20,000 Hz.

The tone controls had excellent characteristics, with little effect on the midrange response. The treble curves were hinged at 2,500 Hz, and the maximum range was ± 13 dB at 20,000 Hz. The bass control had a sliding turnover frequency, shifting from below 50 Hz to about 150 Hz over the adjustment range of the control, with a maximum effect of ± 12 dB at 20 Hz.

The output of the preamplifier clipped at 8.8 volts into a high-impedance load and at 6.5 volts into 600 ohms. The total harmonic distortion (THD) plus noise was 0.02 to 0.03 percent from 1 volt output to the clipping point. The sensitivity, for a 0.5-volt reference output, was 0.122 volt

through the CD input and 1.9 millivolts (mV) through the phono input. The A-weighted noise level (referred to 0.5 volt) was -95.5 dB through the CD input and -69 dB through the phono input. The phono noise proved to be largely 120-Hz power-supply hum. Phono-input impedance was 45,000 ohms in parallel with 80 picofarads. The phono stage overloaded at the 1,000-Hz-equivalent inputs of 90 to 100 mV from 20 to 20,000 Hz, which is quite adequate for any turntable setup.

Comments

Ergonomically, the Soundcraftsmen Pro-Control Three is a refreshing advance over conventional audio-

The Soundcraftsmen Pro-Control Three's control functions are exceptionally clear and logical, yet it is one of the most full-featured preamplifiers available.

component design. Its control functions are exceptionally clear and logical; one could hardly ask for a simpler or more obvious front panel, yet the Pro-Control Three is one of the most full-featured preamplifiers on the mar-

ket. The same logic and simplicity are evident in its internal construction, which is open and uncluttered in spite of its versatility.

In general, the measured performance of the Soundcraftsmen Pro-Control Three was essentially as rated, which is to say it's more than good enough for the critical user. The response flatness, phono equalization, and tone-control characteristics were excellent, and the phono-overload levels, while not as high as those of a number of preamplifiers we have tested, were certainly adequate for their purpose.

The preamplifier fell short of meeting its specifications in only one respect, apparently the result of the manufacturer's having rated its noise level using a nonstandard reference (that is, the preamplifier's maximum output of 8 volts or so, instead of the EIA standard reference of 0.5 volt). The A-weighted hum-and-noise level we measured through the phono input, -69 dB, while not particularly good, is probably acceptable in most cases. It resulted almost entirely from 120-Hz power-supply hum, a rare occurrence with today's solid-state amplifiers. The hum component, at a level of about -55 dB, could be seen on an oscilloscope and heard via the speakers with the volume set near maximum. Our chief objection is to the -97-dB rating, which appears to be grossly exaggerated if taken at face value and could be misleading if the Pro-Control Three were compared with amplifiers rated by the EIA standard. Measurement of a second unit showed that the hum level was not just a sample variation as we had at first suspected.

In actual listening use, the Soundcraftsmen Pro-Control Three was an excellent performer. Its control smoothness and quiet switching were obvious, and since few of us listen at a maximum gain setting its hum is not likely to be audible. Again on the plus side, the headphone volume available from this preamplifier was among the loudest we have found so far; it could actually generate uncomfortable levels through medium-impedance phones. Headphone users will be happy to know that they can leave their power amplifiers shut off if they have a Pro-Control Three.

Circle 142 on reader service card

FEATURES

- C-MOS solid-state signal switching
- Discrete transistors in phono preamplifier
- Inputs for CD, tuner, phono, two tape decks
- Completely independent selection of sources for listening and recording
- External-processor loop for inserting accessory in listening or recording path
- DIRECT button to bypass tone control and external-processor loop
- Detented bass and treble tone controls
- Large volume knob with LED index marker
- Stereo headphone jack
- Gold-plated phono jacks
- Switched 600-watt AC outlet

LABORATORY MEASUREMENTS

Output level at clipping: 8.8 volts open-circuit, 6.5 volts into 600 ohms

Sensitivity (for a 0.5-volt output): CD, 156 mV; phono, 1.9 mV

A-weighted noise (referred to a 0.5-volt output): CD, -95.5 dB; phono, -69 dB

1,000-Hz distortion (THD + noise): 0.0018% at 1 volt, 0.02% at 6 volts

Phono-input overload (20 to 20,000 Hz): 99 mV at 20 Hz, 96 mV at 1,000 Hz, 90 mV at 20,000 Hz

Phono-input impedance: 45,000 ohms in parallel with 80 pF

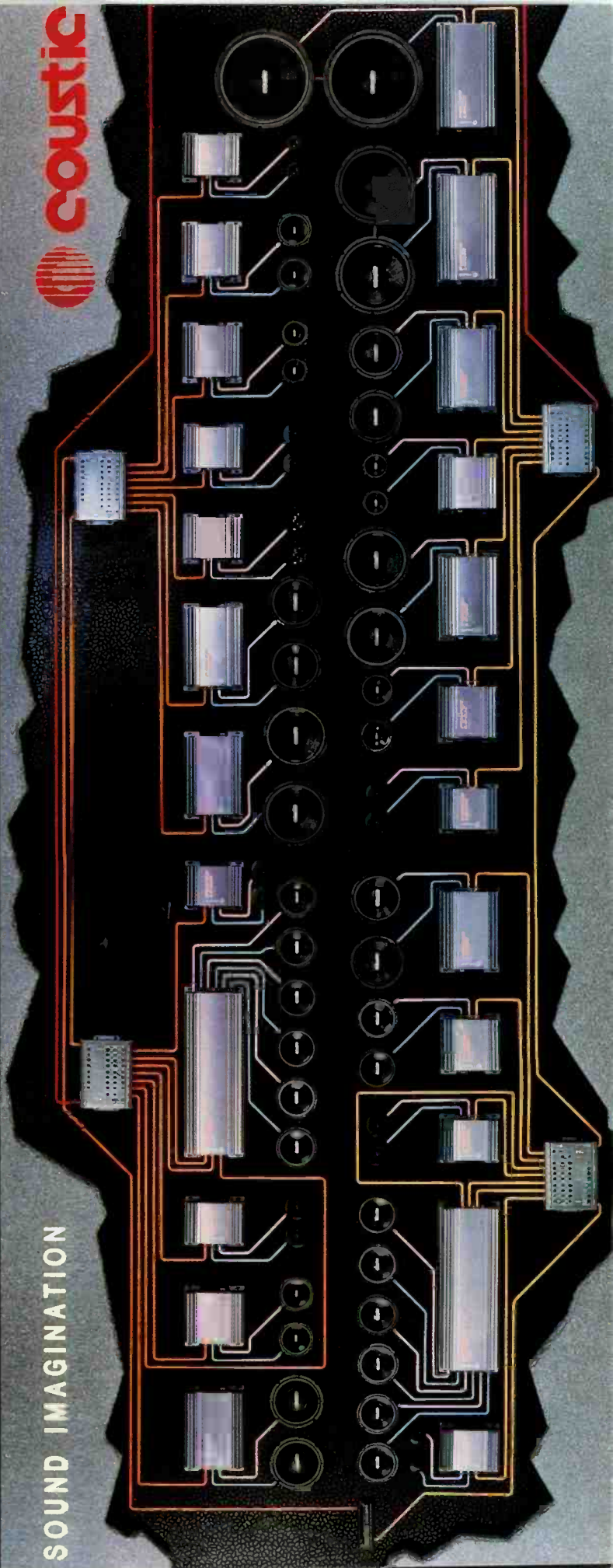
RIAA equalization error: ± 0.4 dB from 20 to 20,000 Hz

Tone-control range: ± 6 dB at 100 Hz, ± 11 dB at 10,000 Hz

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SOUND IMAGINATION





JOCK P. LEUNG

JVC XL-Z431 COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

THE JVC XL-Z431 is a relatively inexpensive CD player employing the latest 1-bit technology, and it has a number of convenience features that are not usually found in its price class.

The XL-Z431's 1-bit digital-to-analog (D/A) converters use a form of pulse-width modulation (PWM) that JVC calls PEM DD (for Pulse Edge Modulation Differential-linearity-errorless D/A conversion). They employ variable noise shaping, up to the fourth order, to minimize quantization noise (other 1-bit systems currently use fixed second- or third-order noise shaping). Two PEM converters per channel are used for maximum low-level linearity with minimum distortion and noise.

The XL-Z431's front panel has the standard CD operating controls: play/pause, fast search and auto search (track skip) in both directions, and stop/clear. There is a conventional single-disc drawer with an open/close button, a power button, and a headphone jack with adjacent volume con-

trol, which also adjusts the level at the variable outputs on the rear apron.

That description might apply to almost any conventional CD player. Even the display window, with a music-calendar matrix showing up to twenty numbered tracks and indications of the current track number and its elapsed time, plus the usual status information, is a pretty standard feature for CD players.

A row of eleven numbered buttons gives direct access to any track up to No. 99. Many other players have this capability, although most make it available only from a remote control; the XL-Z431 offers direct track access in both places.

To the left of these controls are six buttons dedicated to other features of the XL-Z431. One, marked DDRP, for Dynamics Detection Recording Processor, is unique in our experience. When the XL-Z431 is connected to a compatible JVC cassette recorder for making copies of CD's, the DDRP automatically scans the disc (or a selected portion) for its highest peak level and

sets the CD player's output and the cassette deck's recording level so that this peak will not exceed the maximum capability of the recorder and the tape. When the search is completed—it takes about 2 minutes for a 40-minute recording time—the recording process begins automatically.

The repeat button toggles to repeat the current track, any selected segment, or the entire disc. Other buttons are used for programming the XL-Z431 to play up to thirty-two tracks in any order and for editing or erasing the program. When the programming is done for purposes of taping, the duration of a tape can be keyed in, and the player will automatically choose selections to fill the tape most efficiently.

The infrared remote control furnished with the XL-Z431 duplicates almost all of its front-panel controls and provides some additional functions. Pushbuttons vary the setting of the motor-driven volume control, and a fade button reduces the volume to minimum over a couple of seconds. A display-mode button toggles the time display to show elapsed or remaining time in the current track or on the disc, and another button shuts off the display entirely. There is even a disc-drawer open/close button on the remote control.

The player's rear apron has a pair of output jacks carrying a fixed-level line

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TEST REPORTS

output, another pair for the variable-level output, a coaxial digital output, and connectors for joining the player with other JVC Compu-Link components. In Compu-Link operation, selecting a source component from the amplifier or receiver automatically switches that source on, and turning on a source component (such as a CD player) switches the amplifier or receiver's input selector to it. You can also synchronize a recording from any source to a tape deck.

The JVC XL-Z431, which is finished in black, measures 17¼ inches wide, 11½ inches deep, and 4 inches high, and it weighs 8 pounds, 6 ounces. Price: \$310. JVC Co. of America, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

Lab Tests

Our tests of the XL-Z431 were limited to its CD-playing performance, not its Compu-Link features. Its output from a 0-dB (maximum-level) test track was 2.19 volts. The channel levels differed by only 0.03 dB over most

of the audio range. The frequency response from 15 to 20,000 Hz was +0.03, -0.05 dB on one channel and +0.01, -0.15 dB on the other. Maximum interchannel phase shift was 1.08 degrees at 20,000 Hz. De-emphasis response error was less than 0.05 dB on one channel and a maximum of 0.2 dB at 16,000 Hz on the other.

Dynamic range (EIAJ) was 98.8 dB, and quantization noise was -95.2 dB. The wideband noise (A-weighted) was -108.8 dB, and the speed error was -0.0017 percent. Channel separation was 112 to 115 dB at 100 Hz, decreasing linearly to 71 dB at 20,000 Hz.

The XL-Z431's outstanding low-level linearity was a testimonial to the effectiveness of its PEM DD converters. From -60- to -100-dB levels, the amplitude errors ranged from a maximum of +0.73 dB at -90 dB to a minimum of -0.05 dB at -100 dB, averaging only 0.3 dB over that full range.

A spectrum analysis of the player's noise level showed a nearly constant -120-dB level from 20,000 Hz down to

1,000 Hz, varying between -120 and -130 dB from 1,000 to 30 Hz. At a 0-dB level, the player's total harmonic distortion plus noise (THD + N) was a nearly constant 0.002 percent from 100 to 3,000 Hz, rising to 0.0035 percent at 20 and 10,000 Hz and returning to 0.0016 percent at 20,000 Hz. At 1,000 Hz, the THD + N was 0.0016 percent for all levels between -5 and -70 dB.

The slewing time from Track 1 to Track 15 of the Philips TS4 test disc was 3.5 seconds, slightly slower than average. Cueing was accurate, and the player was highly resistant to physical impact (a *hard* slap on the top or side was needed to induce a momentary dropout). The XL-Z431's defect-tracking ability was very good, enabling it to play through the 2,000-micrometer interruptions of the Pierre Verany #2 test disc (mistracking did occur at 2,400 micrometers). The headphone volume was very good.

Comments

To fully appreciate the performance of the JVC XL-Z431, one should recall that only a little more than a year ago no CD player was available at *any price* whose overall performance could match that of the XL-Z431, and especially its low-level linearity and low distortion and noise. The availability of low-cost 1-bit D/A converters produced a great leap forward in the measurable performance of CD players.

While these improvements may not be audible under normal listening conditions, they certainly have no significant drawbacks as long as the cost is not excessive. In fact, 1-bit conversion is no more expensive than previous methods, and it even appears to be appreciably cheaper. It is hard not to be enthusiastic about a development that provides substantially improved performance at a bargain-basement price.

In our tests, the JVC XL-Z431 proved itself to be an absolutely first-rate CD player with respect to defect tracking, impact resistance, and just about everything else. I really could not find anything about it that was not to my liking. Whether or not it sounds any different from other CD players (something you will have to decide for yourself), its performance and features form an impressive array of pluses, with no minuses that I could find.

Circle 143 on reader service card

FEATURES

- Dual 1-bit Pulse Edge Modulation Differential-linearity-errorless D/A converters
- Variable noise shaping, up to fourth-order
- Eight-times-oversampling (352.8-kHz) digital filter in first stage of D/A converter
- Programmable to play up to thirty-two tracks in any order
- Direct keypad track access
- Intro scan (plays first 15 seconds of each track)
- Repeat of track, disc, or program segment
- Compu-Link control system for automatic source selection and synchronized recording with compatible JVC components
- Dynamic Detection Recording Processor (DDRP) to set output automatically to accommodate peak program levels when recording on a compatible JVC cassette deck
- Editing system to record maximum number of tracks on cassette
- Coaxial digital output
- Fixed-level and variable-level analog outputs
- Display of elapsed or remaining time in track or on disc
- Front-panel volume control for headphone jack and variable analog outputs
- Remote control for all normal functions plus direct access to index points

LABORATORY MEASUREMENTS

Maximum output level: 2.19 volts
Total harmonic distortion plus noise at 1,000 Hz: 0.0014 to 0.0018% from 0 to -70 dB
Signal-to-noise ratio (A-weighted): 108.8 dB
Channel separation: 114 dB average at 100 Hz, 96 dB at 1,000 Hz, 71 dB at 20,000 Hz
Frequency response: +0.01, -0.05 dB from 15 to 20,000 Hz

Maximum interchannel phase shift (5 to 20,000 Hz): -1.08 degrees at 20,000 Hz
Low-level linearity error: less than 0.73 dB down to -100 dB
Cueing time: 3.5 seconds
Impact resistance: top and sides, A
Defect tracking: tracked 2,000-micrometer defects on Pierre Verany #2 test disc

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Cambridge SoundWorks has created Ensemble,® a speaker system that can provide the sound once reserved for the best speakers under laboratory conditions. It virtually disappears in your room. And because we market it directly, Ensemble costs hundreds less than it would in stores.

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Ensemble consists of four speaker units. Two compact low-frequency speakers reproduce the deep bass, while two small satellite units reproduce the rest of the music, making it possible to reproduce just the right amount of energy in each part of the musical range without turning your

"They were designed to play music—and make it sound like music. This they do very well, in a most unobtrusive way, at a bargain price... it's hard to imagine going wrong with Ensemble!"
Stereo Review

listening room into a stereo showroom.

No matter how well a speaker performs, at home the listening room takes over. If you put a conventional speaker where the room can help the low bass, it may hinder the upper ranges, or vice-versa.

"A listening test left no doubt that this system ranks with the best in its price range."

The New York Times

Your listening room works with Ensemble, not against it.

Ensemble, on the other hand, *takes advantage* of your room's acoustics. The ear can't tell where bass comes from, which is why Ensemble's bass units can be tucked out of the way—on the floor, atop bookshelves, or under furniture. The satellites can be hung directly on the wall, or placed on windowsills or shelves. No bulky speaker boxes dominate your living space, yet Ensemble reproduces the deep bass that *no* mini speakers can.

Not all the differences are as obvious as our two subwoofers.

Unlike seemingly similar three-piece systems, Ensemble uses premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustical performance. We even gold-plate all connectors to prevent corrosion. An even bigger difference is how we sell it...

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"Very much in the Henry Kloss tradition... another hi-fi milestone."

Review

Ensemble the *right* way—in your own home. In fact, Ensemble, like all our products, is sold *only* by Cambridge SoundWorks directly from the factory.

Listen for hours without a salesman hovering nearby. If after 30 days you're not happy, return Ensemble for a full refund.

At only \$499—complete with all hardware and 100' of speaker cable—Ensemble is *the* value on today's speaker market.



Model Eleven Transportable Component System.

Model Eleven is the world's first *transportable* high performance component system. It consists of a powerful 3-channel amplifier and two "satellite" mid/high-frequency speakers—all packed in a rugged "BassCase" that, when empty, serves as the system's subwoofer. When coupled with your portable cassette or CD player, Model Eleven rivals the most expensive component systems. At \$749, we don't

May Have A Winner."

David Clark
Audio Magazine, Sept. '89

Unlike satellite systems which use a single large subwoofer, Ensemble features separate compact bass units for each stereo channel. They fit more gracefully into your living environment, and help minimize the effects of the listening room's standing waves.

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POLK AUDIO RTA 15TL SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

THE RTA 15TL, which heads Polk Audio's line of three Real Time Array speakers, is the company's finest speaker system outside its flagship Stereo Dimensional Array (SDA) line. Although its design is apparently conventional, in a sense it derives from the SDA series, or at least from the technology that was developed in the creation of that series.

Polk SDA speakers are designed to create a wide sound stage, extending well beyond their physical spacing. The effect requires multiple arrays of

drivers and careful control of their phase relations and radiation angles. Not surprisingly, the SDA systems tend to be both large and expensive. In creating the RTA series, Polk's aim was to utilize the same basic line-source configuration as featured in the SDA systems, with just one of the SL3000 tweeters developed for the most recent SDA systems, to create affordable speakers of moderate size whose sound would surpass that of competitively priced systems.

The Polk RTA 15TL is a columnar, floor-standing system measuring 43

inches high, 12½ inches wide, and 15½ inches deep and weighing more than 70 pounds. A vertical array of four 6½-inch bass/midrange drivers, using trilaminate polymer cones, occupies most of the front panel. At their center, on the same vertical line, is the ferrofluid-cooled trilaminate-dome SL3000 tweeter. An angled "diffraction spoiler" extending upward and forward from the tweeter's mounting plate breaks up the symmetry of the vertical driver arrangement. The resulting reduced diffraction is said to smooth the response between 2,000 and 10,000 Hz, and Polk claims that it makes audible improvements in imaging as well as frequency response.

The vertical line array of the four small bass/midrange drivers radiates sound through a wide horizontal angle but focuses it into a narrow vertical angle. This pattern is said to minimize reflections from the floor and ceiling, providing superior imaging without limiting the location of listeners within the room.

Below the line array is a 10-inch passive cone radiator that extends the low-bass response of the system. A second passive cone, of the same size but with a different resonant frequency, is located at the bottom of the rear panel.

Polk's specifications for the RTA 15TL include a frequency response (between the -3-dB limits) of 27 to 25,000 Hz, a sensitivity of 90 dB, and an impedance characteristic compatible with 8-ohm amplifier outputs. The system is recommended for use with amplifiers rated between 30 and 250 watts per channel.

The Polk RTA 15TL is available finished in natural oak, natural walnut, and black oak, all with a high-gloss black-acrylic top surface. Price: \$1,400 a pair. Polk Audio, Inc., Dept. SR, 5601 Metro Dr., Baltimore, MD 21215.

Lab Tests

Our frequency-response measurements generally confirmed the measurements made by Polk on our test samples. The room response of the speakers was exceptionally flat, sloping downward gently above 1,000 Hz, to -3 dB at 10,000 Hz, and rising to the midrange level at 15,000 to 20,000 Hz. There was a dip of 3 dB at 400 Hz, apparently caused by a floor reflec-



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TEST REPORTS

tion, that was also present in the curves supplied by Polk.

The close-miked response of one of the 6½-inch drivers was surprising for its bass extension. The output was within ± 1.5 dB from 60 to 350 Hz, becoming more ragged at higher frequencies where the cone's dimensions were comparable to the wavelength of the sound (this effect is a property of the close-miked measurement technique and not intrinsic to the speaker's response). The bass dropped steeply to a null at 31 Hz.

The responses measured at the two passive radiators (which Polk calls "fluid-coupled sub-bass radiators," the fluid being air) were roughly similar, with a maximum output at 67 Hz sloping down to -3 dB at about 25 Hz. The front radiator had about 5 dB more output than the rear radiator.

When the passive-cone outputs were combined with the driven-cone outputs (after correcting for the number of drivers in each category and their different sizes), the bass response was within ± 3 dB from 20 to 450 Hz. This curve overlapped with the room curve for about three octaves, and the resulting composite curve was within $+1.5$, -5 dB from 20 to 20,000 Hz (and -3 dB at 27 Hz, exactly as rated).

The system's impedance reached its

minimum of 6 ohms between 5,000 and 10,000 Hz. The maximum impedance was 29 ohms at 59 Hz, and over much of the audio range it was 8 ohms or higher. The effective crossover from the driven woofers to the passive radiators was at about 55 Hz. Judging from the impedance curve, the crossover from the bass/midrange drivers to the tweeter was at about 1,500 Hz.

Sensitivity was a little higher than rated, with a 93-dB sound-pressure level (SPL) measured at 1 meter with an input of 2.83 volts of pink noise. We measured the bass distortion at an input level of 2 volts, corresponding to a 90-dB SPL in the sensitivity measurement. The distortion of the driven cones was between 0.6 and 1.6 percent from 45 to 1,500 Hz. The front passive radiator's distortion was about 1 percent from 100 to 75 Hz, dropping to 0.4 percent at 57 Hz and rising smoothly to 2 percent at 20 Hz. The rear passive radiator had a distortion level of 0.5 to 4 percent within its operating range of 60 to 20 Hz.

The dispersion of the dome tweeter was about average. The response measured 45 degrees off-axis diverged from the on-axis response above 4,000 Hz, reaching -6 dB at 10,000 Hz and -12 dB at 16,000 Hz.

Because of its numerous drivers, we expected the RTA 15TL to be able to

handle considerable power input, and we were not disappointed in the results of our single-cycle tone-burst tests. At 100 Hz the cones rattled at 565 watts into the 8.4-ohm impedance. At 1,000 and 10,000 Hz, the speaker absorbed the full output of our amplifier, which clipped at respective outputs of 690 and 1,100 watts.

Comments

The Polk RTA 15TL was one of the relatively few speakers we have tested that sounded pretty much the way its measured response suggested. It was not only one of the smoothest-sounding speakers we have heard, but it had remarkable low-bass extension.

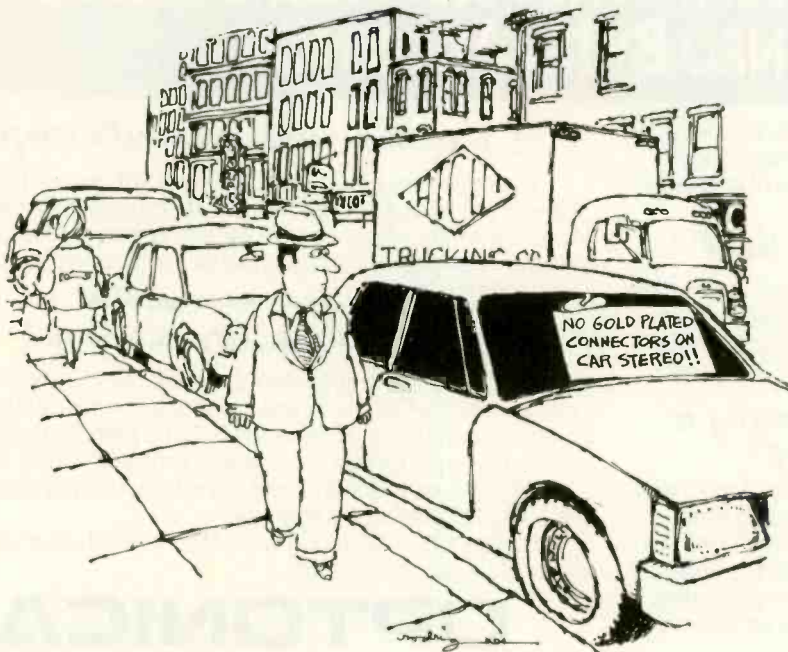
In fact, the deep-bass output of this system seemingly belied the four diminutive drivers that basically generate it. The effect seems more reasonable, however, when you consider that the total radiating area of the four woofers is roughly equivalent to that of a 12-inch cone and that the two passive cones are equivalent to a single cone somewhat greater than 12 inches in diameter. But in spite of their bass capability, the four drivers have individual frequency responses extending to several kilohertz, safely above the crossover point to the dome tweeter. In contrast, an equivalent single 12-inch woofer would be limited to frequencies under 1,000 Hz.

