

# Stereo Review

JANUARY 1991 ● \$2.50

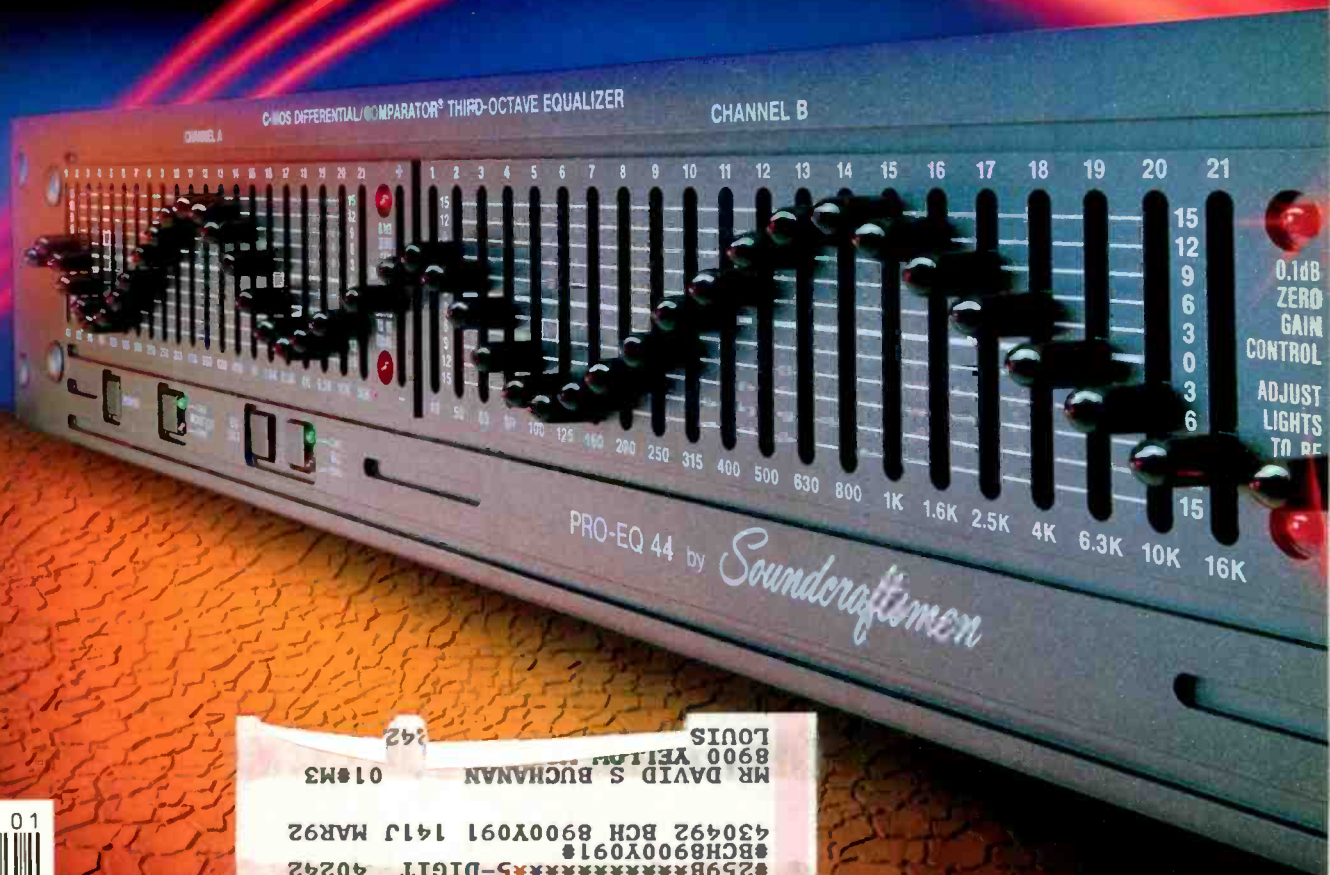
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FIRST TESTS: DENON DIGITAL AUDIO TAPE DECK

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ES

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The Compact Disc is now happily performing its musical magic in some 20 million American homes. This progress has inspired the engineers of Sony ES, inventors of the Compact Disc, to extend its digital brilliance to the rest of your system. So now you can arrange music with Sony Digital Signal Processing, record it on a Sony Digital AudioTape Deck and hear it performed as never before on a Sony digital Compact Disc Player.

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