Probably more important than the extended frequency response and smoothness of the RTA 15TL is the spaciousness of its sound. While it could not achieve the effect of a full SDA system, the RTA 15TL imparted a sense of depth and spaciousness that made its rather visible bulk seem to disappear (acoustically, at any rate). It was an exceptionally easy speaker to listen to, as we discovered from our first exposure to it.

Compared with the larger Polk SDA systems, the position of the tweeter of the RTA 15TL is relatively low (27 inches). This suggests that a low seated position would be desirable when listening to it, but we did not find its sound quality to be affected significantly by the listener's position.

All in all, the Polk RTA 15TL is an exceptional speaker at a very reasonable price. It seems to do everything that Polk set out to achieve, and do it very well indeed.

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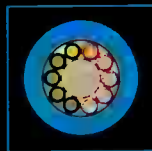
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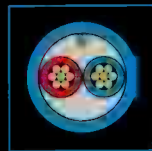
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CHANGING TIMES

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NOW that LP's have dwindled to less than 2 percent of total album sales (down from more than twice that share early last year), turntables are only a distant memory for many music lovers. Lessons we learned in the vinyl era linger, however. For example, some people are reluctant to buy CD players for their cars because they consider it unnatural to play discs while on the road. The reality is that car CD players are convenient and robust. Another turntable

ROBERTO BROSAN

BY KEN C. POHLMANN







DENON DCM-777 (\$700)

THE Denon DCM-777 employs a six-disc magazine of the rather awkward and flimsy type first introduced by Pioneer. On the other hand, many manufacturers use this design, so the magazines are compatible with other changers. The DCM-777 also comes with a single-disc magazine that acts like the loading tray in most single-disc players, sliding in and out to accept one disc.

Once loaded, the player responds in a familiar way with a comprehensive display readout. You can select which disc you want to hear or let the player sequence through all six. Alternatively,

you can choose random playback from one or several discs. You can also program disc playback, sequencing up to thirty-two tracks. Almost alone among CD players, the DCM-777 has an indicator that lights when a disc uses pre-emphasis. It omits indexing, however.

The DCM-777 uses 18-bit converters, but they are configured in a way that yields 20-bit performance thanks to Denon's proprietary digital biasing scheme. Although the player was a consistently fine performer, it generated a fair amount of mechanical noise as it went about switching discs.



JVC XL-M403 (\$370)

IF you really can't decide whether you should buy a single-disc player or a changer, you should look into the JVC XL-M403, which has both a magazine loading slot and a single-disc tray built in. In addition, because both magazine and tray can be loaded simultaneously, the XL-M403 is actually a seven-disc player. Unfortunately, the mechanics inside the XL-M403 are fairly noisy; switching discs sets off a sequence of bump and grind noises. And I was not impressed by the design of the disc magazine, which is awkward to load.

The XL-M403 offers most standard features including thirty-two-track programming from any of the seven discs and an editing feature so you can easily select a track sequence that best fits on a cassette side. On the other hand, the unit lacks indexing, random playback, and other desirable convenience features.

One of the XL-M403's strong suits is JVC's Pulse Edge Modulation (PEM) 1-bit D/A conversion method. The PEM system worked well, as demonstrated by a D/A linearity error of 0.3 dB at -90 dB, which tied for best performance.

throwback is a distrust of changers. Whereas record changers often were inferior to good single-play turntables (and stacking could sometimes damage records), that is certainly not the case with CD changers.

Today's CD changers can provide all of the fidelity of a single-disc player while offering the convenience of multiple-disc playback. Recently, more and more people have realized that, and CD changers now account for almost half of all home CD-player sales.

Unlike single-disc models, changers come in a variety of types. They access discs differently, hold different numbers of discs, and load them in different ways as well. In other words, shopping for a CD changer requires a little more homework.

To get an idea of how far changers have come in their sophistication, we selected six top models for investigation. Each represents a different combination of changer technology, in terms of both mechanics and method of digital-to-analog (D/A) conversion. Specifically, we selected four magazine-type changers, the Denon DCM-777 (\$700), the JVC XL-M403 (\$370), the Luxman DC-114 (\$800), and the Pioneer PD-M92 (\$800), and two carousel-type changers, the Sony CDP-C85ES (\$500) and the Yamaha CDC-705 (\$399). Among the six, half use multiple-bit D/A converters (Denon, Luxman, and Pioneer), and half use 1-bit converters (JVC, Sony, and Yamaha).

To compare these changers, I listened to them over a high-end system comprising a Conrad-Johnson preamplifier and power amplifier, Acoustat loudspeakers, and Monster Cable interconnects and loudspeaker cables. The listening room I used is highly isolated from outside ambient noise and acoustically tuned for a very flat frequency response. Using an Audio Precision System One digital analyzer, I measured each changer's frequency response, signal-to-noise ratio (S/N), total harmonic distortion (THD), and D/A linearity. Finally, I lived with the players for a period of time, testing their features, watching for idiosyncrasies, and trying to get at the all-important sense of value expressed in that nagging question, "Will I still be happy with my purchase six months later?"—a question that is very difficult to answer in the showroom.

In the Listening Room

The sound of the compact disc is truly a modern marvel. It takes a keen ear to distinguish differences reliably

between high-quality players, and even some low-end players can compete with the sound quality of their expensive brothers. All too often, people hear what they want to hear, irrespective of reality. The point is that critical listening is a demanding task, made even more demanding by today's digital technology. It takes controlled conditions and a lot of patience. If you listen to a CD player in one showroom, drive 15 minutes to another store, and listen to another player, then decide the first one sounded better, you may as well have saved the gas and flipped a coin.

In this case, all six players were arrayed in the same listening room available for side-by-side comparisons. To prevent my own biases from overwhelming any audible differences (an all too common occurrence unless steps are taken to prevent it), I did my listening literally blindfolded. An assistant switched changers in and out of the system, identifying them to me only by the letters A through F. Of course, she was careful to match the output levels of the players at the loudspeakers; without this control such a test is meaningless. I scrawled notes as best I could to keep track of my impressions. The blindfold didn't bother me. In fact, in my opinion listening acuity is heightened when the visual sense is removed, and I prefer to do critical listening in the dark.

Without question, each of the six players was able to reproduce a wide variety of music with very high accuracy. Moreover, each of them was competitive with high-end single-disc models, showing that there is no *sonic* penalty in buying a CD changer. Although I thought the players sounded slightly different from one another in careful listening, the variations were so small that your preferences probably would not match mine exactly.

Another important aspect of this listening test had nothing to do with music. I carefully auditioned each player for mechanical noise, particularly when it was changing discs. I dislike it when a CD changer makes too much racket. Operation should be fast, smooth, and quiet. Also, a player that must gnash its teeth every time it changes a disc is probably putting wear and tear on the changing mechanism—and that could hasten the need for repair.

On the Test Bench

Just as today's CD players challenge the ear's acuity, they challenge a test setup's resolution. For example, with



LUXMAN DC-114 (\$800)

T HE Luxman DC-114, like the JVC XL-M403, is a good choice for the indecisive. It offers six-disc magazine-type operation and a single-disc drawer, both built into the player and available for simultaneous loading. It provides the standard front-panel controls as well as disc/magazine repeat, twenty-four-track programming for up to seven discs, and random track playback. There is a button to turn off the fluorescent display if you don't want to look at it. You'll also find an edit function that lets you

timing to squeeze as much music as possible onto each side of a cassette. Conveniently, you can use this feature from the remote control.

The DC-114 employs two high-quality 18-bit D/A converters. It performed competitively on the test bench and turned in the best measurement for THD + N at -20 dB. It generated only moderate mechanical noise while it was changing discs, but there seemed to be more mechanical motion going on inside than in other players. The time required to change discs was 13 seconds—the longest in the group.



YAMAHA CDC-705 (\$399)

T HE Yamaha CDC-705, a carousel changer, accepts five discs in its lazy Susan platter. The front drawer extends a good distance, enabling four discs to be loaded directly; the fifth disc can be loaded after you press the disc-skip button to rotate the platter. Four of the five discs on the platter can be removed and replaced while the fifth disc is playing.

Typical front-panel functions are provided, including forty-track programming and single- or multiple-disc random playback. Index search is

operable only from the remote control. Programming data for as many as a hundred discs can be stored in memory for about two weeks, even if the power is switched off. The LCD window supplies basic information such as a four-mode time readout, as well as a bar graph showing output-level attenuation.

The CDC-705 has a 1-bit conversion system called S-Bit, which uses pulse-width modulation and third-order MASH noise-shaping circuitry to move requantization noise out of the audio band. Its D/A linearity error at -90 dB was 0.3 dB, which tied for first place.

PHOTOS BY ROBERTO BROSAN

PIONEER PD-M92 (\$800)

THE Pioneer PD-M92 is a magazine-type changer; as you'd expect, it uses the six-disc magazine first developed by Pioneer. Although I am sure it simplifies the internal mechanical design of the changer, loading discs upside down is far from ideal from a user's standpoint. In addition, the magazine itself is not an ergonomic delight: Each of the six leaves has to be folded away from the shell when you load discs. On the other hand, this design, for better or worse, has become standard issue and is employed by many manufacturers for both car and home CD changers. If you are fortunate enough to own a Lexus LS400 with the factory CD changer, for example, this is your disc magazine. A single-disc magazine also comes with the PD-M92; it plugs into the loading slot and functions much like the tray in a single-disc player.

The PD-M92's front panel is classy indeed with its black-lacquer and gold trim. Although it's very clean in design, the front panel has controls for a wide variety of interesting features. For taping, the timed-programming function lets you enter a tape length, and the player selects the track sequence that best fits the total time. Both fade-ins and fade-outs can be performed, and the duration of the fade can be varied from 0

to 9 seconds. In addition, a time-fade feature causes the output to fade out at a specified time and the player to enter the pause mode. An output-level memory lets you store preferred output levels for different tracks and discs. Track-programming sequences up to forty tracks long with selected output levels can be stored for as many as twenty magazines. You'll also find such basic and useful features as time displays, repeat and random playback, index search, and volume adjustment from the remote control. Speaking of which, the remote control deserves a special

mention: Its LCD readout is a nice touch indeed.

The D/A conversion method employed in the PD-M92 is traditional: two high-quality linear 18-bit converters. The player performed well on the test bench, with the lowest 0-dB THD + N measurement and the best dynamic-range measurement of the bunch.

The PD-M92 provides variable-level analog outputs and both coaxial and optical digital outputs. The mechanical sounds it generated were fairly modest—brief and controlled—and quite unobtrusive.



SONY CDP-C85ES (\$500)

THE Sony CDP-C85ES is a five-disc carousel changer with a plethora of features and 1-bit D/A conversion circuitry. In addition to basics such as thirty-two-track programming and single- or multiple-disc random playback, it offers several interesting variations: You can assign and store a name of up to ten characters, store a programmed track sequence, and even store a desired output level for a disc, and all of this

data will be retrieved whenever the disc is played. Data for up to 184 discs can be stored in memory and retained for about a month even if the AC plug is pulled.

In addition, three functions are included to aid tape recording: A peak-search function finds the loudest portion of a disc and repeatedly plays it while you set the levels on your recorder. A music-scan function lets you check selections by scanning the beginning of each track. Finally, a time-fade function

lets you fade in and later fade out and stop playback at a set time such as at the end of a tape. Curiously, this otherwise full-featured changer does not provide index search.

The front drawer of the CDP-C85ES opens enough to allow access to only one disc tray. To get at the other four you must press the disc-skip button to rotate the platter. The drawer always opens to the last disc played, however. Thus the changer can easily be used as a single-disc player; simply load one disc (in whichever tray is offered), play it, and unload it, essentially ignoring the other four trays.

The 1-bit D/A conversion system, called High Density Linear by Sony, uses pulse-width modulation and third-order noise shaping. The CDP-C85ES performed well on the test bench; its S/N beat out the competition, as did its channel separation at 1,000 and 20,000 Hz. In addition, its D/A linearity error at -90 dB of 0.3 dB tied for first place. The mechanical sounds it generated were very minor. Its drawer opened and closed quietly, and disc changing was accomplished with barely a whisper. It was easily the quietest changer among our test group.



CD players having THD plus noise (THD + N) levels of 0.002 percent and S/N's of 110 dB, only the finest equipment can make reliable measurements. Formerly, reviewers thought they had an acid test in D/A converter linearity; it was impossible for a CD player to reproduce signals of -90 dB or so accurately. But today's players, using both multibit and 1-bit converter designs, can achieve extreme accuracy even at that low level.

In comparing these changers, it was interesting to compare channel separation at 20,000 Hz. It is difficult for any component to maintain separation at such a high frequency, and though not profoundly significant for most musical material, an unusually good measurement here can attest to careful engineering. Full-band THD + N was extremely low for these changers, with one exception. Although each of the changers had excellent measurements in several tests, none was without weakness in all. I also looked at defect tracking, which measures a player's ability to play damaged or defective discs. One player clearly surpassed the others in this respect. Finally, I timed each changer for how long it took to change discs.

Hands-On Evaluation

Sound and numbers aside, it's important to buy a component that has the right mix of front-panel features, offers all of the output connections you'll need, and just *feels* right in your playback system. Of course, the biggest decision in buying a CD changer is whether to buy a magazine-loading or carousel type. Each offers distinct advantages. For example, if you have a magazine-type changer in your car (where only magazine types are available), it is convenient also to have a magazine changer at home—provided the two changers use the same type of magazine. On the other hand, it is something of a nuisance to load and unload magazines; in that respect a carousel is much easier to use. Some magazine-type changers come with a drawer adaptor that converts the magazine into a single-disc player. Other changers, such as the JVC and Luxman ones I tested, have both a magazine slot and a single-disc tray built in.

When you choose a changer (or any other component), it is important to consider how it will be interconnected with the rest of your system. Virtually all CD players have analog outputs, either fixed-level or variable-level (or both), but many also provide digital outputs. I consider a digital output to

Each of the
changers came
off well in
our tests, but
differences
did emerge in
features and
ease of use.



be a must, because without question the coming generation of preamplifiers and integrated amplifiers will contain D/A converters and digital signal-processing circuitry, and a digital output will enable the CD player to be connected digitally. Some players offer an optical digital output, others a coaxial (electrical) one.

Finally, any audio component should have all the features you need, with an operating design that is friendly and intuitive. If you find yourself referring to the owner's manual very often, the unit has been poorly designed. Controls that are too complicated frequently go unused, and you've probably wasted money on them. Ideally, you should be able to operate all front-panel functions, including transport controls, repeat, index search, and programming, without having to peek into the owner's manual. Don't forget to evaluate the remote control in the same manner. Often, a unit's front panel is nicely designed but the remote is a nightmare. My personal survey tells me that fewer than one-fourth of the functions on most remote controls are

used—they are too complicated or too trivial to bother with.

As in the listening and laboratory evaluations, each of the six changers came off well in my ergonomic evaluations. Once again, however, differences did emerge, with the players varying in choice of features, ease of use, and ability to work with a variety of other equipment.

Conclusions

These are all high-end changers, and all gave a good account of themselves. The Yamaha CDC-705 is a classy-looking changer. Its titanium finish is eye-catching (though it is available in basic black as well). I liked its program-filing system and its ability to store program data for up to a hundred discs. I also liked its neat output-level control indicator and its straight-ahead remote control, which was easy to use and showed a touch of design flair. On the other hand, its loading drawer was none too quiet in operation; the racket greatly detracted from the unit's high-tech feel. I was also disappointed that the player offered only analog outputs (a variable-level stereo pair). Finally, the measured performance of the CDC-705 was slightly below that of the other changers overall.

The Luxman DC-114 has an advantage over four of the other changers: It has both a six-disc magazine and a single-disc tray. This seven-disc capability will get you halfway through Wagner's *Ring* cycle. The design of the DC-114's magazine was the best in the group; it was physically robust and easy to use. On the other hand, the DC-114 lacked many of the convenience features offered by some of the other changers and provided only a single pair of analog outputs (fixed-level). Its measured performance was good but not spectacular. If you've got an Alpine CD Shuttle in your car, however, its compatibility with the DC-114 makes this a logical choice.

The JVC XL-M403 is a very nice changer, especially since it offers both magazine and single-play operation. It also gives you the ability to balance selections between the A and B sides of a tape. To its credit, the XL-M403 showed absolutely no phase error at 20,000 Hz—an impressive accomplishment. On the debit side, the XL-M403 provides only fixed analog outputs. I did not like the design of its magazine, either. Having to pull each leaf from the magazine, load a disc, and insert it back into the magazine was tiresome. I suspect that some users will eventual-

LABORATORY MEASUREMENTS

	DENON	JVC	LUXMAN	PIONEER	SONY	YAMAHA
Maximum output level (volts)	2.04	2.28	2.10	2.27	1.84	2.05
Frequency response (decibels, 20 to 20,000 Hz)	+0.18, -0.03	+0.02, -0.17	+0.02, -0.27	+0.01, -0.06	+0.15, -0.08	+0.0, -0.55
Channel separation (decibels) 1,000 Hz 20,000 Hz	96.3 78.3	75.6 73.0	96.7 85.4	105.3 94.4	109.4 101.5	80.5 64.6
Dynamic range (decibels, A-weighted)	95.6	97.5	98.9	99.7	98.2	98.9
Signal-to-noise ratio (decibels, A-weighted)	106.3	118.5	108.7	112.4	120.6	108.4
Distortion (THD plus noise) at 0 dB and 1,000 Hz at -20 dB and 1,000 Hz	0.0027% 0.018%	0.0022% 0.018%	0.0027% 0.014%	0.0017% 0.015%	0.0027% 0.017%	0.008% 0.079%
Low-level linearity (at -90 dB)	-0.4	-0.3	+0.7	+1.3	+0.3	+0.3
Interchannel phase error (degrees at 20,000 Hz)	0.6	0.0	0.2	0.5	0.3	0.4
De-emphasis error (decibels at 16,000 Hz)	+0.05	+0.03	+0.08	+0.09	+0.34	-0.38
Defect tracking (micrometers)	2,000	1,000	1,000	750	1,250	750
Disc changeover time (seconds)	8	10	13	9	9	10
Weight (pounds)	14	11	16	14	18	13
Size (inches)	17 x 4½ x 14	17¾ x 5 x 12¾	17¼ x 4¾ x 13½	18 x 4¼ x 13	18¾ x 5 x 15¼	17½ x 4¾ x 14¾

ly ignore the magazine and use the tray instead.

The Denon DCM-777 was a solid all-around performer. It has several nice touches, including a volume control that's motor-driven in remote operation. Alone among the group it provides both fixed and variable analog outputs *and* both optical and coaxial digital outputs. On the test bench it surpassed all the other players in its ability to track a 2,000-micrometer defect. It was also the fastest changer—switching discs in 8 seconds flat. It has no indexing capability, however, and it lacks some of the specialized features of the other changers. Finally, I am not enamored of the Pioneer-style upside-down-loading magazine.

The Pioneer PD-M92 was my favorite among the magazine-type changers. I liked the fade-in/fade-out feature and thought the output-level memory was absolutely great. It has variable-level analog outputs and both optical

and coaxial digital outputs. I also liked the nifty LCD window on the remote control. The PD-M92 wins my vote for best styling, too. The black-lacquer finish of Pioneer Elite components is a winner; every time I see it I think of a Steinway D grand piano.

Altogether, this changer is one elegant piece of engineering. On the other hand, it was able to track only 750-micrometer defects. And I still don't like the Pioneer-style magazines.

The Sony CDP-C85ES was my favorite carousel changer, and by a narrow margin, it's my pick of the six. It offers the most comprehensive, useful, and imaginative features of any CD changer I know of. Consider it for yourself: disc-label memory, program bank, level file, peak search, music scan, and time fade are all included. The carousel worked like a charm (Sony introduced this format) and with a minimum of noise. Bench measurements were all very good, with chan-

nel separation and S/N superior to the other players in our test. Similarly, its performance in the listening room was excellent. The CDP-C85ES has fixed and variable analog outputs and an optical digital output, but it fails to provide a coaxial digital output. I also missed an index-search capability. Overall, however, this changer is a model of intelligent design.

Clearly, all six of these CD changers prove that convenience needn't entail sacrifice. They put out an audio signal that compares with the best from single-disc players, with absolutely no sonic penalty associated with the changer mechanism. If you want to listen to Wagner's operas without interruption, need 6 hours of background music for your next party, or simply find that with a single-disc player the enjoyment of listening to a compact disc slips by too quickly, you are a prime candidate for any of these excellent CD changers. □



SEVERAL years ago, Rosanne Cash told an interviewer that she felt like putting a codicil on the back of her albums telling people she really didn't feel the same way any more—that by the time she'd

Rosanne Cash

by Alanna Nash

written and recorded an album and the label had released it, she'd moved on to a different emotional plateau. But what about her new album, "Interiors," her first in nearly three years? Does she still feel



the way she did when she put the album together?

"Hmmm," she reflected when we spoke recently. "A lot of it I'm past, yeah. But a lot of it will never go away."

STARK, moody, low-key, and atmospheric, "Interiors" is the riskiest album of Cash's career, one that in certain shades and tones recalls Woody Allen's 1978 film of the same title. Thematically the record traces the maturation of Cash's character in the album "Seven Year Ache," a girl who has now become a woman—and a woman who has faced her considerable private demons. Such personal and unflinchingly real music is hardly standard commercial radio fare. Especially since the album contains only one genuinely upbeat song, the bouncy, Sixties soft-rock *Real Woman*. And also since it's instrumentally devoid of random synth pads and full drum kits, built instead on an acoustic base and infused (*What We Really Want*) with a vaguely Celtic air.

"The new album is the most fulfilling,

creative thing I've ever done, and definitely the deepest I've gone in writing and recording," Cash said, relaxing on a couch in the back room of the eclectic pink-and-green office she shares in Nashville with her husband, singer/songwriter/producer Rodney Crowell. The thirty-five-year-old singer was dressed as Ninja Mama in turtle-green tights, black combat boots, and white T-shirt, the collar of her flowing black-and-white overshirt catching the ends of her coffee-cup earrings.

"Some of my other songs, like *The Real Me* in 'King's Record Shop,' got to the level I'm talking about. But a lot of those were really just mental—trying to figure out how to get there."

"Getting there" took years of therapy, as well as the emotional release of painting—the back of the CD jewel box features a reproduction of an expressionistic canvas by Cash, also titled "Interiors"—and "lots of internal preparation." Cash said that it occurred to her after two years of art classes that she followed with painting—the formation of the idea, the struggle, the stepping back for evaluation, and the

further inspiration—was the same as in producing an album. And so she saw that once she had assembled her songs (she wrote or co-wrote all ten cuts), she should record them in the same way, serving as her own producer and enlisting the arranging help of guitarist Stuart Smith and keyboardist Vince Melamed.

"It was just like going in front of an easel and picking colors with my eyes closed," Cash explained.

The colors in "Interiors" are mostly muted hues, blues and grays and soft yellows, highlighted by an occasional streak of pink or blood-red. Invoking William Butler Yeats, who declared that it is inappropriate for an artist to limit the suggestibility of his own work, Cash refused to discuss the genesis of the individual songs. She nonetheless admitted that the music reveals her constant struggles with the hidden agendas of life, and with love. That means sorting out bruised feelings from a turbulent childhood—her mother and her father, country legend Johnny Cash, divorced when she was young—and her sometimes less-than-ideal marriage to Crowell, the inspira-

EBET ROBERTS

tion for much of her best material, including *Seven Year Ache* and *Never Be You*.

CASH'S twelve-year marriage, in particular, has withstood a battery of emotional tests. These include years of drug-taking by both partners and the pressures and inevitable conflicts of two creative careers, something Cash alludes to in *Real Woman* with "I don't want to hide my light/So yours keeps shining." It is probably no accident that Crowell's real emergence as a recording artist, with "Diamonds and Dirt" and "Keys to the Highway," occurred while Cash took a break from recording for the birth of their third daughter, Carrie, two years ago.

While the marriage now seems secure, Cash is still wrestling with some of the conflicts. "My mother programmed me at a really young age with the idea that success destroys marriages," she said. "I'm seeing if I want to believe it any more. I'd really like to try to let it go.

"Marriage, by itself, is a lifetime's worth of work. Just to explore the true nature of partnership and the level of commitment that requires is a tremendous struggle, even though we love each other very deeply. Then to blend two artists into the mix makes it pretty volatile. But you can also find a lot of romance in that, and inspiration."

The making of "Interiors" proved to be yet another measure of the couple's relationship, for when Cash brought her record home, already mixed and mastered, and played it for her husband, he broke down in tears. "He was really sweet," she remembers. "He said, 'God, I'm really glad you did it by yourself. I might have screwed it up.'"

In the next breath, however, Crowell, who produced or co-produced all of Cash's previous records, informed his wife that her album wasn't really finished—two of the songs were thematically weaker than the rest and needed to be replaced. "We had one of those all-night, prostrate-on-the-floor, and hysterical-with-grief sessions of wrangling about the record," Cash said. "What he said was really true, but I didn't have the stamina to do anything about it at the time." And so Crowell offered to help her co-produce *On the Inside*, which she had just finished writing, and *Real Woman*, which the couple had written together. Even after that, the New

York office of CBS Records asked her to do a bit more tinkering, particularly on *What We Really Want*. The album has had ten release dates.

As it turned out, the New York office would have much more to do with "Interiors," since Roy Wunsch, senior vice president and general manager of CBS's Nashville division, told Cash, considered the most progressive and modern of Nashville's female artists, "I don't know what to do with this record. We market country records."

But Cash's musical range has been evident since her debut album, "Right or Wrong," released in 1979. She has



always been a hybrid artist, balancing the cultural influences of her California upbringing, showcased to best advantage in 1985's "Rhythm and Romance," and her hillbilly roots, explored in full in "King's Record Shop" in 1988. The oldest song in the new album, *Paralyzed*, dating back four years, is a solemn exercise at the piano—with nary a pedal steel in sight.

Detailing one woman's trip to hell and back, the song functioned as a kind of escape valve. "I was so fed up with being a wife and mother, and I was just at the point of losing it. And my kids said, 'Mom, you need to get away from us for a while.' So I went to stay with a friend in Malibu, and she had this beautiful piano overlooking the ocean. *Paralyzed* was the first of three or four songs I wrote in a week. I started writing it on the plane out there. It was funny. As soon as I got away from my house, I started writing like crazy."

And yet for Cash the goal is not necessarily happiness but the process itself. But there are times when she experiences a momentary unwilling-

ness to face that process—"wanting some eternal parent to just come in and make everything all right, so I can just lie there and suck on my bottle for the rest of the day."

Still, she believes she is past the incapacitating nightmares and anxiety attacks that came after the success of "Seven Year Ache," partly because she believes her drug days are over for good and partly because she's learned to use her notoriety, which frightened her in her twenties, to focus attention on other projects. High on her list is the Earth Communications Office (ECO), a coalition of entertainment figures, media folk, and scientists devoted to preserving the planet. And she and Crowell are also involved in the controversial record-labeling issue, appearing in opposition to the record-labeling law before the Missouri legislature and continuing to work with the Recording Industry Association of America (RIAA) to prevent enactment of such laws.

For a time, now, Cash has also been hard at work on a more personal project, writing a book of short stories ("part fiction, part nonfiction") for Harcourt Brace Jovanovich. She finds the creative shift from 3-minute songs hard, since "the song format lends itself to a certain economy of language, but writing stories gives you more words with which to hang yourself."

Writing the book was a welcome change from the trauma of producing "Interiors," Cash said, but now she feels the need for a bigger change, which means getting out of Nashville for a year at least, probably to relocate in London, where she lived for six months in 1976, writing songs for a German album that never came out. In retrospect, the experience was painful—the youthful Cash lay on the floor a lot, crying and writing songs and letters to Crowell—but it was nothing compared to the kind of darkness and emotional suffering she addresses in "Interiors."

"What I learned most of all in making the new record," Cash said, "is that keeping that darkness apart from myself was far more painful than going into it. The exploration was actually pretty exciting. Because if you make a choice to feel instead of 'numb out,' then you're going to experience some really awful things. It's really a choice between being alive or dead. So," she said, with the slightest smile, "I'm alive." □

ROOM FOR IMPROVEMENT

*Careful speaker placement can
make the difference between
good sound and great sound.*

YOU'RE FEELING good. After much listening and careful thought, you have bought a pair of loudspeakers that sounded wonderful in the store. Now you can just take them home, hook them up, relax, and enjoy the music. Right?

Well, maybe. Unless your living room has exactly the same acoustical properties as the store showroom—an unlikely coincidence—the sound won't be the same. It may be better or worse; in any case, it will be different. And if the sound is not as good as you expected, you may find it very hard to enjoy.

Fortunately, you don't have to be a passive victim of acoustics. Even if you don't want to make fundamental alterations to your room, you can fine-tune its acoustics and locate the speakers to optimize their interaction with their environment.

The first step is to consult a magician and arrange to turn the clock back. Reason: Your placement plans should have influenced your choice of loudspeakers. If you're going to put your speakers against a wall (for reasons of convenience or decor), you want a model designed to work well in that location. It is silly to undo an engineer's best work by putting bookshelf speakers on the floor or by stuffing into a corner a speaker that was designed to be freestanding, away

from the walls and other reflecting surfaces.

Where the speakers are to go is a fundamental decision. Locating speakers close to or against a wall is convenient, and reflections from the nearby wall will reinforce bass output. But similar reflections at midrange frequencies tend to flatten the perceived stereo image. Consequently, audiophiles often prefer to mount speakers on stands at least 3 feet away from any reflecting objects or room-boundary surfaces. Then, after the direct sound from each speaker arrives at your ears, there is a reflection-free interval of several milliseconds during which your hearing system can focus on the recorded stereo image before confusing reflections arrive from the walls, floor, and ceiling.

Now let's look at the many other ways in which the sound of your speakers can be altered, for better or worse, by room acoustics and placement.

Symmetry

For stereo imaging that is well focused and correctly balanced, the two speakers of a stereo pair should operate in similar acoustic environments. Two bad situations I recently encountered illustrate the kinds of asymmetry you should avoid. In one, the left speaker was in a corner on the floor while the right speaker was in the middle of the wall at ear level; the mismatched locations caused the two speakers to sound very different. In the

BY PETER W. MITCHELL



JAMIE BENNETT

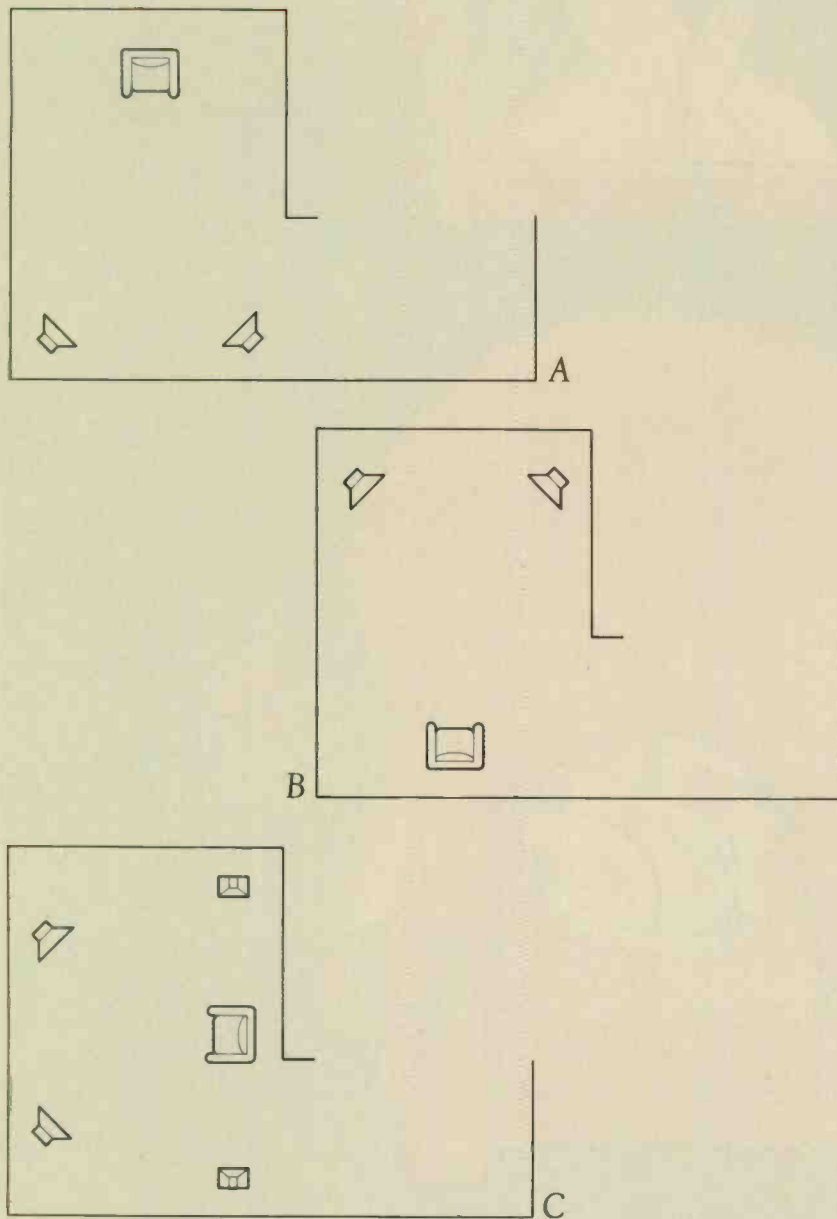


FIGURE 1

One of the most common acoustical troublemakers in contemporary architecture is the L-shaped room, in which a large opening in one wall of the living room extends into a dining area. If you set up your system as in (A), you may get both unbalanced stereo and weak bass because there is no corner-forming wall near the left-channel speaker. In (B) the system is

flipped end-for-end so that both speakers receive equal low-frequency support from nearby walls and corners. The arrangement shown in (C) may provide even better results: In addition to matched environments around the two main (front) speakers, it provides ideal locations for the "rear" (side) speakers of a surround-sound setup.

other system, the wall adjacent to the left speaker was covered with books while the wall next to the right speaker contained a large picture window that produced a very strong reflection. A simple fix for the latter room would be to rotate the installation, placing both speakers in front of the bookshelves and the sofa in front of the window. Further improvement could be obtained by closing the window drapes when listening, to absorb some high frequencies and thereby soften the window reflection.

The Allison Dip

Windows are not the only surfaces that cause acoustic reflections. All room boundaries—walls, floor, and ceiling—act as acoustic mirrors, reflecting sounds that strike them. Because a reflection must travel a longer path than the direct sound that goes straight from the speaker to your ear, it arrives slightly later.

FOR a speaker placed against a wall, the first reflections will be delayed by about 2 milliseconds (ms), which hardly matters at low frequencies. The duration of each cycle of a 40-Hz sound wave is 25 ms, so at that frequency a reflection with a delay of 2 ms is essentially in phase with the direct sound from the woofer. The direct sound and the reflection will therefore reinforce each other, strengthening the low bass.

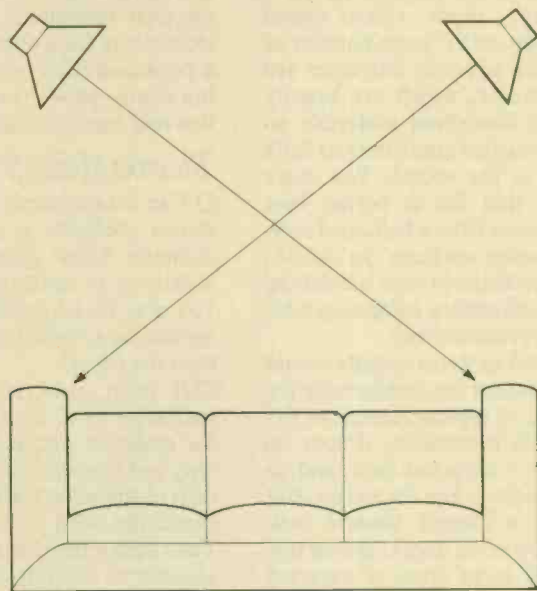
But at 260 Hz the duration of each cycle is only 4.2 milliseconds. A reflection of a 260-Hz sound will arrive almost exactly a half-cycle late, so that it will be negative when the direct sound is positive, and vice versa. The direct and reflected sound waves will then cancel, weakening the sound at this frequency.

If this occurs with just a single reflection (the one from the wall behind the speaker, for example), the effect is mild. But if the reflections from several room boundaries are delayed by the same amount, the cancellation will be severe. Such a loss around 250 Hz robs cellos, drums, and baritone voices of their tonal richness and power.

This fairly common effect is known as the "Allison dip," after Roy Allison, the loudspeaker designer who first studied and described it. He also prescribed a cure: Place the woofer at unequal distances from the three nearest boundary surfaces. For example, if the center of the woofer is 2 feet above the floor, place it 3 feet away from the side wall and 4 feet (or only 1 foot) out from the wall behind it. The placement

FIGURE 2

An extreme toe-in placement, as shown here, provides stable stereo imaging over a large listening area, thanks to something called "time/intensity trading." Normally when you sit off-center, the stereo image tends to collapse into the nearer speaker. But when the speakers are cross-fired, as shown, the earlier arrival of sound from the nearer speaker is compensated for by the stronger highs from the speaker on the opposite side. This psychoacoustic balancing act is built into the design of a few speakers (notably certain Bose models and the original dbx Soundfield loudspeakers), and it is worth trying with others when you want to provide real stereo for a group of people.



relative to the wall behind is important because nearly all loudspeakers are omnidirectional at low frequencies; sound waves spread out to the back as well as to the front and sides.

Reflections also occur in the listening area. If your ears are 3 feet above the floor when you are in your listening chair, you may want to make sure that they aren't also 3 feet away from the wall behind you.

Standing Waves

Sound waves don't actually stand in one place, of course. They travel through the air at a constant speed—1,100 feet per second, or about 0.9 millisecond per foot. If your living room is 20 feet long, sound takes 18 ms to travel its length and 18 ms more to return, for a round-trip time of 36 ms.

This is the duration of one cycle of a 28-Hz sound wave. So each cycle of a 28-Hz wave will reflect back to be reinforced by the next cycle. On the other hand, a 40-Hz sound wave takes only 25 ms per cycle, so during its 36-ms down-and-back traversal of the room, the 40-Hz wave will complete one cycle and be halfway through the next. As a result, the reflected 40-Hz wave is going negative when the woofer is producing the positive half of the next cycle, and the waves cancel.

Thus standing waves, or room resonances, produce peaks and valleys in the system's bass response at frequencies related to the room's length,

width, and height. The lowest-frequency, or fundamental, peak for each dimension (d) is at $1,100/2d$ Hz: the speed of sound in feet per second divided by twice the dimension in feet. (The dimension is doubled to account for the back-and-forth round trip.) Additional peaks will occur at multiples of the fundamental standing-wave frequency for each dimension, but the fundamental frequency peak is usually the most troublesome.

ONE oft-cited recommendation is that rooms should have dimensions scaled according to the cube-root of 2 (approximately 1.25)—making, say, the width 1.25 times the height and the length 1.25 times the width, or about 1.6 times the height—to avoid clustering two or more standing-wave peaks near the same frequency. But if your room is already built, it will probably be impractical for you to alter its dimensions.

A more useful suggestion is to take best advantage of the distribution of bass energy in the room. It turns out that a region of high sound pressure always occurs where the sound waves reflect—at the boundary surfaces. And the fundamental standing wave on each axis produces a low-intensity zone midway between the boundaries. You can easily demonstrate this for yourself: Play a recording with lots of bass, listen in the middle of the room, and then notice how much heavier the

bass becomes if you lie on the floor or put your head against a wall.

Now, if you simply want maximum bass, the obvious answer is to put the speakers against one wall and your head against the opposite wall—while sitting on the floor. But most people would consider such sound too boomy. If you want *accurate* bass, you should put the speakers and your chair at locations where standing waves will have the least effect.

Several companies advertise computer programs that will chart standing-wave patterns if you supply room dimensions and proposed speaker locations. But it turns out that a simple rule of thumb produces nearly optimal results in many rooms: Locate either your woofers or yourself at a point one-third along each room axis. For example, if you put your speakers against one wall, move them in from their adjacent side walls by about one-third of the room width, raise the woofers above the floor by about one-third of the ceiling height, and move your chair forward from the opposite wall by one-third of the room length.

If you prefer to have your speakers away from walls, bring them forward by one-third of the front-to-back room dimension and locate your chair somewhere near the opposite wall (give or take a foot or two depending on your taste in bass). The height requirement may be taken care of automatically: If you slouch in a comfortable chair your

THE NEAR-FIELD ALTERNATIVE

If following the suggestions on these pages doesn't deliver satisfactory results, or if your room is just a sonic disaster that you can't cure, there is a fallback solution that minimizes the effect of room acoustics. It's called near-field listening. Place the speakers directly in front of your chair, about 3 feet apart and 2 to 3 feet away from you, just out of arm's reach. Prop them up on stands, if need be, to place the tweeters at ear level.

This technique is often used by recording engineers. It delivers vividly clear detail and precise stereo imaging, and since the speakers don't have to fill a room with sound, they needn't be driven very hard to achieve satisfactory volume, which tends to keep distortion very low. A near-field setup requires only a small amplifier and can produce high-level peaks at your ears without disturbing the neighbors.

There are important drawbacks: (1) The setup looks peculiar, (2) it's good only for solitary listening, and (3) it works best with small speakers whose bass output is limited. (With larger speakers that have widely separated drivers, the output doesn't integrate well to produce a smooth sound until you get several feet away.) Even with a compact two-way system, the tonal balance is likely to be too bright; you may have to experiment with tweeter-level controls or your amplifier's tone controls. But you may find the clarity of the reproduction so compelling that these limitations won't bother you.
—P.W.M.



ears will be about one-third of the way to the ceiling in a typical room.

Absorption and Reflection

In an empty room, voices sound hollow because of the large number of echoes. At the opposite extremes are recording studios, which are heavily padded with absorbent materials so that room acoustics contribute as little as possible to the sound. You don't have to go that far at home; best results will come from a balanced mixture of reflecting surfaces (to distribute sound uniformly) and absorbing materials (to minimize coloration added by room reverberation).

Luckily, hi-fi systems usually sound good in rooms that are comfortable for conversation. A typical American living room with bookcases, drapes on the windows, a carpeted floor, and an upholstered sofa is fine for stereo. But if you favor a Danish Modern look with bare hardwood floors, sparse furnishings, and large areas of exposed glass, the sound may be somewhat clattery because of the many strong reflections.

There are two ways to reduce or eliminate this fault without altering the room's basic decor: (1) Move your chair toward the speakers (or the speakers toward your chair) to strengthen the direct, first-arrival sound at your ears. (2) Once your speakers are in their final locations, absorb or block the primary mirror-image reflections of each speaker's sound—the strong wall or floor reflections that reach your ears after a single bounce. These reflections cause the greatest coloration and are also the easiest to eliminate.

Here's how: Obtain a flat mirror at least a foot square, and have a helper slide it along one of the side walls as you observe from your normal listening position. Note the mirror location—usually about 3 feet forward of the speakers—at which you can see the image of the nearer speaker in the mirror. For maximum accuracy, remove the speaker's grille cloth and look for the image of the midrange driver (or, in a two-way speaker, the woofer and tweeter). Repeat this procedure to find the mirror-image reflection of the other speaker on the other side wall and on the floor in front of each speaker (or the ceiling if your speakers are on high shelves).

Cover each mirror-image location with 1 or 2 square feet of sound-absorbing material, or place an object there to block the reflection. Suitable absorbers include padded drapes,

small area rugs with thick underpadding, closed-cell sculptured plastic foam (Sonex or equivalent, available in various decorator colors), or cloth-covered fiberglass. One of the best treatments for a side-wall reflection is a bookcase filled with books of varying depth, providing a mix of absorption and random scattering.

Tweaks (Fine Tuning)

□ Use a tape measure to place both stereo speakers at exactly the same distance from your chair. Eyeball judgment is not completely reliable; you may be surprised to find that one speaker is several inches farther away than the other.

□ If your speakers have tweeter or midrange level controls, adjust them for matched response. First listen to only one speaker and set its controls to deliver the most lifelike tonal balance, especially with well-recorded vocals. Then adjust the controls on the second speaker to make its sound match that of the first as closely as possible, rotating your amplifier's balance control back and forth for comparison. The more precisely matched the two speakers in a pair, the better their stereo imaging.

□ Experiment with the height or front-back tilt of the speakers to find the best listening axis. Play FM interstation noise or a vocal solo and switch your amplifier to mono while you move your head up and down. With many speakers you'll find an optimum height that yields smooth sound and a narrow, well-focused mono image. Adjust the speakers to raise or lower that axis until it matches the normal height of your ears. (Don't forget to switch the amplifier back to stereo for normal listening.)

□ Experiment with "toeing in" the speakers, aiming them toward the middle of the room rather than having their backs parallel to the wall behind them. If the tweeters have a peaky high end, they may sound best when you're slightly off-axis, but if their on-axis response is flat, you'll get the most accurate sound when they are aimed at your chair. Toeing the speakers in also reduces the severity of the side-wall reflections.

No amount of fiddling with placement or room acoustics is going to make a bad loudspeaker sound wonderful. But a little bit of effort can often go a long way toward bringing out the best in a speaker that is basically good to begin with. Consider the ideas given here a starting point, and don't be afraid to experiment. □

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HOLIDAY GIFTS

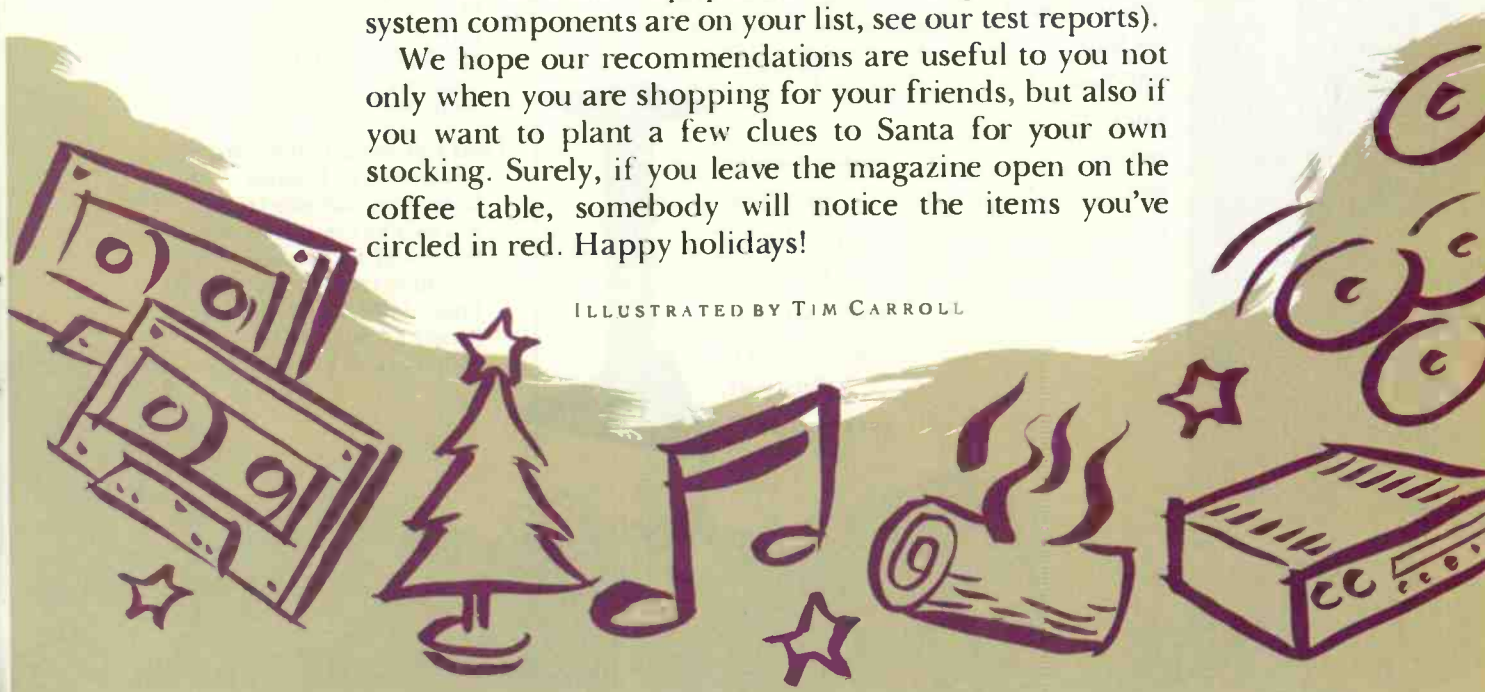


BY REBECCA DAY

CHRISTMAS shopping can be fun, but it's generally more rewarding if you start out with some idea of what you're shopping *for*. With that in mind, the editors of STEREO REVIEW have once again come up with some gift suggestions for audiophiles. As usual, we've tried to suggest gifts for every budget, but we excluded the kind of audio equipment that we regularly test (if system components are on your list, see our test reports).

We hope our recommendations are useful to you not only when you are shopping for your friends, but also if you want to plant a few clues to Santa for your own stocking. Surely, if you leave the magazine open on the coffee table, somebody will notice the items you've circled in red. Happy holidays!

ILLUSTRATED BY TIM CARROLL



ELECTRONICS



FM antenna. Terk Technologies Model 9800 with Schotz low-noise amplifier, \$85. (914) 633-4448.

AM/FM radio. Pulsating-neon Cicena Marilyn, \$250. (212) 941-6767.

Headphone amplifier. Mini-size amp from QED, \$160. (518) 298-4434.



Parsec WaveCatcher AM/FM indoor stereo antenna, \$25. (302) 651-9189.



Alternative Audio Solutions' Klearnote "digital-ready" add-on tweeters, \$80 a pair. (513) 531-5520.

Microphone for camcorders. Audix ST-1 stereo condenser mike, \$129. (415) 463-1112.

Headphones for personal stereos. MB Quart Model 15, \$60. (508) 668-8973.

BOOKS



Mozart, the Golden Years by H. C. Robbins Landon, \$30 (Schirmer).

Riders on the Storm by Doors drummer John Densmore, \$20 (Delacorte Press).

Crosstown Traffic, a biography of Jimi Hendrix by Charles Shaar Murray, \$19 (St. Martin's).



Jazz Singing: America's Great Voices from Bessie Smith to Bebop and Beyond by Will Friedwald, \$30 (Scribner's).

Miles: The Autobiography by Miles Davis with Quincy Troupe, \$12.95 (Touchstone).

Understanding Audio & Video by STEREO REVIEW Editor-at-Large Michael Riggs, \$5.95 plus \$1 shipping and handling from Pioneer. (800) 767-3737.

Total Harmonic Distortion, a collection of Charles Rodrigues cartoons from STEREO REVIEW, now only \$4 plus \$1.50 postage and handling from Perfectbound Press, 1120 Avenue of the Americas, Suite 4118, New York, NY 10036.

STANDS AND RACKS



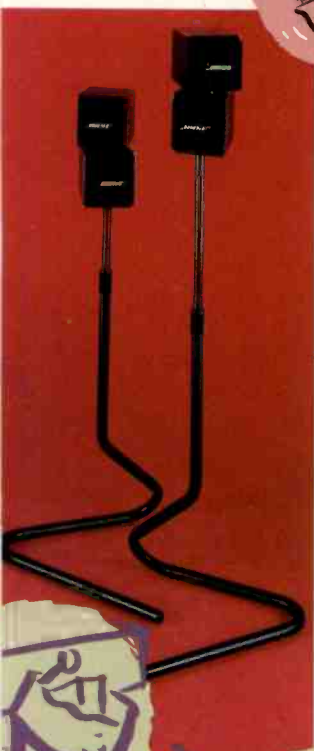
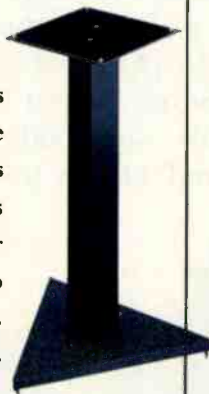
StudioTech S-5 steel-tubing speaker stands for Bose AM-5 and Lifestyle speakers, \$90 a pair. (714) 540-4947.

Configurable steel component racks. Rainbow Rax four-shelf unit, \$250 to \$275. (213) 782-3729.

Speaker stands. Speaker Chairs stands in light or dark oak, \$89 a pair. (714) 969-1406.

Audio cabinet. Custom Woodwork & Design Finline cabinet with shelf, door, and record dividers, \$224. (708) 563-1745.

Sanus Systems Reference Foundations speaker stands with triangular bases, \$160 to \$170 a pair. (612) 482-1019.



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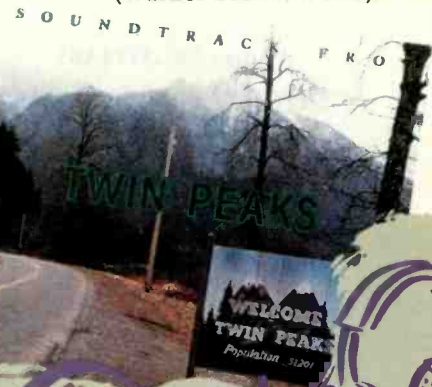
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"The Carl Stalling Project." Music from Warner Bros. cartoons 1936-1958 (Warner Bros. CD 26027-2, cassette 26027-4).

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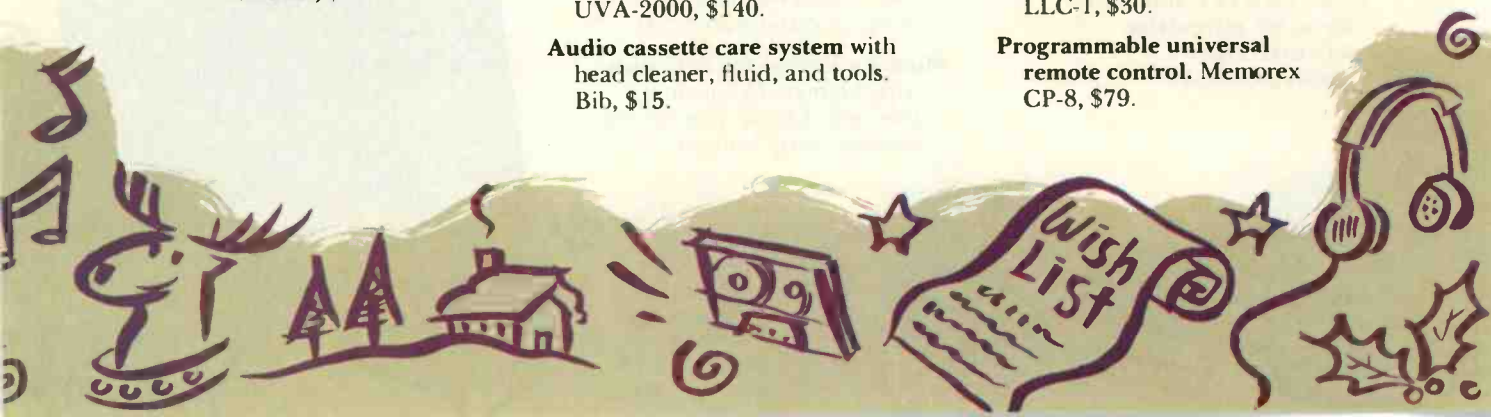
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THE NEVILLE BROTHERS: ALL TOGETHER

AT the risk of sounding foolish, I'm going to call the Neville Brothers' new "Brother's Keeper" a family album. I do this even though this phrase is 1) a terrible pun and 2) self-evident for an album from a band called the Neville Brothers. I do it because "Brother's Keeper" represents a greater show of unity from the first family of New Orleans pop than ever before—something I wouldn't have thought possible. Ever since Aaron, Art, Charles, and Cyril Neville began to perform together, starting as the Wild Tchoupitoulas with an album that featured their uncle, the four brothers have worked together to produce a rich blend of rock, r-&-b, and funk. But "Brother's Keeper" puts them on a more equal footing: The sweet, percolating *Brother Blood*, for example, enables all the Nevilles to take turns on the lead vocals—even saxophonist Charles puts down his horn for a rare singing appearance—and it's a real treat. The new album also puts Art's thick-as-molasses baritone in the spotlight for the first time in quite a while. His voice, combined with Aaron's achingly sweet falsetto and Cyril's heart-stabbing tenor, gives the Nevilles a triple-barreled vocal threat.

"Brother's Keeper" uses all three singers beautifully. Their vocal flourishes in *Witness*, a slow gospel r-&-b tune, come straight from the pulpit. Their harmonies sweep the classic *Mystery Train* along at a steady rolling clip. And their smooth choruses in *River of Life* marry doo-wop to rock-and-roll. The brothers shine individually too. An unusually tough vocal by Aaron in *Fearless* makes the song's message particularly urgent. Art's breathiness, deep as a well, in *Falling Rain* emphasizes the wearying state of the world. And Cyril's soulfulness in *Jah Love*, co-written by Bono of U2, underscores its spiritual ecstasy.

Despite the sensuous rhythmic thrust of the songs and the sweet effervescence of the arrangements, the music in "Brother's Keeper" acts as a springboard for the serious moral and spiritual sentiments of the Nevilles. These men are unhappy with social injustice, the decline in values, fragmentation of the family. They speak bluntly. But they sing sweetly. The Nevilles get your body moving, then your mind thinking. Listen, enjoy, and learn.

Ron Givens

nal. The story—two men on a bet with a buddy test the fidelity of their girl friends—is quite sexist but also wise and amusing. The story is quite original, and so is the musical form, which plays almost entirely on character, mood, and situation. There are no broad, panoramic or dramatic strokes. Everything is interior—set in rooms or rooms of the mind. In line with this, there are few large set pieces. The ensembles propel the action, and they are light-fingered; they twist and turn



The Neville Brothers: Charles, Aaron, Cyril, and Art

THE NEVILLE BROTHERS: *Brother's Keeper*. The Neville Brothers (vocals and instrumentals); other musicians. *Brother Blood*; *Brother Jake*; *Steer Me Right*; *Fearless*; *Sons and Daughters*; *Fallin' Rain*; *Jah Love*; *River of Life*; *Witness*; *My Brother's Keeper*; *Sons and Daughters (reprise)*; *Mystery Train*; *Bird on a Wire*. A&M 5312-1, © 5312-4, © 5312-2 (56 min).

BARENBOIM'S FRESH "COSI"

COSI FAN TUTTE is the third of the great Mozart-Da Ponte trilogy of operas (*Don Giovanni* and *The Marriage of Figaro* are, of course, the other two), and in many ways it is the most origi-

with wit and sentiment. Even the duets and solos, lyric as they are, are more like songs or theater scenes than big arias. Set pieces and recitatives seem to flow into one another—like quicksilver, as they used to say.

All this is by way of introduction to a superb new recording by Daniel Barenboim and the Berlin Philharmonic. This is not an "early music" recording, and it is not a Mozart chamber-orchestra recording. But it has a freshness and a delicacy that are remarkable. And if Barenboim misses a musicological touch or two, his feeling for the line and texture and sentiment of this music is outstanding. Even more remarkably, his approach is based on a study of the text and its musico-dramatic consequences.

He has also assembled a fresh, young company of excellent singers,

worked with them extensively over a period of time, and focused on the shaping of the words—recitatives included—as an essential part of the music. In *buffo* opera this makes a lot of sense. Mozart was a great dramatist in music partly because he was a great text-setter; his Italian comedies are sculpted in an amazing fashion around Da Ponte's clever words. This also carries over to the larger form of the piece; the flow and phrasing of the text into the music gives us the shape of each number and then binds the numbers and the recitatives together to make the larger scenes. Taking all this seriously has a big payoff. This recording is a "production" that has never appeared on any stage, but it has the pacing and dramatic reality of a major theatrical production with all the musical values intact. Its nonstar cast (Barenboim is, of course, the star) is made up of first-class singing actors. Perhaps the women have the best of it—Joan Rodgers is a totally delightful Despina and Cecilia Bartoli an adorable Dorabella. But the level is uniformly high, and the recording itself is gorgeous.

Così is the first to be released of the three Mozart–Da Ponte operas that Barenboim is recording for Erato. The others, likewise with the Berlin Philharmonic, will no doubt benefit from his approach, but *Così* was a logical starting place. This masterpiece is presented only too often as a highly stylized costume comedy of manners from a long-vanished era, a rococo geometry of the emotions. Here it emerges as something very different: a universal parable about wit and emotion, intel-

lect and feeling, told by both Da Ponte's words and Mozart's music in a performance that communicates the fusion of the two. *Eric Salzman*

MOZART: *Così fan tutte*. Lella Cuberli (soprano), Fiordiligi; Cecilia Bartoli (soprano), Dorabella; Joan Rodgers (soprano), Despina; Kurt Streit (tenor), Ferrando; Ferruccio Furlanetto (baritone), Guglielmo; John Tomlinson (bass), Don Alfonso; RIAS Chamber Chorus; Berlin Philharmonic, Daniel Barenboim cond. ERATO © 2292-45475-2 three CD's (177 min).

DON PULLEN: DAZZLING JAZZ PIANO

DON PULLEN may well be the most innovative modern jazz pianist on the scene today. His playing occasionally flashes into what can be described as tempered Cecil Taylor outbursts, but rarely does Pullen take a musical thought beyond the bounds of reason. One of the most attractive things about his music is the intricacy of the patterns he weaves from stylistically disparate threads. He clearly embraces tradition, but he is not locked into it, and he is not afraid to take his music in uncharted directions. He also experiments successfully with meter, which adds excitement to his melodic inventions.

All great jazz players, from Louis Armstrong and Jelly Roll Morton to Bird, Monk, and Coltrane, have tran-



Don Pullen: style from within

sceded convention and come up with something so new that it demanded our attention. The so-called avant-garde musicians of the Sixties made valiant attempts to do the same, but the result was frequently nothing more than a strenuous, all-too-obvious attempt at being "different." Pullen does not have to resort to that kind of exercise. His personal style clearly comes from within and is shaped by a keen sense of history, taste, and the kind of free-flowing creative energy that produces great performances, such as those in his superb new Blue Note album, "Random Thoughts."

Comprising seven of Pullen's own compositions, the 53-minute set fulfills all the promises that were inherent in the pianist's performances with the George Adams–Don Pullen Quartet, which also recorded for Blue Note and should have attracted far more attention than it did during its ten-year existence. This time around, though, with Pullen heading his own trio, you will be dazzled by the soaring, liberated flight he takes in *Endangered Species: African American Youth*, and if his lyrical solo contemplation in the album's final track, *Ode to Life*, doesn't stir your emotions, nothing will. *Chris Albertson*

DON PULLEN: *Random Thoughts*. Don Pullen (piano); James Genus (bass); Lewis Nash (drums). *André's Ups and Downs; Random Thoughts; Indio Gitano; The Dancer; Endangered Species: African American Youth; 626 Fairfax; Ode to Life.* BLUE NOTE ● 94347-1, © 94347-4, © 94347-2 (53 min).

Daniel Barenboim: Mozart with dramatic reality



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LITTON
CONDUCTS
RACHMANINOFF

ANDREW LITTON, who took over the Bournemouth Symphony two years ago, is not the first American conductor to head up a British orchestra, but he is probably the youngest. All of thirty-one now, he has been getting a good deal of favorable attention for his concerts and recordings with the big London orchestras as well as with his own, and his new Virgin Classics discs of

Kaspszyk, both of whom not only restored all the cuts (as did the other conductors mentioned here) but actually took the repeats as well. So does Litton, and his is the performance of this very familiar work I would place at the head of the list now. It is not so easy to say why, in terms of specific qualities, for, more than most other music, Rachmaninoff's creates—or blossoms in—an almost unique world of its own. Its range of colors and emotions are not simply Romantic, not simply Russian, but specifically and unmistakably Rachmaninoff, every accent and gesture as personally characteristic as his obsession with the *Dies irae* (which lurks somewhere in the founda-

Nothing is held back in the way of expressiveness, but nothing is excessive—nothing is allowed to hint at the inelegant or unmusical. Textures are always remarkably clear, pointing up every detail in Rachmaninoff's rich coloring.

The three symphonies are issued on individual CD's, and each comes with an additional work. The beautifully proportioned account of the First is preceded by a noble and impassioned realization of *The Isle of the Dead*; both are gloriously recorded, setting the sonic as well as musical standards that prevail throughout the series. The Second Symphony, which runs 63½ minutes, leaves room for only the orchestral version of the *Vocalise* as an encore. Kaspszyk also offers the *Vocalise* on his admirable Collins disc, but Litton's greater sense of momentum is apparent everywhere. The precision and richness he draws from the Royal Philharmonic are wondrous, as they are throughout the cycle.

The last of the three discs, on which the Third Symphony is followed by the Symphonic Dances, is marginally less commanding than the other two. Here, I feel, Litton's pacing is just a little too broad. Momentum doesn't slacken, but the tension does somewhat. There's no slackening in the Dances, though. Litton's emphatic stressing of the rhythm in No. 1 is especially effective, the fantasy element is splendidly realized throughout the sequence, and again he is served brilliantly by both his players and the recording engineers. Whether you consider them separately or as a package, these CD's constitute a distinguished addition to the Rachmaninoff discography as well as that of the young conductor.

Richard Freed

RACHMANINOFF: Symphony No. 1, in D Minor, Op. 13; The Isle of the Dead, Op. 29. Royal Philharmonic Orchestra, Andrew Litton cond. VIRGIN © VC 90830-2 (67 min).

RACHMANINOFF: Symphony No. 2, in E Minor, Op. 27; Vocalise, Op. 34, No. 14. Royal Philharmonic Orchestra, Andrew Litton cond. VIRGIN © VC 90831-2 (70 min).

RACHMANINOFF: Symphony No. 3, in A Minor, Op. 44; Symphonic Dances, Op. 45. Royal Philharmonic Orchestra, Andrew Litton cond. VIRGIN © VC 90832-2 (78 min).



Andrew Litton: beyond impressive

the Rachmaninoff symphonies with the Royal Philharmonic far exceed even the high expectations aroused by his Elgar and Rimsky-Korsakov on that label and his fine account of Mendelssohn's *Midsummer Night's Dream* music for EMI. The new recordings are beyond "impressive."

Rachmaninoff's three symphonies have themselves been attracting wider attention than ever in the last couple of decades. There have been some stunning recordings of all three by André Previn, Vladimir Ashkenazy, and Leonard Slatkin as well as exceptional ones of the best-known, No. 2, by Gennady Rozhdestvensky and Jacek

tion of virtually every one of his melodies, even if it's not immediately apparent).

Litton's identification with this material is hardly less complete than the composer's own. There is not a phrase that doesn't ring true, that is less than irresistibly convincing. He seems to do more with those repeats than Kaspszyk or even Rozhdestvensky, using the opportunities for subtle but appreciable variations in amplitude and intensity. Besides being able to sweep the entire orchestra along with him in terms of commitment as well as expertise, Litton shows an unflinching tastefulness that must be instinctive.

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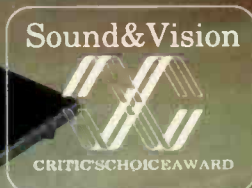
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*Discs and tapes reviewed by
Chris Albertson, Phyl Garland,
Ron Givens, Roy Hemming,
Alanna Nash, Parke
Puterbaugh, Steve Simels*

TIM BUCKLEY: *Dream Letter (Live in London 1968)*. Tim Buckley (vocals, twelve-string guitar); Lee Underwood (guitar); David Friedman (vibraphone); Danny Thompson (bass). *Introduction; Buzzin' Fly; Phantasmagoria in Two; Morning Glory; Dolphins; I've Been Out Walking; The Earth Is Broken; Who Do You Love;* and eight others. ENIGMA/RETRO © 73507-4 two cassettes, © 73507-2 two CD's (117 min).

Performance: *Stunning*
Recording: *Excellent*

The late Tim Buckley made his mid-Sixties debut as a folk singer, but his artistic reach quickly carried him into other realms—jazz, free-form, avant-garde, and some of the most furiously erotic rock-and-roll ever made. His death by accidental overdose in 1974 was a tragic shock to those who'd fallen under his spell. He left behind nine extraordinary albums, many of the later ones recently reissued by Enigma. Now comes "Dream Letter (Live in London 1968)," a previously unreleased concert recording that captures Buckley's elusive, visionary magic. His boundary-defying style was so unconventional that the public never really caught up with him. "Dream Letter" was recorded shortly after the release of his third album, "Happy Sad." The set largely consists of material from that album and "Goodbye and Hello," plus half a dozen numbers that never made it to any of his albums.

Buckley's musical ensemble included electric guitar, vibes, acoustic bass, and usually, though not at this show, congas; he himself sang and played acoustic twelve-string guitar. Guitarist Lee Underwood, who appeared with him on this date (and who wrote the insightful liner notes that accompany "Dream Letter"), played in a style that predated New Age by more than a decade, delicately skirting and teasing Buckley's vocal melodies with soft, rounded tones and a muted impressionism. In essence, Buckley

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PRINCE'S FAMILY



UP to now there have been Prince albums, and then there have been disciple albums with heavy Prince involvement. The Purple One's own music has generally been so private as to be off-limits to anything but precisely dictated intrusions. That's all changed in his new album, "Graffiti Bridge," however, as Prince's solo tracks share space with new songs from the Time, Mavis Staples, George Clinton, and Tevin Campbell. A truly collaborative spirit pervades the proceedings, and if Prince is still hedging about how much he wants to reveal, he's opened himself up considerably just by allowing others to contribute to the mosaic. As Sly Stone would say, it's a family affair.

There's no question that the four Time tunes in "Graffiti Bridge," all of them written or co-written by Prince, cut the self-indulgent and less adventurous grooves in "Pandemonium," the Time's reunion album, to bits—especially the sublimely greasy soul stomper *Shake*. Staples testifies with commanding bravado in *Melody Cool*, and Clinton builds a swaggering tower of funk with Princely support in *We Can Funk*. Campbell, a new discovery, is heard in *Round and Round* and *Graffiti Bridge*. He has a sweet, soulful voice that can extract bluesy nuances from *between* notes.

In his eight solo tunes Prince delves

into the rhythmic side of his peculiar sorcery, putting a fresh, custom-tailored spin on elements of hip-hop and new-jack swing. He's able to embellish the monotonous tyranny of electronic rhythms by imparting a cosmic wiggle that breathes them to life. While "Graffiti Bridge" is somewhat short of hummable melodies, it compensates with rhythmic audacity. Those who complain that Prince doesn't flaunt his guitar-playing virtuosity to fullest measure on records will be enchanted by *Joy in Repetition*, in which he pulls out all stops on a Santanesque extended coda. Finally, there's the sublimely sad and troubled *Thieves in the Temple*, Prince's most soulful and memorable song in years. Given so much scope and variety, "Graffiti Bridge" is worth crossing again and again.

Parke Puterbaugh

PRINCE: *Graffiti Bridge*. Prince (vocals and instrumentals); other musicians. *Can't Stop This Feeling I Got; New Power Generation; Release It; The Question of U; Elephants & Flowers; Round and Round; We Can Funk; Joy in Repetition; Love Machine; Tick, Tick, Bang; Shake!; Thieves in the Temple; The Latest Fashion; Melody Cool; Still Would Stand All Time; Graffiti Bridge; New Power Generation (Part II)*. PAISLEY PARK/WARNER BROS. 27493-1, © 27493-4, © 27493-2 (69 min).

made improvisational music with folk underpinnings, and his 2-hour performance in "Dream Letter" is spellbinding. Hearing a voice so pure, honest, and true to its muse is a delightful, singular experience. It's all the more astonishing to realize that Buckley was only twenty-one years old when this concert was recorded. For those who have forgotten about or never heard him, "Dream Letter" offers a splendid opportunity to make or renew his acquaintance. *P.P.*

ROSANNE CASH: *Interiors*. Rosanne Cash (vocals); vocal and instrumental accompaniment. *On the Inside; Dance with the Tiger; On the Surface; Real Woman*; and six others. COLUMBIA © CT 46079, © CK 46079 (34 min).

Performance: *Moving*
Recording: *Fine*

"Interiors" may be the quietest record Rosanne Cash has ever made, but it is also the boldest. "I've lifted the veil, I've walked through the fire," she declares in *Paralyzed*. The album's closing song, it is structured around the kind of

Yet, as moving as the album is, not everything works as well as it should. *This World*, in which Cash attempts to relate a child-abuse case to her belief that the world will reinforce an individual's positive or negative view of things, is likely to confuse listeners into wrongly thinking that she, herself, was physically abused as a youngster. And the bouncy beat and Sixties vocal washes of *Real Woman*, which on the one hand balance the album's somber tone, also tend to undercut the seriousness of the song's plea—that the singer be dealt with as a human being, not as an icon.

Cash said in a recent interview (see page 81) that she believes "Interiors" is "gender-specific," that it will speak louder to women than to men. Perhaps so. But any man who has emotionally attached himself to a woman will surely find it compelling. *A.N.*

ROBERT CRAY: *Midnight Stroll*. Robert Cray (vocals, guitar); Robert Cray Band (instrumentals); the Memphis Horns (trumpet, trombone, tenor saxophone); instrumental accompaniment. *The Fore-*

us to think of mostly in "Midnight Stroll." He's enlisted the help of the famous Memphis Horns to evoke a kind of Stax/Volt sound, knowing that it won't be lost on his audience that trumpeter Wayne Jackson and saxophonist Andrew Love were major figures in the historic Stax/Volt years, playing on the best-remembered hits of Aretha Franklin and, yes, our old friend Otis. This is particularly apparent in even the opening strains of *My Problem*, a direct descendant of Redding's unforgettable *I've Been Loving You Too Long*.

Redding, of course, is revered not just because he died tragically and too early but because he didn't so much sing his songs as burn them into the pantheon of American soul. His gritty voice tore and bled on the records that defined an era, setting him up as the most influential singer of his kind, and in such songs as (*Sittin' on*) *The Dock of the Bay* his anguish was almost palpable. There's no way *not* to feel his pain.

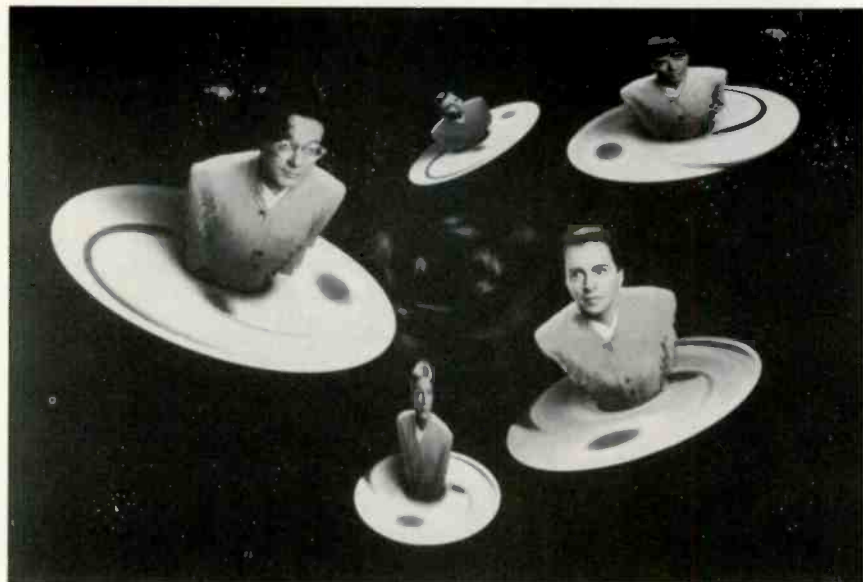
But in this enormously disappointing album, Cray is merely going through the motions of turmoil and suffering. He breaks into a full-measure scream in *These Things*, for example, because the genre calls for such open emotion, not because he himself is under siege. That, plus a dearth of lyrical content and too many slow songs grouped together—only the lively *Walk Around Time* finally breaks the monotony—adds up to an interminable record that proves hollow and empty at its center. Cray is more than an able technician, but the worst thing one could say about "Midnight Stroll" is also the truest: It simply has no soul. *A.N.*

DEVO: *Smooth Noodle Maps*. Devo (vocals and instrumentals). *Stuck in a Loop; Post-Post-Modern Man; When We Do It; Spin the Wheel; Morning Dew; A Change Is Gonna Cum*; and five others. ENIGMA © 73526-4, © 73526-2 (35 min).

Performance: *Post-postmodern*
Recording: *Very good*

To some, Devo might appear to be robotic spudboys who make computer-age pop overburdened with irony, but scratch the surface and you'll find disillusioned idealists whose outlook is more hippie than yuppie. Perhaps weary of having to act like rock-and-roll's answer to Mr. Spock, the alien genius of *Star Trek* who could not show emotion, the members of Devo tip their hand on "Smooth Noodle Maps." Love is good! A change is gonna come! Let's get together and save the world, 'cause "we're in the same boat so as long as it floats/We might as well stop 'n' stare at the big picture"! If you miss the point, they've even titled a song *Devo Has Feelings Too* (dig the groovy wah-wah!).

"Smooth Noodle Maps" is sort of an electrified folk album. Devo has cast late-model protest lyrics in electro-synth settings that are futuristic and odd yet compellingly human, even warm. De-



Devo: odd yet compellingly human

artless piano plunking that suggests the work of a child—or of a woman who is finding her way back from depression, and maybe even madness.


Detailing Cash's ride on a "misery-ground" in several vital relationships and the difficulty of communication in general—a thread that makes this very intimate album also universal—"Interiors" is a remarkable achievement on several levels. The sparse, mostly acoustic arrangements and full-out emotional nakedness are sure to challenge radio formats, to begin with. But Cash is particularly adept at summoning the correct degree of emotionality in both melody and lyric, a quality particularly apparent in *Land of Nightmares*, a perfect prelude to a suicide or drug-induced escape.

cast (Calls for Pain); These Things; My Problem; Labor of Love; Bouncin' Back; Consequences; and five others. MERCURY 846 652-1, © 846 652-4, © 846 652-2 (50 min).

Performance: *More like crawl*
Recording: *Very good*

In some circles, Robert Cray is the heir apparent to Otis Redding, tipping his hat to Eric Clapton and to the ghosts of Jimi Hendrix and Duane Allman as he takes his stand on the rough-hewn landscape of American rhythm-and-blues. You can hear the Hendrix influence, especially, in *Consequences* and *The Things You Do to Me*, where Cray's careful, long-fingered guitar pickings touch, if not exactly kiss, the sky.

But it's Otis Redding that Cray wants

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spite the synthesized bleep-burles, Devo's version of Tim Rose's folk-rock standard *Morning Dew* is sung without irony. Several songs—such as *Pink Jazz Trancers*, a sarcastic blast at the somatic power of media, and the mean-spirited *Jimmy*—sound like outtakes from the Frank Zappa laboratory of social cynicism. Yet Devo really wants to let love rule, not least because it's vital for the survival of the species.

In the cover photo, Devonian torsos are shown emerging from computer simulations of Jupiter, circular swirls of color set in a two-dimensional plane. The circle is a powerful and recurring image in the album, turning up in *Stuck in a Loop* (are we doomed to keep repeating our mistakes?), *Spin the Wheel* (the karmic roulette wheel of life), and *A Change Is Gonna Cum* (all endings lead to new beginnings, and the wheel spins round again). Devo is and isn't being funny this time. On the precipice of a new age, the band is back from the computerized drawing board with new ideas, banking on a calculated combination of emotion, intellect, wit, and rhythm to point us foolish humans over the hump toward a better future. **P.P.**

DURAN DURAN: *Liberty*. Duran Duran (vocals and instrumentals). *Violence of*

Summer (Love's Taking Over); Liberty; Hothead; Serious; Along the Water; My Antarctica; and six others. CAPITOL © 4XT-94292, © CDP-94292 (51 min).

Performance: *Lively*
Recording: *Outstanding*

Back in 1983 and 1984, Duran Duran was the New Wave Kids on the Block, driving the young girls crazy with hooks, looks, and arty Anglophilic pop tunes. Six years later, the screamers have thinned out but Duran Duran is still plugging. "Liberty" demonstrates a determination to move forward. Three of the five members of the old group—singer Simon Le Bon, keyboardist Nick Rhodes, and bassist John Taylor—are on hand, and the band is rounded out by a new guitarist and drummer. They've made a sophisticated, seductive, and carefully sculpted album of songs set to hypnotic dance grooves.

If *Serious* isn't a No. 1 hit, blasting from every radio between Asbury Park and Anaheim, there's no justice on the air waves; it's simply one of the most insanely catchy tunes in eons. And it's not the only tasty morsel here: *Liberty* and *My Antarctica* combine Taylor's fat, bobbing bass lines with Rhodes's siren-like keyboards, Le Bon's adenoidal croon, and Warren Cuccurullo's shim-

mering guitar. In contrast, the group launches into caterwauling, heavily percussive grooves in *Hothead* and *All Along the Water*. Except for a couple of noisy musical blobs near the end, "Liberty" puts a provocative, fresh spin on rhythmically driven pop and re-establishes Duran Duran as a deserving chart contender. **P.P.**

JOHN GORKA: *Land of the Bottom Line*. John Gorka (vocals, acoustic guitar); vocal and instrumental accompaniment. *Land of the Bottom Line; Armed with a Broken Heart; Raven in the Storm; The One That Got Away; Full of Life; Stranger in My Driver's Seat; The Sentinel; Dream Street; and seven others. WINDHAM HILL © WD-1089 (60 min).*

Performance: *Hit and miss, mostly hit*
Recording: *Good*

Folkie John Gorka, with his acoustic songs of memorable characters and tender-tough romance, arrives as an odd and somewhat disagreeable guest but leaves as the hit of the party. Singing in a rich baritone reminiscent of Richie Havens (without the top-end screech or the manic quality), Gorka spins sensitive tales of lovers who never should have gotten away (*Love Is Our Cross to Bear*) (Continued on page 112)



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and of oddball men and women who play the tiniest of roles in our lives but somehow never leave our conscience, such as the retarded traffic guard of *The Sentinel*. Just when Gorka gets too enmeshed in the touchy-feely stuff, however, he turns a humorous phrase or summons unexpected strength. In *Full of Life*, which laments his failure in love, he muses, "You see couples who seem happy/And wonder how they got that way/Are they blind or kind of stupid/Or are they having a good day?"

But, alas, not everything works: *Italian Girls* and *Promnight in Pigtown* fall flat, and producer Bill Kollar, who has imbued this disc with a definite low-budget sound, should have brought in a stronger lead or electric guitar to supply some filigree, or at least to lift the monotony of Gorka's scrub-rhythm six-string. Long after that is forgotten, though, the poignance of *Dream Street*, about worn and battered heavyweight champs, and the wry humor of *Stranger in My Driver's Seat*, about having a car stolen in New

York City, still spin in the brain. Gorka has some maturing to do—a lot of his lyric writing is highly derivative—but he's got enough originality for him to keep his head above the pack. A.N.

JANE'S ADDICTION: *Ritual de lo Habitual*. Jane's Addiction (vocals and instrumentals); other musicians. *Stop!*; *No One's Leaving*; *Ain't No Right*; *Obvious*; *Been Caught Stealing*; and four others. WARNER BROS. 25993-1, © 25993-4, © 25993-2 (52 min).

Performance: *Like nothing else*
Recording: *In your face*

In Perry Farrell's world, there is no right and wrong and no sin except the subversion of self-expression. Farrell is the controversial lead singer and brains of Jane's Addiction, an L.A. band that spews volcanic geysers of attitude and guitar-and-throat noise. Listening to "Ritual de lo Habitual" is not a passive experience, as the band's version of life's ugly-beautiful is designed to provoke reaction. You will either hate it (as I did on my first three listenings) or love it (as I did on the fourth). Half the album is randy and loud; the rest is quieter and enticingly narcotic.

Stop! and *Ain't No Right* are exorcisms in which white-hot cataracts of punk-funk guitar and Farrell's sluicing, androgynous vocals raise an angry, defiant commotion. On the other hand, numbers such as *Then She Did . . .* and *Three Days* are art-rock tone poems, wondrously strange and dreamlike meanderings emanating from a fertile erotic subconscious. The horror and grandeur of sex, art, garbage, crime, pain, and pleasure in the teeming crucible of L.A. are held up for all to see with a naked honesty that puts "Ritual de lo Habitual" in a class with X's "L.A." and David + David's "Boomtown." P.P.

GEORGE JONES: *You Oughta Be Here with Me*. George Jones (vocals); vocal and instrumental accompaniment. *Hell Stays Open (All Night Long)*; *You Oughta Be Here with Me*; *Somebody Always Paints the Wall*; *I Sleep Just Like a Baby*; *Someone That You Used to Know*; and five others. EPIC © ET 46028, © EK 46028 (33 min).

Performance: *Top of his form*
Recording: *Very good*

In his new album, George Jones presents himself as the Rodney Dangerfield of country music, a bumbling dufus unable to garner love or respect. He rings this bell the first song out, when he calls his ex-mate to tell her that his new love has put him on the street and he has no place to go. *Hell Stays Open (All Night Long)*, she readily reminds him, and Jones adds another memorable novelty song to his already bulging catalog. Along the way, country's reigning loser takes time out to reinforce his reputation as the master of the honky-tonk lament (Roger Miller's *You Oughta Be Here with Me*), but soon

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he's back with that hangdog look on his face, moaning in the self-pitying *Somebody Always Paints the Wall* that "If my old truck was a horse/I'd have to shoot it/Lord, the day my ship came in/I was waiting for a train." Nobody does this kind of stuff better than Jones, who, in his trademark style, drops from a tenor to a clef-dragging bass for added pathos. Ol' Possum may see a corral-full of white-hatted cowboy acts stealing his accustomed thunder these days, but as this album shows, he can still chase the honky-tonk blues better than any other man alive.

A.N.

LIVING COLOUR: *Time's Up*. Living Colour (vocals and instrumentals). *Time's Up*; *History Lesson*; *Pride*; *Love Rears Its Ugly Head*; *New Jack Theme*; *Someone Like You*; *Elvis Is Dead*; *Type*; and seven others. EPIC FE 46202, © FET 46202, © EK 46202 (58 min).

Performance: *Noisy*

Recording: *Manhattan air raid*

Don Henley said it best in a recent interview: "Music isn't very musical any more." For proof, you need look no further than Living Colour's second album, a raucous slugfest of slam-dance rhythms, tuneless vocals, and cosmic-slop guitar. "Time's Up" is as exhausting as the mean streets of New York City that inspired it. Maybe fractured atonality is the point, but Living Colour can do better. A huge slice of the album, from *New Jack Theme* through *Fight the Fight*, is fiercely unmelodic—sometimes appropriately so, as when Corey Glover sings of a drug hustler's life, "No control is how I'm living/On the edge with no forgiving."

All the ranting and raging, unfortunately, adds up to a colossal Excedrin headache, and the musical oases—such as the "everything that goes around, comes around" chant in *Type*—are few and far between. The best songs in "Time's Up" don't strain to sound like position papers on urban chaos. There are righteous hard blues in *Love Rears Its Ugly Head* and lithe, Afro-Caribbean accents in *Solace of You*. The title track is bracingly loud, fast, and to the point. Another focused song, *Pride*, poses the rhetorical question, "Can you feel my rage?" The answer is yes, but all too often here the rage gets the better of the music.

P.P.

LOS LOBOS: *The Neighborhood*. Los Lobos (vocals and instrumentals); other musicians. *Down on the Riverbed*; *Emily*; *I Walk Alone*; *Angel Dance*; *Little John of God*; *Deep Dark Hole*; and six others. SLASH/WARNER BROS. © 26131-4, © 26131-2 (45 min).

Performance: *Muscular*

Recording: *Clean*

Los Lobos always sounds as if the group had reinvented rock-and-roll. Its music has a polished brutality—crisp, steel-hard guitars pushed relentlessly by a

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claw-hammering rhythm section, a combination that sounds as fresh today as it would have in 1955. That timeless quality permeates "The Neighborhood" more than any other Los Lobos album. Following last year's "*La Pistola y el Corazon*," in which the group explored and embraced its Mexican heritage, Los Lobos has added some traditional touches to its contemporary sound. *The Giving Tree* sways like a rock-and-roll waltz; *Emily* has a soft country sweetness; *Be Still* pulses with south-of-the-border syncopation. But there are plenty of four-on-the-floor rockers here as well. In *I Walk Alone*, *Jenny's Got a Pony*, and *I Can't Understand* (co-written by blues legend Willie Dixon), Los Lobos rips along in its trademark supercharged style. "The Neighborhood" is a particularly well-rounded collection from one of America's most powerful bands. **R.G.**

MIDNIGHT STAR: *Work It Out*. Midnight Star (vocals); instrumental accompaniment. *Do It (One More Time)*; *Work It Out*; *All I Want*; *Money Can't Buy You Love*; *The Love of My Life*; *Luv-U-Up*; and four others. SOLAR/EPIC Z 75316, © ZT 75316, © ZK 75316 (42 min).

Performance: *Sweet soul singing*
Recording: *Very good*

With an emphasis on straightforward soul singing steeped in sweet harmonies and spirited rhythms, Midnight Star is as refreshing as a frozen yogurt on a hot summer afternoon. It draws inspiration from the classic soul groups of the Sixties and Seventies, achieving the sort of vocal cohesion that once was a mainstay of pop music but is now seldom heard. That is not to say that these six men and one woman are totally rooted in the past. They have borrowed from such varied sources as Bobby McFerrin and today's rappers, but these elements are tastefully woven into the overall fabric of their

Los Lobos: supercharged



music. The group is at its best in the lively *Do It (One More Time)* and the tender *The Love of My Life*, but special mention should go to singer Brenda Lipscomb for her inspired ballad stylings in *Money Can't Buy You Love* and her playful humor in *If Walls Could Talk*. In these cuts Midnight Star shines brightly indeed. **P.G.**

THE NEVILLE BROTHERS: *Brother's Keeper* (see Best of the Month, page 97)

POISON: *Flesh & Blood*. Poison (vocals and instrumentals). *Strange Days of Uncle Jack*; *Valley of Lost Souls*; (*Flesh & Blood*) *Sacrifice*; *Swampjuice (Soul-O)*; *Unskinny Bop*; and nine others. ENIGMA/CAPITOL © 4XT-91813, © CDP-91813 (58 min).

Performance: *Full-metal racket*
Recording: *Too much compression*

Obscured by hair, shades, and black clothing, the members of Poison look like the Addams Family's shaggy Cousin It. Their music doesn't reveal much about them, either, except that they insist on the usual generic misfit prerogatives of getting laid, raising hell, and resisting authority. But producer Bruce Fairburn (Aerosmith, Bon Jovi) has helped shape Poison into an ensemble that rocks hard without losing sight of the Top 40 grail.

That doesn't mean you should sell off your old Bob Dylan LP's to raise money for the new Poison CD. "Flesh & Blood" will strike the ears of anyone old enough to buy a legal drink as a familiar-sounding raft of arena-rock moves and radio-tooled power ballads, salted with a few damnably catchy singalongs (*Unskinny Bop* and *Let It Play*) that qualify as guilty pleasures. As for the kids, whatever anyone says they'll uncritically dig the whole damn thing at max volume on a car stereo or over MTV. **P.P.**

THE REPLACEMENTS: *All Shook Down*. The Replacements (vocals and instrumentals); other musicians. *Merry Go Round*; *One Wink at a Time*; *Nobody*; *Bent out of Shape*; *Sadly Beautiful*; *Someone Take the Wheel*; and seven others. SIRE/REPRISE © 26298-4, © 26298-2 (41 min).

Performance: *Scruffy*
Recording: *Okay*

Why is "All Shook Down" the quietest Replacements album yet? Singer-composer Paul Westerberg has explained, "I finally bought an acoustic guitar." Well, sure. But, truth be told, the group has been drifting toward a more contemplative sound, at least in its albums, for the past few years. The process has been accelerated by Westerberg, who now dominates the Replacements to the extent that this album is the virtual equivalent of a solo project. Call his development maturity, if you want, or perhaps just exhaustion. Known to live it up onstage with sometimes frightening

overindulgence, Westerberg seems to have reached the point where he has no choice but to live it down.

"All Shook Down" has its truly haggard moments, sloppy with snaggle-toothed instrumentals and thick-tongued vocals. Westerberg lurches from bad love to bad parents to bad habits with a dissipation that's exhausting: It takes considerable effort to stagger along the edge without falling over. But there's an excitement here as the listener vicariously experiences the danger of it all. Westerberg enhances this secondhand tang with unsentimental details. On the title cut, he mumbles, "The black and white blues/Yeah, I do them in colors." And in *Someone Take the Wheel* he personifies enervation, croaking, "The windows are dirty, let's hope it rains."

Despite the wasted quality that runs throughout "All Shook Down," there are signs of life. Westerberg occasionally summons enough feeling to sound resentful. Several guitar solos resemble, in their rough-hewn gutsiness, the work of Keith Richards. In fact, if Richards were an American and had a slightly better voice and understood his waywardness much better, he might do something like "All Shook Down." I mean this as high praise. Westerberg is a true rocker, riding the music and the lifestyle like a cowboy on a bucking horse. But as much as he enjoys it, he can't help but wonder if he shouldn't just get off. **R.G.**

SITTING PRETTY (Jerome Kern-P. G. Wodehouse). Richard Woods, William Pennington; Davis Gaines, Bill Pennington; Paul V. Ames, Judson Waters; Paige O'Hara, May Tolleriver; Judy Blazer, Dixie Tolleriver; Roberta Peters, Empress Eugenie; others. Chorus; Princess Theatre Ensemble, John McGlinn cond. NEW WORLD © 80387-2 two CD's (106 min).

Performance: *Affectionate*
Recording: *Excellent*

A cultural historian would find it appropriate that certain Broadway shows of the 1920's, with their trivial but sophisticated plots about romantic muddles on the estates and yachts of the rich, should be rediscovered in the socially and economically profligate Eighties. And so 1924's *Sitting Pretty*, with a score by Jerome Kern, lyrics by P. G. Wodehouse, and a book by Guy Bolton, got resuscitated in 1989 for a series of sold-out performances at New York City's Carnegie Recital Hall. The following week it was recorded for this two-CD set. The production used the original orchestrations by Robert Russell Bennett, Max Steiner, and Hilding Anderson—orchestrations that were among the treasure trove of long-lost manuscripts discovered at a Secaucus, New Jersey, warehouse in 1982.

Whatever the shortcomings of its silly book and shallow characterizations, *Sitting Pretty* warrants this excellent new

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ANITA BAKER'S LOVE SONGS

SINCE her stunning debut four years ago with the remarkable album "Rapture," Anita Baker has emerged as one of the foremost singers of the contemporary love song, reshaping this age-old staple into a sophisticated and highly personalized art form. Her new album, "Compositions," her third on the Elektra label, consists almost entirely of songs she either wrote or co-wrote, and it epitomizes the qualities that have set her apart.

First of all, Baker doesn't just sing. She embraces you with her voice, a lustrously textured contralto that she uses like an instrument, carefully shaping the contours and shadings of each note to produce a sculptured sound. She then bends these melodic fragments into fresh forms with absolute control and amazing fluidity. And she devotes just as much thought to a song's lyrics, investing them with a mesmerizing intensity.

No less important to Baker's success is her choice of material, for no amount of artistry could transform the banal into the beautiful. Her adult love songs are invariably addressed to those who realize that love is something more than just sex. For "Compositions," like "Rapture," she was her own executive producer. She chose to use a live rhythm

section with her live vocals rather than the customary multilayered production formula. The effect is to give the instrumentals greater vitality and Baker herself more freedom to fashion her impassioned vocal improvisations. And she is backed by a superb group of instrumentalists, including Greg Phillinganes on piano, Vernon Fails on keyboards, and Paulinho da Costa on percussion.

Fails and guitarist Michael Powell also collaborated with Baker on some of the songs. There is ample excellence in all nine of them, showcasing Baker's creative talents as well as her interpretive gifts. The choicest are probably the first four—*Talk to Me*, *Perfect Love Affair*, *Whatever It Takes*, and *Soul Inspiration*—but taken as a whole, "Compositions" proves that Anita Baker is a major artist with the sort of staying power that should bring us much musical joy in the Nineties. *Phyl Garland*

ANITA BAKER: *Compositions*. Anita Baker (vocals); vocal and instrumental accompaniment. *Talk to Me*; *Perfect Love Affair*; *Whatever It Takes*; *Soul Inspiration*; *Lonely*; *No One to Blame*; *More Than You Know*; *Love You to the Letter*; *Fairy Tales*. ELEKTRA 60922-1, © 60922-4, © 60922-2 (51 min).

recording for its genuinely delightful Kern score. While not in a class with his later *Music in the Air*, *The Cat and the Fiddle*, and, of course, the incomparable *Show Boat*, it is an easygoing, ingratiating mixture of long-lined ballads (*A Year from Today*, *There Isn't One Girl*, *On a Desert Island with You*, *Shadow of the Moon*, *Days Gone By*) and patter songs (*Tulip Time in Sing-Sing*, *Bongo on the Congo*). If none of these titles strikes a familiar bell, that's because Kern refused to allow any of the songs to be recorded or played by dance bands "in fraudulent imitations" while the original show was running—and, perhaps in spite, nobody bothered after the show closed.

John McGlinn, who is making a specialty of preserving the original versions of our unmatched show-music legacy, conducts with his customary tender loving care. All the major singers have good, Broadway-type voices, although the metallic edge to the sound of both Paige O'Hara and Judy Blazer tends to grate in a few places. Veteran opera diva Roberta Peters sings her one number with just the right blend of gentleness and expressiveness. As a fascinating dividend, the album also includes three of the five songs cut during the pre-Broadway tryout and an alternate version of the original opening as used only in Detroit in 1924. *R.H.*

CONWAY TWITTY: *Crazy in Love*. Conway Twitty (vocals); vocal and instrumental accompaniment. *A Little of You*; *Crazy in Love*; *When You're in Love with a Beautiful Woman*; *Tired of Being Something*; *What's Another Goodbye*; *Shadow of a Distant Friend*; and four others. MCA © MCAC-10027, © MCAD-10027 (33 min).

Performance: *Diluted*
Recording: *Good*

Conway Twitty has based his remarkable success on two factors—an uncanny ability to understand the psychology of the country fan and the knowledge that in country music, at least, it's the song and not the singer that really matters. In the past few years, Twitty has all but abandoned the hard-country sound that defined his style after the early years in rock-and-roll. Today, Twitty still aims his hit records at bored housewives, but instead of the raw sexuality and barroom material that characterized his work in the late Seventies, he has opted for a more romantic approach with lush ballads and smooth, rhythm-and-blues-oriented MOR. There's a lot of that here, as evidenced by his hit single, *Crazy in Love*, and *When You're in Love with a Beautiful Woman*. But such fare is not nearly as satisfying as Pam Tillis and Karen Staley's *Hearts Breakin' All Over Town*, a rockin' rhythm number that takes Twitty back to the late Fifties. Whatever you make of Twitty's taste factor, there's no arguing that he has a businessman's head for music. *A.N.*



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JAZZ

BLUESIANA TRIANGLE. David "Fathead" Newman (soprano and tenor saxophones, flute); Dr. John (piano, Hammond organ, guitar, vocals); Art Blakey (drums); Essiet Okon Essiet (bass); Joe Bonadio (percussion). *Heads Up; Life's a One-Way Ticket; Shoo Fly Don't Bother Me; Need to Be Loved*; and three others. WINDHAM HILL © WT-0125, © WD-0125 (43 min).

Performance: *Fun funk*
 Recording: *Good*

Somebody must have lit a fire under Windham Hill. The label is releasing some spunky sounds these days. "Bluesiana Triangle," a rollicking blues and r-&b excursion, features the unlikely combination of David "Fathead" Newman, Dr. John ("Mac" Rebennack), and the late Art Blakey. But they made up a perfect trio. Blakey, who died on October 16, took a respite from bop for this recording, which is heavily flavored by the earth-bound rhythms that characterize Dr. John's work, including a finger-snapping, gospel-flavored version of *When the Saints Go Marching In*. Newman, of course, fit right in, his career having taken him through both the bop and r-&b scenes. In this relaxed, impromptu session, bassist Essiet Okon Essiet—a Jazz Messengers regular—provides steady support, and percussionist Joe Bonadio adds occasional spice, but the all-star trio remains at center stage. I have only two quibbles: At 43 minutes, the set is too short, and Blakey's single vocal is one too many. In stark contrast to his still-youthful drumming, his singing in the ballad *For All We Know* is wobbly with age.

Unfortunately, the Bluesiana Triangle will never meet again, so cherish this union, and applaud not only the artistry but also the decision to donate a portion of the proceeds to the National Coalition for the Homeless. Available on cassette and CD only, the album has no liner notes. Windham Hill should have packaged it with the backgrounder that accompanied my review copy, one of the most informative and literate publicity releases I have ever received. C.A.

STEPHANE GRAPPELLI: *My Other Love.* Stephane Grappelli (piano). *Three Little Words; Time After Time; Satin Doll; A Cottage for Sale; Ain't Misbehavin'; You Better Go Now; What a Wonderful World; Looking at You*; and seven others. CBS © FMT 46257, © MK 46257 (55 min).

Performance: *Nice*
 Recording: *Excellent*

STEPHANE GRAPPELLI: *Olympia 88.* Stephane Grappelli (violin); other musicians. *Pick Yourself Up; Chicago; Shine; I Can't Give You Anything but Love; Love*

for Sale; I Get a Kick Out of You; Swing 42; La Chanson des rues; Chattanooga Choochoo; Someone to Watch over Me; Got Rhythm; and six others. ATLANTIC © 82095-4, © 82095-2 (68 min).

Performance: *Excellent*
 Recording: *Very good remote*

MAY FOOLS (Stephane Grappelli). Original motion-picture soundtrack. Stephane Grappelli (violin); other musicians. CBS © FMT 46256, © MK 46256 (51 min).

Performance: *Exquisite*
 Recording: *Very good*

In the Thirties, violinist Stephane Grappelli made history as guitarist Django Reinhardt's sidekick in the Quintet of the Hot Club of France. Today, at eighty-two, he continues to give extraordinary performances in a variety of milieus. As if to underline his versatility, three recent releases display different sides of the youthful octogenarian's artistry. *May Fools*, Grappelli's soundtrack for director Louis Malle's latest film comedy, features him playing with various combinations of musicians. All but four of the seventeen pieces are originals, so this set is also a good sampling from Grappelli the composer. ("I could hear Stephane Grappelli's violin conversing with my characters," Malle, who also wrote the screenplay, has said.) Some pieces are vignettes obviously designed to set a mood, and a few are more pop than jazz, but the focus is mainly jazz. I have never before heard the old warhorse *Tiger Rag* played with as much creativity as it is here. Grappelli starts off in a Boccherini mode, then builds up to an intriguing, swinging paraphrase of the original.

The title "My Other Love" refers to Grappelli's second instrument, the piano. He plays this set of fifteen romantic keyboard solos in a light and graceful style that combines the lyricism of Bix Beiderbecke with the bounce of such piano masters as Herman Chittison and Jess Stacy. There is also a bit of Tatum here and there but no undue flashiness. A more pleasant, mellower jazz album would be hard to find.

Then there is Grappelli the concert artist. He has played in every corner of the world, and audiences love him, but to Grappelli the Olympia concert hall in Paris must be what Wrigley Field is to the Chicago Cubs. "Olympia 88" finds him in splendid form, energetically moving through a program of well-known material. He's joined on four tracks by pianist Martial Solal and on one by Danish violinist Svend Asmussen. It all adds up to a delightful hour-plus of the kind of music that has kept Stephane Grappelli's career going full force for about sixty years. C.A.

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JACKIE McLEAN: *Dynasty*. Jackie McLean (alto saxophone); René McLean (flute, soprano and tenor saxophones); Hotep Idris Galeta (piano); Nat Reeves (bass); Carl Allen (drums). *Five; Bird Lives; House Is Not a Home; Third World Express; Dance Little Mantissa; J. Mac's Dynasty; Knot the Blues; Zimbabwe; King Tut's Strut; Muti-Woman*. TRILOKA © 181-2 (70 min). Distributed by PPI Entertainment Group, 88 St. Francis St., Newark, NJ 07105.

Performance: *Superb*
Recording: *Very good*

So-called jazz labels or subsidiary labels come and go, and their going is not always a great loss, but judging by its initial releases, I'd say that Triloka Records, with its new "Living Proof" series, is powered by people who know the real thing when they hear it and are concerned about its preservation. "Dynasty," a 1988 Jackie McLean Quintet date featuring his son, René McLean, is a superbly structured live studio set featuring some of the best jazz performances I have heard in a very long time. The rhythm section is a winning combination headed by South African pianist Hotep Idris Galeta, who has spent close to thirty years here, complemented by bassist Nat Reeves and drummer Carl Allen. From their chameleon-like foundation spring inspired performances by McLean and son, who express all kinds of emotions, sometimes sailing smoothly, sometimes bopping furiously through a program that consists mostly of original material written by members of the quintet.

René McLean plays flute and soprano and alto saxophone with the facility and grace that have characterized his father's performances since the mid-Fifties, when he first stepped into the national spotlight with Art Blakey and Charles Mingus, and I'd recommend the music here to anyone who appreciates undiluted modern jazz. Let's hope we hear more from this sterling quintet, and from the Triloka label, which gets three snaps in a circle for the sound, and another two for Will Thornbury's intriguing liner-note interview. C.A.

DON PULLEN: *Random Thoughts* (see *Best of the Month*, page 98)

LENNIE TRISTANO: *Live in Toronto 1952*. Lennie Tristano (piano); Lee Konitz (alto saxophone); Warne Marsh (tenor saxophone); Peter Ind (bass); Al Levitt (drums). *Lennie's Pennies; 317 East 32nd; You Go to My Head; April; Sound-Lee; Back Home*. JAZZ RECORDS JR-5, © JR-5CD (47 min).

Performance: *Wonderful*
Recording: *Very good mono*

This is a rerelease, with significantly improved sound, of a mono recording by one of jazz's true originals, Lennie Tristano. His cool, flowing style continues to be emulated—there is a lot of him in

today's fusion music, for instance, but none of it comes close to being as substantive as the tracks here. We can only speculate about what Tristano might have produced if he had lived to use today's technology, for he was experimenting with tape manipulation long before the first fusioner looked for an AC outlet. But the music captured at this 1952 concert is as modern sounding and relevant today as it was nearly four decades ago. Saxophonists Lee Konitz and Warne Marsh, Tristano disciples both, are on hand, weaving in and out of the linear flow that characterized Tristano's music. To me it sounds even better than the revelatory Lennie Tristano Trio album that was my first introduction to jazz back in 1948, when I borrowed a frazzled Keynote recording from the U.S. Information Service library in Copenhagen. In fact, this is one of the finest Lennie Tristano albums you could hope to find. C.A.

RANDY WESTON: *Portraits of Duke Ellington*. Randy Weston (piano); Jamil Nasser (bass); Idris Muhammad (drums); Eric Asante (percussion). *Caravan; Heaven; Sepia Panorama; Limbo Jazz; C Jam Blues; Chromatic Love Affair*. VERVE © 841 312-4, © 841 312-2 (54 min).

Performance: *Loving tribute*
Recording: *Very good*

When pianist Randy Weston first visited Nigeria, on a 1961 State Department tour, he absorbed the powerful ambience of his own heritage and found his ears filled with wondrous rhythms. The experience made a lasting impression on the thirty-five-year-old pianist, who relocated to Morocco six years later. If Weston is not as well known in this country as he ought to be, it's only because he has spent most of the past twenty years overseas. For a while, he ran his own club in Morocco, but economics forced its closing, and he moved to Paris. His albums, many of them European imports, have never been adequately promoted here, and his occasional American club appearances have almost been covert affairs. Now Verve is releasing a trilogy of "portrait" albums Weston made in France last year. The first two are devoted to his major influences, Duke Ellington and Thelonious Monk, and the third is a self-portrait. First to be issued is this Ellington set, a forceful, percussive tribute in which Weston gets superb support from bassist Jamil Nasser, drummer Idris Muhammad, and percussionist Eric Asante. These are not your usual *Take the "A" Train* treatments embellished with Duke's trademark punctuations; Randy Weston is far too great an individualist to render anything so common. His portraits are impressionistic studies that blend the essence of Duke's music with his own profoundly engaging style, one that's founded on the very bedrock of jazz. Don't miss this one. C.A.



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CHOPIN: *Piano Concerto No. 1, in E Minor, Op. 11; Piano Concerto No. 2, in F Minor, Op. 21.* Murray Perahia (piano); Israel Philharmonic Orchestra, Zubin Mehta cond. SONY CLASSICAL © ST 44922, © SK 44922 (67 min).

Performance: *Excellent*
Recording: *First-rate, but . . .*

Murray Perahia and Zubin Mehta recorded Chopin's E Minor Piano Concerto several years ago with the New York Philharmonic, and that version has been circulating on a CBS Masterworks CD filled out with three solo pieces (*Barcarolle, Berceuse, Fantaisie* in F Minor). Their new performance here is still more appealing, and that of the F Minor Concerto, which Perahia had not recorded before, is as exceptional for its forward thrust as for the poetry he brings to the solo part. He and Mehta make a good team, the orchestra is in fine shape, and the sound is first-rate. But while one reason these performances sustain such a remarkable sense of momentum is that they were recorded during actual concerts in Tel Aviv, the drawback is the inclusion of applause. Even if there are no coughs during a live recording, the eruption of applause at the end can hardly avoid breaking the mood for the listener at home. Deutsche Grammophon was able to avoid including applause in dozens of Leonard Bernstein's live recordings (his Beethoven Ninth in Berlin being an exception, perhaps because that recording was as much a document of an event as a presentation of a musical work). In the present case, however, it could not be avoided because the applause actually bursts in before the last notes are sounded.

This is something that will trouble some listeners more than others. I can only report that it considerably lessened my enjoyment of these two exceptionally lovely performances. *R.F.*

ENESCO: *Oedipe.* José van Dam (bass-baritone), Oedipe; Brigitte Fassbaender (mezzo-soprano), Jocaste; Barbara Hendricks (soprano), Antigone; Gabriel Bacquier (bass), Tirésias; Nicolai Gedda

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CHAMPION TENORS



Plácido Domingo, José Carreras, and Luciano Pavarotti

EVEN if you spent your summer in the Amazon, as I did, you probably know that the 1990 World Cup, the international soccer championship competition, was played in Italy, with the finals in Rome. You probably also know that the finals were accompanied by a somewhat different championship event—the Carreras-Domingo-Pavarotti concert at the Baths of Caracalla. I could hear those high notes reverberating around the world, even in the jungle.

Did I say "somewhat different"? Maybe not so very different. Although the concert was held in an unprecedented atmosphere of friendliness and collegial cooperation—especially in the final medley and encores, where these three tenors trade off lines and actually sing a few harmonies—there is inevitably a bit of macho rivalry between champion vocal athletes like these. There is something about the male tenor voice, particularly the Italian version thereof, that evokes images of swooning females, territorial aggression, the gorilla thumping his chest, the alpha male howling down all the other males. This sort of thing is more usually represented nowadays by war heroes, sports stars, film and TV actors, or rock singers. Italian tenoring is not always a subtle expression of the best in human culture, but compared with the alternatives it is certainly a traditional and refined version of male sexuality and aggression.

At any rate, in Rome José Carreras, Plácido Domingo, and, yes, Luciano Pavarotti showed an elegant and artistic latter-day form of the art, and it is preserved on a London recording and home video for all to hear and see. Pavarotti,

particularly in his first solo ("*Recondita armonia*" from *Tosca*), obviously represents the old shout style that made the Italian tenor the world's heart-throb in the good old days (much of this music was certainly written for that kind of singing). Carreras and Domingo represent variations on that tradition: a gentle Spanish lyricism in the case of Carreras and a strong, full-bodied musicality with Domingo. I am, above all, a Domingo man, but Carreras, who has been ill and has made a remarkable comeback, is highly expressive. And, as the concert progresses, Pavarotti sounds younger and younger and seems to concentrate more and more on musical (as opposed to purely vocal) expression.

But let's not pontificate too much. This is not a festival performance of *Parsifal* but the great tenor to-do of the twentieth century, and a great tumble of tenors it is, too. In short—if the expression can be pardoned under the circumstances—it's a hoot!

Eric Salzman

CARRERAS, DOMINGO, AND PAVAROTTI: *In Concert. Cilèa: Il lamento di Federico. Meyerbeer: O paradisi. Puccini: Recondita armonia; E lucevan le stelle; Nessun dorma. Lehar: Dein ist mein ganzes Herz. De Crescenzo: Rondine al nido. Cardillo: Core 'ngratto. De Curtis: Torna a Surriento. Lara: Granada. Sorozabal: No puede ser. Giordano: L'improvviso. Finale: Medley (arr. Schifrin).* José Carreras, Plácido Domingo, Luciano Pavarotti (tenor); Orchestra del Maggio Musicale Fiorentino, Orchestra del Teatro dell'Opera di Roma, Zubin Mehta cond. LONDON © 430 433-4, © 430 433-2 (68 min); VHS videotape 071 233-3, CDV videodisc 071 233-1 (86 min).

CARLOS PICASSO/LONDON RECORDS

(tenor), Shepherd; Gino Quilico (baritone), Thésée; John Aler (tenor), Laios; others. Les Petits Chanteurs de Monaco; Orchestre Philharmonique de Monte-Carlo, Lawrence Foster cond. EMI/ANGEL © CDCB-54011 two CD's (157 min).

Performance: *Excellent*
Recording: *Ditto*

A huge music-drama on the myth of Oedipus by the composer of the *Romanian Rhapsodies*? Yes. In fact, Georges Enesco considered *Oedipe* the crown of his life's work. He worked on it for almost a quarter of a century before its première in 1936 at the Paris Opéra (it was written in French). It was a *succès d'estime*—a critical not a popular success—and outside of Bucharest, Romania, it has been produced only once or twice since.

Oedipe is a masterpiece. It was written to be a masterpiece. It never lets you forget that it is a masterpiece. In fact, it sinks under the weight of its own determination to be a masterpiece.

The trouble with most twentieth-century opera is that, under the influence of Wagner and German philosophy, it tries to be pure and noble and mythic. But opera is theater, and real theater is like real life: messy, sexy, violent, down-to-earth, full of joy and conflict, anguish, and coming to terms. *Oedipe* belongs to a whole genre of twentieth-century operas, based on mythology or religion, that confuse the opera house with the concert hall—or, worse, with church. Opera as a living dramatic form was almost killed off in the process.

For all that, *Oedipe* is a magnificent work. The popular touch of the *Romanian Rhapsodies* is largely absent, but there is a Romanian character throughout: serious, brooding, intense with a touch of Eastern *melos*, and, somehow, not inappropriate for Greek myth. The medium of recording is ideal for a work like this; what is, of necessity, mere tinsel on the stage can appeal to the imagination in a more powerful way through the sound of the words and music alone. And this is a powerful recording with an excellent cast, headed by the remarkable José van Dam and with supporting players of the stature of Brigitte Fassbender and Barbara Hendricks. The well-trained chorus and orchestra are under the strong leadership of Lawrence Foster, and the production has been beautifully recorded under the direction of the English composer and record producer John Rushby-Smith.

I do not believe that *Oedipe* has any real potential in the theater, but it is a moving and monumental work that deserves to have a life. This recording of it is a considerable achievement and a fine example of the role the modern art of recording can play in our culture. *E.S.*

HANDEL: *Susanna*. Lorraine Hunt (soprano), Susanna; William Parker (baritone). Chelsias, Judge; Drew Minter

(countertenor). Joacim; Jill Feldman (soprano), Daniel; Jeffrey Thomas (tenor), First Elder; David Thomas (bass), Second Elder; University of California, Berkeley, Chamber Chorus; Philharmonia Baroque Orchestra, Nicholas McGegan cond. HARMONIA MUNDI © 407030.32 three cassettes, © 907030.32 three CD's (178 min).

Performance: *Vivid*
Recording: *Excellent*

More than most of Handel's oratorios, *Susanna* is very much an opera in disguise. It can be seen as a transitional work between the ceremonial stateliness of *opera seria* and the more "modern," through-composed works of the Classical era. Written in 1748 during the final flowering of Handel's long creative life, *Susanna* is a searching work, full of foreboding moments and fairly daring key modulations in the first act as well as some ensemble passages in the second act that anticipate the character juxtapositions of Mozart's operatic finales.



José van Dam: a powerful Oedipus

Sprinkled throughout are glorious examples of Handel's scene painting, which had reached a startling level of precision. Yet in many ways, *Susanna* also remains rooted in the past. It has *da capo* arias and other vestiges of tradition that occasionally keep Handel's innovations from taking flight.

The story of Susanna and the elders, who spy on her while bathing and accuse her of adultery, gave Handel a variety of dramatic situations that allowed him to explore emotions in rare depth musically, and while there are times in this live recording when conductor Nicholas McGegan might have been more alert to the work's theatrical aspects, he has marvelous instincts regarding Handel's idiom. The solo performances are for the most part dramatically vivid and vocally stylish. Lorraine Hunt's portrayal of the

title role is intelligent and engaging, if not especially memorable. Drew Minter is remarkable as Joacim; despite the bravura demands of his role, his singing has grace and never loses its mellow timbre. And Jill Feldman, as Daniel, personalizes her characterization to a degree surpassing her work in any of her previous recordings. In short, this *Susanna*, recorded complete for the first time by Harmonia Mundi USA, is essential Handel listening. *D.P.S.*

MOZART: *Così fan tutte* (see Best of the Month, page 97)

MOZART: *Symphony No. 36, in C Major* (K. 425, "Linz"); *Symphony No. 38, in D Major* (K. 504, "Prague"). Philharmonia Orchestra, Emmanuel Krivine cond. DENON © 81757-4176-2 (61 min).

Performance: *Spirited and stylish*
Recording: *Well-balanced*

Having seen Emmanuel Krivine's name only two or three times before, as conductor of a chamber orchestra in Jean-Jacques Kantorow's Denon recordings of concerted works for violin and in Augustin Dumay's more recent album of Mozart violin concertos on Angel, I was surprised to find him at the helm of the Philharmonia in these big Mozart symphonies. But it was a splendid idea. Krivine is an exceptionally convincing Mozartean; he has something to say about these works, and he knows how to get the orchestra to give him just what he wants.

Krivine, born in France to a Russian father and a Polish mother, is forty-three now. That means he was born just before we first began hearing Peter Maag's Mozart, and he grew up with a different frame of reference from that of older musicians and their audiences, who had been accustomed to the Romantic excesses in vogue until then. Krivine may not have needed the original-instruments people to show him the light. He sees these symphonies as big works for a modern orchestra, but stylistically his performances reflect current scholarship. Tempos are on the brisk side, steady but flexible, with momentum beautifully sustained; balances between winds and strings are especially well judged; phrasing is clean and unfussy, the tunes seeming to shape themselves; repeats are taken in the first half of each movement, but not in the second. In short: no gossamer haze here. Vigor and grace go hand in hand in realizing the fire, the wit, the mellowness, the very human grandeur of these works, and both the Philharmonia Orchestra and Denon's recording team were at their best when they got together to tape these performances at St. Jude's Church, London. There is always room for another *Linz* and *Prague* of this quality. *R.F.*

MUSSORGSKY (orch. Ravel): *Pictures at an Exhibition*. **TCHAIKOVSKY:** *Franческа da Rimini, Op. 32*. London Philhar-



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monic Orchestra, Valéry Gergiev cond. PHILIPS © 426 437-2 (60 min).

Performance: *Excellent*
Recording: *Magnificent*

In Leningrad last February I attended a marvelous performance of Mussorgsky's *Khovanshchina* in which Valéry Gergiev's conducting was probably the finest of several fine elements. Since Gergiev used Shostakovich's orchestration (and revised sequence of the action) instead of the standard Rimsky-Korsakov version, one might have expected him to favor one of the latter-day Russian orchestrations of Mussorgsky's *Pictures at an Exhibition* instead of Ravel's, but in his new recording of it with the London Philharmonic he has come through with a performance that upholds Ravel's claim to having preserved the Russian character of the music. The individual episodes are very pointedly characterized; there is a sense of greater weight than what might be considered the norm, yet no sense of unwanted heaviness. The very slow pacing of "Bydlo" alone might trouble some listeners, but it does have an inexorable quality that at least as many others should find uniquely persuasive.

In recording Gergiev's performance, Philips has surpassed itself—and every other company that has recorded the *Pictures*—in both the vibrancy and definition of the sonic frame it has provided. In Neeme Järvi's recent Chandos recording with the Chicago Symphony, a still more persuasive performance overall, the brass are expectedly awesome in the climaxes of "The Great Gate at Kiev," but in the Philips recording the distinctive timbres of trombones, horns, and trumpets strike the listener in an unprecedented way that makes that grand noise still more vivid and exciting. This result, surely, also has a great deal to do with Gergiev's emphasis on clarity and delineation in the playing, but I cannot recall a more stunning recording of an orchestra.

Much the same can be said about the fine account of Tchaikovsky's *Francesca da Rimini* that very sensibly precedes the *Pictures* on the new disc. In this work Gergiev again manages to be both sane and exciting at the same time, with beautifully molded phrases in the extended middle section and an unflinching sense of momentum throughout. Järvi's *Pictures* comes with a work less likely to be duplicated in most collections—Scriabin's *Poem of Ecstasy*—but then the *Pictures* itself is a work more than a few collectors do duplicate, for various reasons. Gergiev's is the one audiophiles will find indispensable, and it's one of the most interesting musically as well. R.F.

PIERNÉ: *Les Enfants à Bethléem*. Jocelyne Chamonin (soprano), the Star; Hanna Schaer (soprano), the Holy Virgin; Jean-Claude Orliac (tenor), the Donkey; Jean-Marie Frémaux (baritone), the Ox.

a Herdsman, a Heavenly Voice; Norah Amsellem (soprano), Jeannette; Raphaëlle Hazard (soprano), Nicolas; Daphné Kupferstein (soprano), Lubin; Paul-Émile Deiber, Narrator. Maîtrise de Radio France; Nouvel Orchestre Philharmonique, Michel Lasserre de Rozel cond. ERATO © 245 008-2 (57 min).

Performance: *Exquisite*
Recording: *A joy to the ear*

Gabriel Pierné (1863-1937), a contemporary of Debussy, was an eminent conductor (he presided over world premières of such works as Debussy's *Ibéria* and Stravinsky's *The Firebird*) and an organist (he succeeded his teacher, César Franck, at Ste. Clotilde in Paris). He was also a composer whose output included most of the major forms except for the symphony, and his "Entrance of the Little Fauns" from the ballet *Cydalise et le chèvre-pied* has long been a favorite of the children's concert repertory. By and large, it has been Pierné's more lightweight scores that have found a following among musicians and public alike.

Imagine, though, an amalgam of Berlioz's *L'Enfance du Christ* and Debussy's *La Damselle élue*, and you will have a close approximation to Pierné's musical language in his 1907 *Les Enfants à Bethléem*, a "mystery in two parts" evoking the children of Bethlehem on the night of the Nativity. The story line is not too far removed from that of Menotti's *Amahl and the Night Visitors*, except that in Pierné's work it is the children who hold center stage in their quest for the manger and in their adoration of the Virgin and Christchild. The Magi are encountered and are accorded colorful musical description but are not heard, whereas the Star of the East and the stable animals are personified. The whole thing is



Valéry Gergiev: vivid Mussorgsky

quintessentially French-Catholic, but suffused with medieval tonal modes and children's folk melody. It would take a heart of stone to be untouched by it.

The recording, made at a public performance at the Église Notre-Dame-du-Travail de Plaisance, in Paris, offers singing of seraphic purity from both the adult and the child soprano soloists and finely gauged characterizations by the tenor and baritone. The narrator's part is flawless with respect to manner of delivery and microphone placement, a welcome change from the all-too-frequent close and overbearing approach in works of this sort. The instrumental forces play with great taste and style under Michel Lasserre de Rozel's direction, and the church acoustic is exactly right for conveying the mystical mood of the piece. The one unfortunate touch is inclusion of applause at the close. Nevertheless, Francophiles should not be alone in finding this disc a singularly choice Christmas item. D.H.

RACHMANINOFF: *Symphonies Nos. 1-3; The Isle of the Dead; Vocalise; Symphonic Dances* (see Best of the Month, page 100)

SHOSTAKOVICH: *Chamber Symphony, Op. 110a; Symphony for Strings, Op. 118a*. Chamber Orchestra of Europe, Rudolf Barshai cond. DEUTSCHE GRAMMOPHON © 429 229-2 (49 min).

Performance: *Committed*
Recording: *Superb*

The work that stands at midpoint in Shostakovich's cycle of fifteen string quartets, No. 8, is the one that has achieved the widest circulation, and in recent years it has come to be known in a version for string orchestra under the title Chamber Symphony. The arrangement was made by Rudolf Barshai, who before becoming a conductor and founding the Moscow Chamber Orchestra was the original violist of the Borodin String Quartet. Shostakovich not only approved the arrangement but himself provided the title and further validated the effort by affixing the opus number 110a. It was a fine idea on someone's part to get Barshai himself to record this by-now-famous arrangement with the Chamber Orchestra of Europe and to present with it his similarly effective transcription of the Quartet No. 10, labeled Symphony for Strings.

Barshai also transcribed the Quartet No. 3, Op. 73, as Symphony for Strings and Woodwinds; it's too bad that it could not have been included here as well, for the wind scoring would have provided an effective contrast with the other works. Some might even suggest that Opp. 73a and 118a would have made a more welcome coupling than the present one, because the Chamber Symphony is, after all, available in several other recordings while the Symphony for Strings and Woodwinds is not available at all. (Continued on page 136)

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Technics SB-L80
• 3-way, 12" woofer Pair **\$169⁹⁵**

Bose AM5
• Acoustilms 3 piece system **\$749⁹⁵**

Bose 901-ClassiC
• Direct/Reflecting system w/EQ Pair **\$1399⁹⁵**

Electronic Antennas

Terk 9825 (pi2)
Deluxe Indoor FM Antenna
• Adjustable gain control • Schatz 38dB high
gain low noise amplifier • Omnidirectional or
directional • Increases FM reception & sound
quality • Black finish

Our Low Price **\$79⁹⁵** (TRK 9825)

Parsec Wavewatcher
• AM/FM, passive, uni/omni **\$24⁹⁵**

Terk 9300
• FM, active, uni/omni **\$29⁹⁵**

Parsec Stealth
• FM, active, up to 32 db gain **\$39⁹⁵**

Terk 9400
• FM wedge, active, variable gain **\$49⁹⁵**

Parsec M2000
• AM/FM, uni/omni directional **\$69⁹⁵**

Recolton TV-600
• UHF/VHF/FM, amplified **\$69⁹⁵**

Compact Disc Specials

RCA JAZZ
BLUEBIRD & NOVUS

MARCUS ROBERTS
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Deep In The Shed
Spiritual Awakening/Nebuchadnezzar

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ROY HARGROVE
Diamond In The Rough
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Ruby My Dear
A New Joy/Wee

Available at 7.99 per cassette 11.99 per CD
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Elements: Saint River (NOV 3089)
Christopher Holiday: On Course (NOV 3087)
Carmen McRae: Carmen Sings Monk (NOV 3086)
Hilton Ruiz: Doin' It Right (NOV 3085)
Mike Stevens: Set The Spirit Free (NOV 3080)

Also Available from Bluebird
Louis Armstrong: What A Wonderful World (RCA 8310) 9.99 per CD 5.49 per Cassette
Benny Goodman: Sing, Sing, Sing (RCA 5630) 11.99 per CD 6.99 per Cassette
Coleman Hawkins: Body And Soul (RCA 5717 CD)(RCA 5658, Cassette) 9.99 per CD 7.99 per Cassette
Fats Waller: The Last Years (1940-1943) 3 CD 13.99 per Cassette Set
Collection: The Women, Classic Female Artists (1939-1952) (RCA 6755) 11.99 per CD 6.99 per Cassette
Collection: Bluebird Sampler 1990 (RCA 2192) 9.99 per CD 5.49 per Cassette

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Mozart Piano Sonatas
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KISSIN'
RCA 60567

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- Catalani La Wally**: Eva Marton, Francisco Araiza 2 CD, (RCA 69073) 27.98 per CD Set
- Galway: The Concerto Collection**, 4 CD, (RCA 60450) Specialty priced 38.97 per CD Set
- Castelnuovo Tedesco Guitar Concertos**, Yarnashita, Sialkin (RCA 60355) 12.99 per CD 6.99 per Cassette
- Rameau: Zoroastre: La Petite Band**, 3 CD, (RCA 77144) 26.97 per CD Set
- Horowitz: Sonatas Prokofiev, Barber, Kabalevsky** (RCA 60377) 8.99 Per CD 4.99 Per Cassette
- Brahms: Complete Symphonies Kurf Sanderling**, 3 CD, (RCA 69220) 11.97 per CD Set
- Bach: Brandenburg Concertos and Orchestral Suites, Complete Set of 3 CD**, (RCA 69219) 11.97 per CD Set
- Mendelssohn: Complete Symphonies Kurf Masur**, 3 CD, (RCA 69237) 11.97 Per CD Set
- Copland: Symphony #3 Slatkin St. Louis, FREE Sampler Included**, (RCA 60149) 12.99 Per Set

Cassette Decks



Teac V-260MX Cassette Deck
•Dolby B noise reduction •Dolby HX-Pro headroom extension •Bias line tuning •Direct function mechanism •Auto-stop •3-mode tape selector •LED level meter

Our Low Price **\$69.95** (TEA V260MX)

Teac V-480
•Dolby B/C/HX-Pro, line bias control . . . \$99.95

Teac R-455CHX
•Auto-reverse, Dolby B/C/HX-Pro . . . \$139.95

Teac R-540
•Auto-reverse, Dolby B/C/HX-Pro . . . \$159.95

Teac AD1
•CD/Cassette combo, Dolby B . . . \$199.95

Nikko D-600
•3-head, Dolby B/C/HX-Pro . . . \$199.95

Teac AD3
•CD/Cassette combo, Dolby B/HX-Pro . . . \$299.95

Double Cassette Decks



Teac W-370C Double Cassette Deck
•Continuous playback •Dolby B & C noise reduction •Normal & high-speed dubbing •Bias line tuning •LED peak level meter •Auto-stop •Auto tape selector •Black finish

Our Low Price **\$99.95** (TEA W370C)

Technics RS-TR155
•Dolby B, auto-reverse deck #1 . . . \$159.95

Teac W-450R
•Dolby B/C/HX-Pro, auto-reverse . . . \$169.95

Technics RS-TR165
•Dolby B/C, deck #1 reverse . . . \$179.95

Teac W-550R
•Auto-reverse, Dolby B/C/HX-Pro . . . \$199.95

Technics RS-TR265
•Auto-reverse, Dolby B/C/HX-Pro . . . \$209.95

Teac W-990RX
•Auto-reverse, Dolby B/C, dbx . . . \$459.95

Audio Systems



Panasonic SC-T090 Compact Stereo System
•AM FM stereo tuner •3-band EQ •CD input terminal •Dual cassette deck •Semi-automatic turntable •Matched speakers with 6.5" full-range drivers

Our Low Price **\$149.95** (PAN SC1090)

Panasonic SC-T100
•Compact w/dual cassette, turntable . . . \$179.95

Panasonic SC-T300
•Compact w/dual cassette, turntable . . . \$249.95

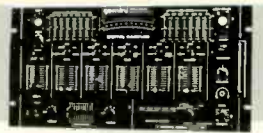
Panasonic SCT-105
•Compact w/CD, dual cassette, turntable . . . \$299.95

Panasonic SCT-C300
•W/dual cassette, CD changer & remote . . . \$399.95

JVC MX1
•Mini w/CD, dual cassette & remote . . . \$799.95

Panasonic SC-CH9
•Mini w/dual cassette, CD . . . \$799.95

DJ Equipment



Gemini PDM-5000 Sampling Mixer/Equalizer
•8-second digital sampling •7-band channel EQ •3-phono, 5-line & 2-mic inputs •Assignable fader •Cueing •Talkover •Master gain •XLR lamp adaptor •19" rack mount

Our Low Price **\$449.95** (GMI PDM5000)

Gemini HPM-80
•Headphone/microphone, 1 earcup . . . \$29.95

Ahus AM-100
•Mixer, 2-phono/line inputs . . . \$89.95

Gemini MX-3300
•Mixer, 3-phono inputs . . . \$139.95

Gemini MB-415
•Speaker, 3-way, 15" woofer . . . each \$179.95

Ahus AM-300E
•Mixer, 5-band EQ, echo, rack-mount . . . \$199.95

Gemini MX-6500SE
•Mixer with sound effects, EQ . . . \$249.95

Audio Add-Ons



Audio Source SS-One Surround Sound Processor
•Dolby surround processor with variable effects •15 watts per channel rear amplifier •Time delay •LED level indicators •Synthesis & Matrix surround sound

Our Low Price **\$129.95** (ASO SS-ONE)

Wood Technology W-410
•Speaker stands, 6" high . . . Pair \$34.95

Russound AX6
•Auxiliary input selector, holds 6 . . . \$46.95

Memorex DS-10
•Surround sound amp, Dolby surround . . . \$99.95

Niles SVC4
•Speaker selector w/volume control . . . \$249.95

Standesign Penta
•Audio rack, 5-shelf . . . \$249.95

Nitty Gritty 2 FI MK2
•Record cleaning machine . . . \$449.95

Audio Accessories



Audioquest Sorbothane Isolation Feet
•Sorbothane has the ability to absorb and lose energy •For use under turntables or equipment that needs to be vibration free •Supports up to 35 lbs. •Set of 4

Our Low Price **\$34.95** (ADQ FEET)

Stanton DSM1
•Disca slip mat for slip cueing . . . \$6.95

Tiplotes Tall
•For Speakers on carpeting . . . each \$6.95

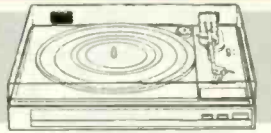
Sumiko Tweek
•Contact enhancer . . . \$14.95

Audio Prism CD Stoptight
•Special CD edge treatment marker . . . \$14.95

Audioquest CD Feet
•4 sorbothane feet . . . \$22.95

Cutting Wedge CW1A
•Anechoic acoustical tiles, set of 40 . . . \$79.95

Turntables



Nikko NP100 Belt-Drive Turntable
•Quiet belt-drive DC motor with the convenience of semi-automatic operation •Includes factory installed magnetic cartridge & dust cover

Our Low Price **\$59.95** (NIK NP100)

Technics SL-BD22K
•Belt drive, semi-automatic pitch . . . \$94.95

Gemini XL-BD10
•Belt drive, semi-automatic pitch . . . \$99.95

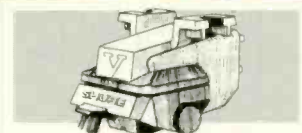
Technics SL-DD22
•Direct-drive, semi-automatic . . . \$109.95

Technics SL-QD33K
•Fully auto quartz direct drive . . . \$139.95

Gemini XL-DD20
•Direct drive, semi-automatic pitch . . . \$169.95

Gemini XL-1800Q
•Manual direct-drive, pitch . . . \$269.95

Phono Cartridges



Shure V-15 Type V-MR Deluxe Micro Ridge Phono Cartridge
•Micro ridge stylus tip •Excellent trackability •Dynamic stabilizer •Side-guard stylus protection •Duo-point alignment gauge •Top rated design

Our Low Price **\$139.95** (SHU V15-VMR)

Shure M-92E
•Universal mount, elliptical . . . \$9.95

Stanton 500AL
•Standard mount disco/pro . . . \$19.95

Stanton 500ALDP
•Standard disco/pro w/extra stylus . . . \$29.95

Audio Technica AT-231LP
•Universal mount, linear contact . . . \$39.95

Stanton 680EL
•Standard disco w/extra stylus . . . \$54.95

Stanton 680ELMP
•Standard DJ, 2-pack . . . \$69.95

Blank Audio Tape



Sony SR-100 Metal SR Metal Cassette Tape
•Sony brings metal tape and high quality housing to an affordable price •New 100 minute length is ideal for taping compact discs

Our Low Price **\$22.80** 10-Pack (SON SR100)

Maxell XLII-90
•High bias precision housing . . . 10-Pack \$19.90

TDK SAC90
•High bias cassettes . . . 10-Pack \$19.90

TDK SAX-100
•High bias cassettes . . . 10-Pack \$24.90

Denon HD8-100
•Deluxe high bias cassettes . . . 10-Pack \$27.90

Maxell MXS-90
•New deluxe metal cassettes . . . 10-Pack \$27.90

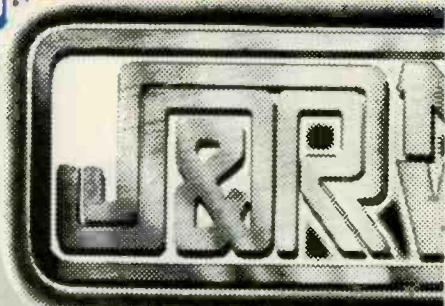
Sony MM90
•Metal Master cassettes . . . 10-Pack \$55.90

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This Month's

Video Recorders



Panasonic PV-2004 VHS HQ Video Recorder
 • Quick play chassis • 155-ch digital quartz tuner with auto-set • On-screen display programming with auto-prompter and calendar • 1-month/2-event timer • Remote

Our Low Price **\$249⁹⁵** (PAN PV2004)

Samsung VP-2309
 • VHS player only, 3 speed **\$179⁹⁵**

Sharp VCA-206
 • VHS recorder, 14-day/6-event timer **\$199⁹⁵**

Sharp VCA-230
 VHS recorder, on-screen display **\$219⁹⁵**

Samsung VR-5710
 • VHS, 4-head, on-screen **\$249⁹⁵**

Panasonic PV-4010
 • VHS, 4-head, on-screen, remote **\$299⁹⁵**

JVC HRD-660
 • VHS, 4-head, digital tracking **\$349⁹⁵**

Hi-Fi Video Recorders



Toshiba SV-970 Digital Super-VHS 4-Head Recorder
 • Double azimuth 4-head design • Digital effects • Picture-in-picture • MIS stereo sound • On-screen programming • 8-Event/1-year timer • Shuttle search • Variable search

Our Low Price **\$599⁹⁵** (TOS SV970)

General Electric VG-7685
 • On-screen programming, remote **\$299⁹⁵**

Toshiba M-621
 • On-screen, 1-year/8-event timer **\$349⁹⁵**

RCA VR620HF
 • 4-head, 8-event/1-year timer **\$379⁹⁵**

Panasonic PV-4060
 • 4-head, on-screen, remote **\$399⁹⁵**

Toshiba MHF-845
 • 4-head, flying erase head **\$499⁹⁵**

JVC HRS-6600
 • 5-VHS, jog/shuttle, remote **\$749⁹⁵**

Camcorders



Sony CCD-TR6 8mm "Handycam" Mini Camcorder
 • 8:1 power zoom w/macro focus • 4-Lux illumination • Auto lock slide cover • Variable high speed shutter • Through the lens autofocus • CCD image sensor w/RGB color processing • Flying erase head • Date/time recording

CALL (SON CCDTR6)

Sony CCD-F33
 • 8mm, 6:1 power zoom w/macro **CALL**

Sony CCD-TR4
 • 8mm, mini, 6:1 zoom, 5 lux **CALL**

Sharp VLL-270
 VHS, 12:1 zoom, 6 lux **\$849⁹⁵**

JVC GR-AX7
 VHS-C, 6:1 zoom, 3 lux **\$899⁹⁵**

Panasonic PV-610
 • VHS, 2 lux, 8:1 zoom **\$899⁹⁵**

Sony CCD-TR6
 • 8mm, mini, 8:1 power zoom w/macro **CALL**

VHS Video Movie Specials

MGM MASTERPIECES



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- Gaslight
- The Good Earth
- The Hucksters
- Little Women (1933)
- Mogambo
- Pride And Prejudice
- The Prisoner Of Zenda
- San Francisco
- A Tale Of Two Cities
- Tea And Sympathy
- Too Hot To Handle

Video Add-Ons



Videonics DirectED+ Personal Movie Maker
 • Place scenes in any order • Mix with digitally-generated color graphics • Titles in multiple styles & 64-colors • On-screen instructions with HELP • Remote control

CALL (VIE DIRECT-ED+)

Ambico V0617
 • Imager, photo to video transfer system **\$59⁹⁵**

Sima SLI
 • Cordless video light **\$59⁹⁵**

Velbon 470
 • Tripod, 3-section **\$79⁹⁵**

Vidicraft Vidi-View
 • Audio/video remote transmitter **\$129⁹⁵**

Azden WMS-Pro
 • Wireless mic for camcorders **\$149⁹⁵**

JVC CG-V60
 • Character/title generator **\$179⁹⁵**

Universal Remotes



Memorex AV8 Audio Video Remote Control
 • Replaces up to 8 standard infrared remote controls • Preprogrammed so it does not have to learn commands from original remotes • Battery saver circuit

Our Low Price **\$89⁹⁵** (MEM AV8)

One-For-All URC-3000
 • Command Center for X10 modules **\$39⁹⁵**

Memorex CP4
 • For up to 4 A/V components **\$49⁹⁵**

Memorex AV4
 • Preprogrammed for 4 units **\$49⁹⁵**

One-For-All URC-4000
 • Preprogrammed for 4 units **\$69⁹⁵**

Memorex CP8-Turbo
 • Handles to 8 A/V units **\$119⁹⁵**

JVC RMS1
 • Universal screen menus for 11 units **\$179⁹⁵**

Blank Video Tape



TDK T-120EHG Extra High Grade VHS Video Cassettes
 • Perfect for those special programs and movies you want to capture and keep • Extra high grade quality comes through with full colors and sharp detail

Our Low Price **\$35⁹⁰** 10-Pack (TDK T120EHG)

TDK T-120HS
 • High standard tapes 10-Pack **\$29⁹⁰**

Maxell T-120EX
 • Standard VHS tapes 10-Pack **\$29⁹⁰**

Scotch T-120EG
 • Standard VHS tapes 10-Pack **\$29⁹⁰**

Sony L750-ESHG
 • Extra high grade beta tapes 10-Pack **\$38⁹⁰**

Scotch T-160EG+
 • High grade VHS tapes 10-Pack **\$39⁹⁰**

Sony P-120
 • 8mm video tape 10-Pack **\$49⁹⁰**

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The most miraculous blend of personality and sheer dramatic talent the screen has ever known!
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- Conquest
- Grand Hotel
- Mata Hari
- Ninotchka
- The Painted Veil
- Queen Christina
- Susan Lenox (Her Fall And Rise)
- Two-Faced Woman

TV/Color Monitors



Sony KV-13TR24 13-Inch Trinitron Monitor/Receiver
 • 13" high-contrast mirrorblack picture tube • Cable ready • A/V window on-screen • Sleep timer • Jump-channel • Remote • Choose black or white finish

Our Low Price **\$299⁹⁵** (SON KV13TR24-BK) (SON KV13TR24-WH)

Samsung TC-3833T
 • 13" color TV, on-screen, remote **\$199⁹⁵**

Sony KV-19TS20
 • 19" color TV, on-screen, remote **\$399⁹⁵**

Toshiba CF-2650
 • 26" color monitor 600-line res **\$499⁹⁵**

Sony KV-27TS20BK
 • 27" stereo monitor, remote **CALL**

JVC AV-2760S
 • 27" color monitor, S-video **CALL**

Toshiba CF-3060
 • 30" stereo monitor, 700-line res **\$999⁹⁵**

Portable TV



Sony FD-10A 2-Inch "Watchman" Portable B/W TV
 • Unique flat easy-to-view high contrast picture tube • Weighs less than one pound • Requires 4 "AA" batteries • Silver finish

Our Low Price **\$89⁹⁵** (SON FD10A-SI)

Sony FD-230
 • 2.7" Watchman black & white **\$99⁹⁵**

Sony FD-555
 • 4.5" Black White, AM/FM cassette **\$149⁹⁵**

Panasonic CTM-1041R
 • 10" color AC DC **\$289⁹⁵**

Sony FDL-330S
 • 2.7" color Watchman **CALL**

Sony GV-200
 • 8mm video Walkman w/4" color TV **CALL**

Sony GV-300
 • 8mm hi-fi video Walkman w/4" TV **CALL**

Electronic Keyboards



Yamaha DD-6 Electronic Drum Pads
 • 4 touch response rubber pads • 100 PCM patterns • 16 percussion instrument voices • 2 digit LED display • Headphone jack • Includes drumsticks • Requires 6 X AA batteries

Our Low Price **\$99⁹⁵** (YAM DD6)

Yamaha PSS-50
 • 32 keys, 19 PCM rhythms **\$39⁹⁵**

Yamaha PSS-2
 • 49 keys, 22 PCM rhythms **\$99⁹⁵**

Casio CA-401
 • 49 keys, tonebank, full-size **169⁹⁵**

Casio CT-615
 • 5 octave tonebank, 61 keys **\$189⁹⁵**

Yamaha PSS-790
 • 61 keys, 28 note polyphonic **\$279⁹⁵**

Casio CT-670
 • Full-size, 61 keys, pitch bend **\$339⁹⁵**

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- All Dogs Go To Heaven \$26⁹⁵
- The Bear \$32⁹⁵
- Born On The 4th Of July (LTX) \$36⁹⁵
- The Empire Strikes Back (LTX) \$64⁹⁵
- Elvis: Center Stage \$34⁹⁵
- Elvis: The Man & The Music \$34⁹⁵
- Glory (LTX) \$36⁹⁵
- House Party \$32⁹⁵
- Immediate Family \$32⁹⁵
- An Innocent Man \$26⁹⁵
- Little Mermaid (CAV) \$36⁹⁵
- Rain Man \$26⁹⁵
- Return Of The Jedi (LTX) \$64⁹⁵
- Triumph Of The Spirit \$36⁹⁵
- Various Artists - Best Of The Fest (The New Orleans Jazz & Heritage Festival) \$26⁹⁵

POLYGRAM LASER DISCS

CARRERAS DOMINGO PAVAROTTI in concert MEHTA

29⁹⁹ EACH



- Bach: Six Brandenburg Concertos Harmoncourt (O71204) \$29⁹⁹
- Beethoven/Mozart: Quintets Levine (O72213) \$25⁹⁹
- Bernstein In Berlin: Beethoven No.9 (O72250) \$29⁹⁹
- Carreras/Domingo/Pavarotti In Concert (O71223) \$29⁹⁹
- Hommage A Sevilla: Domingo (O72210) \$21⁹⁹
- Jessye Norman Sings Carmen (O70218) \$25⁹⁹
- Karajan In Salzburg (O72214) \$29⁹⁹
- Kiri Tekanawa: Auvergne (O71212) \$29⁹⁹
- Puccini: Tosca Kabalianska, Domingo (O71502) \$51⁹⁹
- Tchaikovsky: Swan Lake Nureyev/Fonfeyn (O70201) \$29⁹⁹

Portable CD Players



Sony D-11

Discman Portable CD Player
 • Mega Bass • Extended battery play time
 • Auto resume play • Shuffle play • 3-way repeat • Auto music sensor • Includes headphones • Requires 4 X AA batteries

- Our Low Price **\$149⁹⁵** (SON D11)
- Panasonic SL-NP1 • 18-track programmable \$169⁹⁵
- Technics SL-XP2 • 4 X sampling, 18-track programmable \$189⁹⁵
- Sony D-66 • 8 X oversampling, w/headphones \$199⁹⁵
- Denon DCP-50 • 4 X oversampling, remote \$249⁹⁵
- Sony D25 • Rechargeable, with headphones \$299⁹⁵
- Sony D35 • 8 X oversampling, headphones, remote. **CALL**

Portable Stereo



Sony CFS-W320

3-Piece Double Cassette Recorder
 • AM/FM stereo tuner • Detachable 2-way speakers • 2-speed dubbing • 5-bond EQ • CD Line input • Auto shut-off • AC adaptor • Requires 6 X D batteries

- Our Low Price **\$89⁹⁵** (SON CFSW320)
- Panasonic RX-F5450 • AM/FM/Cassette, auto-reverse \$69⁹⁵
- Sony CFS-W303BK • AM/FM/Dual Cassette, dubbing \$74⁹⁵
- Sony CFS-D30 • AM/FM/Cassette, EQ, mega bass \$99⁹⁵
- JVC PCV-66J • AM/FM/Reverse cassette, 3-piece \$149⁹⁵
- Sony CFD-50 • AM/FM/Cass/CD, 16-track programming \$179⁹⁵
- Sony CFD-750 • AM/FM/CD/Dual cassette, 3-piece \$299⁹⁵

Personal Stereo



Panasonic RQ-V320

AM/MP Cassette Personal Stereo
 • Compact efficient design • Auto-reverse • 3-band graphic equalizer • Dolby B noise reduction • Lightweight headphones • Belt clip • Requires 1 AA battery

- Our Low Price **\$79⁹⁵** (PAN RQV320)
- Toshiba KT-4011 • AM/FM/Cassette, auto shut-off \$25⁹⁵
- Sony WM-2051 • Cassette Walkman, auto-reverse \$34⁹⁵
- Sony WM-A53 • Cassette Sports Walkman \$59⁹⁵
- Panasonic RQ-V175 • AM/FM/Cassette, Auto reverse \$69⁹⁵
- Panasonic RQV-340 • AM/FM/Cassette, rechargeable \$99⁹⁵
- Sony WMF-2078 • AM/FM/Cassette Sports Walkman \$129⁹⁵

Headphones



Sony MDR-V6

Digital Ready Headphones
 • Digital-ready • Dynamic closed-ear monitor design • Compact folding headband • Oval earpads with 40mm drivers • One-sided litz cord with uni-match plug • Response 5-30KHz

- Our Low Price **\$79⁹⁵** (SON MDRV6)
- Sony MDR-006L • Lightweight for portables \$9⁹⁵
- Sony MDR-A15L • Folding, water-resistant \$24⁹⁵
- Memorex EDM-110 • Open-air, circumaural \$34⁹⁵
- Koss Porta Pro • Super-aural lightweights \$39⁹⁵
- Sennheiser HD-450 • Open-air, dual plugs \$64⁹⁵
- Koss JCK-200 • Cordless, closed ear \$89⁹⁵

Cassette / Microcassette



Olympus Pearlorder S-914

Microcassette Recorder Kill
 • 2-speeds • Variable voice activation • Fast play • High-low mic sensitivity • Pause control • Cue/Review • Rechargeable ni-cad battery • Includes X860 tape & case

- Our Low Price **\$69⁹⁵** (PEA S914KIT)
- Sony TCM-71 • Portable cassette, auto-level \$29⁹⁵
- Panasonic RN-125 • Microcassette, voice activated \$59⁹⁵
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TCHAIKOVSKY: Francesca da Rimini
(see MUSSORGSKY)

THOMSON: Five Ladies; Three Portraits (arr. Samuel Dushkin); *Lili Hastings*. Sharan Leventhal (violin); Anthony Tommasini (piano). *Seven Portraits; Six Portraits*. Anthony Tommasini (piano). *A Portrait of Two*. Frederic C. Cohen (oboe); Ronald Haroutunian (bassoon). *Sonata for Violin and Piano; Piano Sonata No. 2; Rhapsodic for Solo Flute; Serenade for Flute and Violin; Etude for Cello and Piano; Northeastern Suite*. Anthony Tommasini (piano); Sharan Leventhal (violin); Jonathan Miller (cello); Fenwick Smith (flute); Frederic C. Cohen (oboe); Ronald Haroutunian (bassoon). **NORTHEASTERN** © NR 240-CD (78 min).

Performance: *Knowing*
Recording: *Excellent*

Over a period of sixty years Virgil Thomson practiced a curious compositional art that was more or less of his own devising: musical portraiture. Thomson would—literally—sketch his subjects from life and then work up his musical jottings into a short piece, usually for piano but occasionally for other instrumental combinations. These pieces (there are 147 of them) form a fascinating body of work. I once recorded a whole collection of them with the violinist Joseph Silverstein, the American Brass Quintet, and the late pianist Paul Jacobs. Now Anthony Tommasini, who has made a special study of the *Portraits*, has recorded another, quite different set with an equally accomplished group of performers.

The portrait subjects treated here include well-known friends of Thomson such as Alice B. Toklas (Gertrude Stein's companion of cookbook fame), Jane Bowles (wife of Paul Bowles and a considerable writer herself), Dora Maar (Picasso's long-time companion and model), Maurice Grosser and Florine Stettin (among other things, the scenarist and designer, respectively, of the Stein/Thomson opera *Four Saints in Three Acts*), the composer Scott Wheeler (a Thomson pupil and arranger of some of the music on this album), and Tommasini himself. Two very attractive sonatas, vintage Thomson from 1929 and 1930, are also included—with only a slight stretch of concept—as "self-portraits" (the album is titled "Portraits and

Self Portraits"). All of it is delightful music and extremely well performed and produced. **E.S.**

VERDI: Aida. Maria Chiara (soprano), Aida; Luciano Pavarotti (tenor), Radamès; Ghena Dimitrova (soprano), Amneris; Leo Nucci (baritone), Amonasro; Paata Burchuladze (bass), Ramfis; others. Orchestra and chorus of Teatro alla Scala, Lorin Maazel cond. **LONDON** © 417 439-4 two cassettes, © 417 439-2 three CD's (151 min).

Performance: *Sturdy*
Recording: *Resonant*

This studio recording made in December to January 1985-1986, concurrently with performances of La Scala's then-new production of *Aida*, offers a performance generally innocent of great nuance, but it is a robust performance and creates its own excitement. Of principal merit, perhaps, is the playing of La Scala's orchestra, which is taut, impassioned, and, of course, steeped in the Verdi tradition. The various extended instrumental passages, admirably recorded, are highlights of the set.

Lorin Maazel appears to have definite ideas about *Aida*. His conducting is highly idiosyncratic, emphasizing Verdi's tempo indications (slow is often very slow, fast very fast) and dynamic markings (*piano* passages are very soft, and *forte* ones can make you leap for the volume control). Maria Chiara's large soprano voice is warm and rich in the middle and lower registers and capable of refined tone in the upper ones, but she is also given to stridency in dramatic passages. As Aida, she sings securely and with attention to the dramatic moment, but without compelling insight into the character. The same can be said of Luciano Pavarotti's Radamès; he sings accurately, if sometimes perfunctorily, and very often at full voice, but with little revelation of the hero's personality. The B-flat at the end of "*Celeste Aida*," marked *pianissimo*, is sung loud, and then the volume is reduced—by the sound engineer, I suspect, for the voice quality does not change, only its loudness. Pavarotti's best moments are in the Tomb Scene.

Of Ghena Dimitrova's Amneris, I would repeat what I said of Chiara's Aida: a big voice used authoritatively, often explosively, and with little hint of the seductive allure with which Verdi has imbued her music. Paata Burchuladze's big, burly bass makes a commanding Ramfis, but his tone is so thick as to dull verbal intelligibility. Luigi Roni is suitably imposing in his brief passages as the king. Leo Nucci brings to Amonasro, musically and dramatically, more of what Verdi intends for this character than do the other artists in their respective roles.

In sum, six large-voiced artists give us a rather raw "outline" of *Aida*, but they do not succeed in revealing the emotional core of the work. **R.A.**

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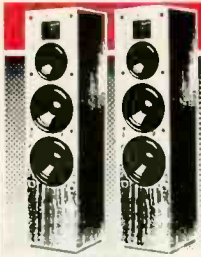
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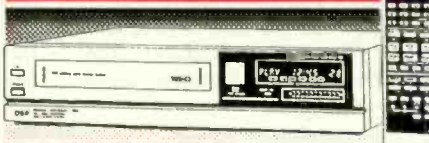


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KARAJAN ON VIDEO

by William Livingstone

DURING his long career the conductor Herbert von Karajan (1908-1989) wielded unparalleled influence on classical music. In addition to supporters, so powerful a figure inevitably acquires detractors, and depending on how much they liked or disliked him, his contemporaries often described him as the pope of the music world or as its dictator.

Every part of Karajan's life and career has been scrutinized, and certain aspects (such as his politics) have been controversial. But legions of singers and instrumental soloists who worked with him adored him, and whole armies of record buyers have avidly collected his symphonic and operatic recordings. I doubt that any other classical musician has reached a larger audience through recordings than Karajan.

He also worked in film, TV, and home video. In the documentary "Karajan in Salzburg," available from Deutsche Grammophon on videodisc and VHS tape, he says he is fascinated by the laserdisc: "It gives you a completely different perspective on your work, and that is what I want to convey to future generations."

In TV and video Karajan worked with the directors who developed the ways of adapting classical performances to the small screen, and in the DG documentary he is shown actually editing some of his performances for laserdisc release.

With the exception of a video of Puccini's *Madama Butterfly* with Mirella Freni and Plácido Domingo on London videodisc and VHS cassette and one of Strauss's *Der Rosenkavalier* with Elisabeth Schwarzkopf and Sena Jurinac on two VHS cassettes from Kultur, Karajan's video legacy will be issued on laserdisc by Deutsche Grammophon and Sony Classical. DG has a few operas and about thirty concerts from the 1960's and 1970's, and Sony has forty-five TV programs and studio recordings from the 1980's. DG will also release a few programs on tape.

In addition to "Karajan in Salzburg"

among the first DG videos, I have seen Beethoven's Ninth Symphony with the Berlin Philharmonic, Puccini's *La Bohème* with Freni and Gianni Raimondi, and Verdi's *Otello* with Freni and Jon Vickers. I have also seen the first four Sony Classical concerts: a Bach disc with the Magnificat and the Violin Concerto No. 2 with Anne-Sophie Mutter, the 1987 New Year's Concert in Vienna, a video that includes Prokofiev's *Classical Symphony* and Tchaikovsky's Piano Concerto No. 1 with Evgeny Kissin, and a program of Richard Strauss compositions that includes *Death and Transfiguration* and *Metamorphoses*.



Conductor Herbert von Karajan

The news is good. I am happy to report that I found them all well sung, well played, well photographed, and well directed. They are impressive, and I liked them all.

With movies and other videos the question always arises of how often one could watch them again with pleasure. I think these all have considerable repeatability, depending of course on how much one cares for the music in any given program.

Karajan and his collaborating directors have very cannily edited the operas to make them as much like movies as possible, limiting or dispensing with such trappings of the theater as shots of the audience and curtain calls. Even in *Der Rosenkavalier*, which was filmed during a performance at the

Salzburg Festival in 1962, we see Karajan conducting only briefly before the curtain rises and in a few bows at the end. It may be exciting in a TV broadcast to see an enthusiastic audience go wild—once—but most people rarely want to rerun a tape of the audience.

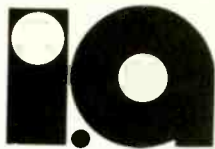
Humphrey Burton, who directs the Beethoven Ninth and a couple of the Sony concerts, was a pioneer in developing the method of giving visual interest to a video of a symphony concert by following the music as it courses through the orchestra, highlighting solo passages with close-ups. His work here is invariably tasteful, with close-ups, dissolves, and other techniques that are artful without ever becoming self-conscious or arty.

Burton and the editors show us Karajan's face in ways that a member of the audience never sees the conductor in a live concert. It is embarrassing to watch some conductors who emote wildly in their efforts to get a passionate performance from an orchestra. The fact that Karajan's gestures and facial expressions are comparatively restrained contributes to the repeatability of these videos.

There is considerable variety in the music offered on the Karajan videodiscs and tapes that have already been released, and your own tastes should guide you in where to begin. I would recommend that you try the New Year's Concert from Sony Classical. It features one solo by the American soprano Kathleen Battle in a program of charming Strauss waltzes and polkas.

Although one usually replays a documentary with speech less often than a program devoted entirely to music, I strongly recommend the DG documentary "Karajan in Salzburg." Here he is shown rehearsing Mozart's *Don Giovanni* with such singers as Samuel Ramey and Kathleen Battle, in conversation with friends and colleagues, and conducting Jessye Norman in the *Liebestod* from Wagner's *Tristan und Isolde*. Whether you admire Karajan as a man and musician or not, it would be hard not to be touched by the sight of him working with younger artists and preparing his video legacy. The *Liebestod* is like his serene valedictory to colleagues, music, and life. With documentation of this kind, we will feel his influence for some time to come. □

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Prepared by David Stein

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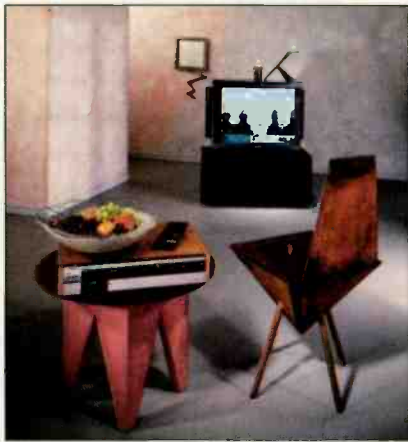


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 Video for the Nineties (Riggs), Apr. 57
 You Can Take It with You, Nov. 98

BEST RECORDINGS OF THE MONTH

Classical
 Bach: Mass in B Minor, May 88
 Bernstein: Serenade for Violin, String Orchestra, Harp, and Percussion after Plato's "Symposium," Mar. 80
 Bruch: Violin Concerto No. 1, Aug. 71
 Bruckner: Symphony No. 8, Jan. 103
 Ives: Symphony No. 2, *Central Park in the Dark, The Unanswered Question*, Nov. 131
 Liszt: Piano Concertos Nos. 1 and 2, Hungarian Fantasy, Sep. 100; Piano Music, Apr. 75
 Mahler: Symphony No. 1, Nov. 136
 Mendelssohn: Violin Concerto in E Minor, Aug. 71
 Mozart: Three Fantasies, Piano Sonata No. 14, Rondo in A Minor, Waltz in C Major, Mar. 81; *Così fan tutte*, Jul. 75 and Dec. 97
 Mussorgsky/Ravel: *Pictures at an Exhibition*, Oct. 90
 Nielsen: Symphonies Nos. 1 and 6, Jun. 88
 Purcell: *Dido and Aeneas*, Jan. 106
 Rachmaninoff: Symphonies Nos. 1-3, *Iste of the Dead, Vocalise*, Symphonic Dances, Dec. 100
 Schubert: Symphony No. 9, *Rosamunde Overture*, May 85; Two Piano Sonatas, *Valses sentimentales*, Sep. 96
 Schuman: Violin Concerto, Mar. 80
 Scriabin: *The Poem of Ecstasy*, Oct. 90

Shostakovich: Symphonies Nos. 1 and 7, Apr. 77
 Vaughan Williams: Symphony No. 1, Jul. 77
 Wagner: *Tannhäuser*, Feb. 140; *Das Rheingold*, Oct. 87
 Walton: Symphony No. 1, Variations on a Theme by Hindemith, Feb. 141
 Hampson, Thomas: Songs from *Des Knaben Wunderhorn*, Jun. 84
 Horowitz, Vladimir: *The Last Recording*, Aug. 73

Popular

Barone, Richard: *Primal Dream*, Aug. 72
 Bloom, Luka: *Riverside*, Jun. 84
 Cale, J. J.: *Travel Log*, May 86
 Cale, John: *Songs for the Dying*, Mar. 77
 Carter, Carlene: *I Fell in Love*, Nov. 131
 Crowell, Rodney: *Keys to the Highway*, Jan. 104
 Earle, Steve, and the Dukes: *The Hard Way*, Oct. 88
 The Jeff Healey Band: *Hell to Pay*, Oct. 87
 Hiatt, John: *Stolen Moments*, Aug. 71
 Himmelman, Peter: *Synesthesia*, Apr. 76
 Hothouse Flowers: *Home*, Nov. 132
 It Bites: *Eat Me in St. Louis*, Feb. 140
 Jackson, Janet: *Rhythm Nation 1814*, Jan. 103
 Jett, Joan: *The Hit List*, May 85
 The Neville Brothers: *Brother's Keeper*, Dec. 97
 Nitty Gritty Dirt Band: *The Rest of the Dream*, Sep. 96
 O'Connor, Sinéad: *I Do Not Want What I Haven't Got*, Jul. 75
 The O'Kanes: *Imagine That*, Mar. 80
 Pullen, Don: *Random Thoughts*, Dec. 98
 Shocked, Michelle: *Captain Swing*, Feb. 139
 Shoes: *Stolen Wishes*, Jun. 83
 They Might Be Giants: *Flood*, Apr. 75
 Watson, Bobby: *The Inventor*, Jul. 76
 World Party: *Goodbye Jumbo*, Sep. 95

GOING ON RECORD/BACKBEAT

Japan Meets the West (Livingstone), Feb. 35
 The Big Payback (Simels), Mar. 90
 Classics on Budget CD's (Livingstone), Apr. 103
 The Toscanini Legacy (Livingstone), Jun. 118
 Esquerita: The Last of the Weird? (Simels), Jul. 87
 Something Fierce This Way Comes (Simels), Sep. 118
 Karajan on Video (Livingstone), Dec. 140

MUSICAL FEATURES

Aerosmith: *Pump* (Puterbaugh), Jan. 112
 The Alarm (Karr), May 80
 Baker, Anita: *Compositions* (Garland), Dec. 118
 Beethoven: Bernstein and Barenboim in Berlin (Salzman), May 110; Hogwood's Symphony No. 9 (Hall), Mar. 93
 Bernstein: *Arias and Barcarolles*, Songs and Duets (Freed), Jul. 91
 Brazil, Music of (Seligman), Aug. 66
 Busoni: Piano Concerto (Salzman), Feb. 153
 Butler, Henry: *Orleans Inspiration* (Garland), Oct. 97
 Carpenter, Mary Chapin: *State of the Heart* (Nash), Jan. 116
 Carreras, José, Plácido Domingo, and Luciano Pavarotti: *In Concert* (Salzman), Dec. 127
 Cash, Rosanne (Nash), Dec. 81
 CD Offers: Roots of Rock-and-Roll, Apr. 21; The Sound of Musicke, Jul. 97; Modern Jazz on CD, Sep. 25
 Chailly, Riccardo (Hemming), Jan. 90
 Clooney, Rosemary (Nash), Mar. 66
 Cline, Lloyd (Puterbaugh), Sep. 103
 Cruise, Julie: *Floating into the Night* (Nash), Aug. 77
 Diamond: Symphonies Nos. 2 and 4, Concerto for Small Orchestra (Freed), Nov. 159
 Domingo, Plácido—see Carreras
 Dylan, Bob: *Oh Mercy* (Puterbaugh), Jan. 111
 Encores (Freed), Nov. 174
 Faithfull, Marianne: *Blazing Away* (Nash), Oct. 93

Fordham, Julia: *Porcelain* (Nash), May 91
 Freni, Mirella (Livingstone), Nov. 94
 Gipsy Kings: *Mosaique* (Puterbaugh), Apr. 79
 Golden Throats: *The Great Celebrity Sing-Off* (Simels), Jan. 122
 Gubaidulina: *Rejoice!* (Freed), Mar. 98
 Highwayman 2 (Nash), Jun. 96
 Human Radio (Nash), Aug. 79
 Hvorostovsky, Dmitri: Tchaikovsky and Verdi arias (Freed), Oct. 109
 Järvi, Neeme (Johnson), Sep. 90
 Jazzvisions (Albertson), Mar. 89
 Jones, Marti: *Any Kind of Lie* (Simels), Jun. 91
 Jones, Quincy (Tiegel), Jun. 80
 Ma, Yo-Yo (Kupferberg), Apr. 70
 Mix, Match, & Tape (Simels), Jun. 65
 Mould, Bob: *Black Sheets of Rain* (Puterbaugh), Nov. 139
 Mozart—see Pires
 Murphy, Mark: *Kerouac, Then and Now* (Garland), Aug. 75
 Mussorgsky: *Boris Godunov* (Ackart), Jun. 109
 Now on CD: Jan. 106, May 88, Jul. 77, Nov. 136
 Pavarotti, Luciano—see Carreras
 Penn, Michael: *March* (Puterbaugh), Feb. 146
 Pires, Maria João, Plays Mozart and Schubert (Freed), May 105
 Piston: Symphonies Nos. 2 and 6, Sinfonietta (Hall), Aug. 87
 Prince: *Graffiti Bridge* (Puterbaugh), Dec. 105
 Prokofiev: *The Love for Three Oranges* (Freed), Apr. 98
 Randy & the Gypsies (Garland), Apr. 88
 Record Makers: Jan. 142, Feb. 166, Mar. 110, Apr. 110, Jun. 106, Aug. 102, Sep. 134, Nov. 182
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 Riley: *Salome Dances for Peace* (Stearns), Feb. 156
 Satie: Piano Music (Freed), Jan. 129
 Schubert: *Winterreise* (Freed), Sep. 121; also see Pires
 Shostakovich: String Quartet No. 15 (Freed), Mar. 98
 Simon, Carly: *My Romance* (Nash), Sep. 104
 R. Strauss: *An Alpine Symphony* (Freed), Oct. 118
 Tchaikovsky—see Hvorostovsky



Tears for Fears (Karr), Oct. 72
 Uchida, Mitsuko (Kupferberg), Jul. 63
 Vega, Suzanne: *Days of Open Hand* (Givens), Jul. 79
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 Vivaldi: *The Four Seasons* (Salzman), Nov. 165
 Wagner: *Das Rheingold* (Livingstone), Mar. 103
 Wheeler, Cheryl: *Circles & Arrows* (Nash), Nov. 154
 Young, Neil: *Freedom* (Givens), Jan. 121
 Zevon, Warren: *Transverse City* (Givens), Feb. 143

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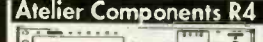
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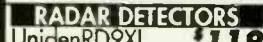
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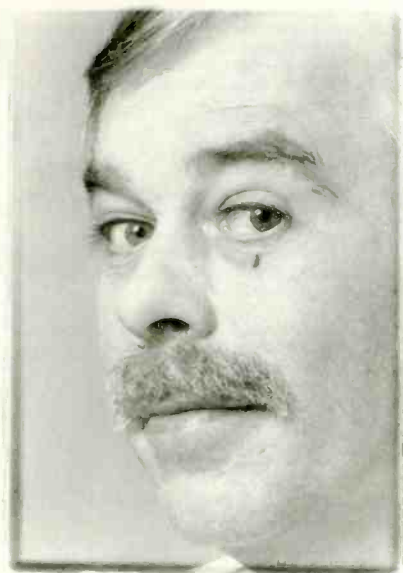
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by Ralph Hodges



THE YELLOW ROOM, AGAIN

Since the first mention of my new listening room last December, the mail on it has been surprisingly heavy, offering encouragement, advice, and even computer software to analyze matters of speaker placement and absorption management. To those who have written, deepest thanks. I hope we can all learn useful things from what now, after a series of ridiculous but not easily avoided delays, is finally taking place.

I don't have space here to recapitulate all of the architectural features that first suggested to me that the yellow room might be a superior listening environment. Suffice it to say that none of the room's dimensions are the same as or simple multiples of each other, which inhibits annoying resonances, and most of the peaked ceiling isn't even parallel to the floor, defeating the formation of room modes in the first place.

Bringing the experiential history of the room up to date, the first tests began with small speakers, of hi-fi quality within their performance limits, and they were not encouraging. The steeply raked ceiling (varying from 7 feet high at one end and 8 feet at the other to a maximum of more than

12 feet), from which I had shortsightedly anticipated benign effects, turned treacherous. The room, it is now clear, is a horn; 4-inch woofers did things in it they had no right doing, yielding climaxes perhaps best appreciated from the patio. Considerable improvement came through methodical experiments with speaker placement, but too many questions remained that these little reproducers could not answer.

The big loudspeakers now in place are Ohm Walsh 5's, selected because of their bass potency and virtual omnidirectionality in the lateral plane, which I reasoned would stimulate the maximum number of room artifacts. By the time of their arrival I already had doubts about the wisdom of my choice, but it was too late to unmake it.

Initially my concerns seemed justified. The sound was hard and aggressive, but without real clarity, and the spatial presentation was muddled and severely distorted in perspective. I began to lose hope for this stage of the project. What I had not reckoned on, however, was the speakers' dramatic sensitivity to placement. It appears that in the yellow room there is one "right spot" for these speakers, and I believe I am close.

In the current orientation the room/speaker combination does most things well and some things exceedingly so. Instead of flipping through the catalog of customary superlatives, I'll ask you to take my word for it. But a few specifics do deserve mention.

Given the Ohm Walsh 5's purported principle of operation (a mechano-acoustical transmission line terminated in an unrevealed fashion), there seemed no reason to expect exceptional transient response from the system. Wrong again, however. Interrupt the signal flow and the system crashes to instantaneous, shattering silence—into which the clock, until removed, was an odious intrusion. I've never had the experience of getting from 112 dB to 47 dB so quickly. (The lower figure, A-weighted, was the background level of the room at the time of measurement; it is quieter at night, but my wife likes to sleep occasionally.) This trait, startling and unmusical as it may seem as described, probably plays a major role in the speaker/room's reproduction of vocal music, both solo and choral, and piano, which I rarely hear handled so pleasingly.

On the down side, there is a bit of trouble with resonances, and I don't think I mean room resonances. During the years when multitracking was the rage, it was common practice with a symphony orchestra—to isolate the string basses on tracks of their own, so that final balances could be decided after the session in the tranquility of the mix-down room. To isolate the basses in this way normally required close miking. That, in turn, meant that early, close reflections—usually floor or back-wall bounces—were emphasized at the expense of the spectrally broader panorama of reverberation that these instruments are intended to produce. The consequence? The basses honk and boom on certain notes. Furthermore, since these early reflections are important aural cues to the nature of one's sonic environment,

The room, it is now clear, is a horn; 4-inch woofers did things in it that they had no right doing, yielding climaxes perhaps best appreciated from the patio.

the listening experience can rapidly degenerate to the point where most of the orchestra sounds as if it's in a hall but the basses sound as if they're in a box. The yellow room has no patience with these recording misjudgments. Is there a cure? I can't think of one, except to put on another record.

Intermittently honking bass notes is a minor problem, occurring only with certain recordings. What I need now is a major problem, so I can attempt to fix it and write about my attempts. So far, nothing is within audibility.

But, you ask, is the yellow room still a horn, with all the potentially unappealing connotations of that term? Emphatically yes, and if you don't pay close attention it can splatter your kidneys across the back wall. I usually check each new recording for peak levels before listening.

Consider, however. Thanks to the work of acoustician Cyril Harris, the stagehouse in Lincoln Center's Avery Fisher Hall is also a horn, and a good one from the right seats.

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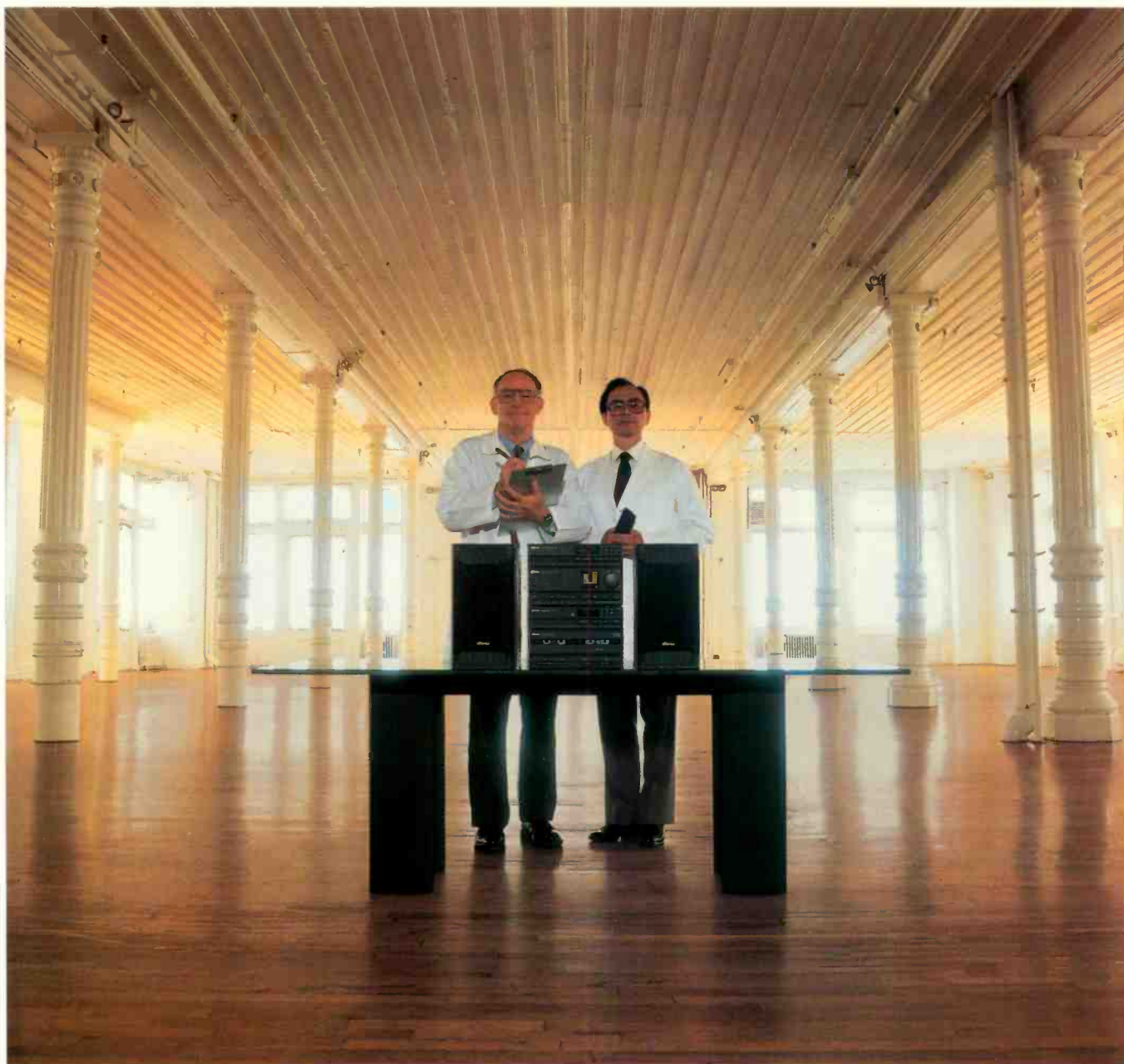
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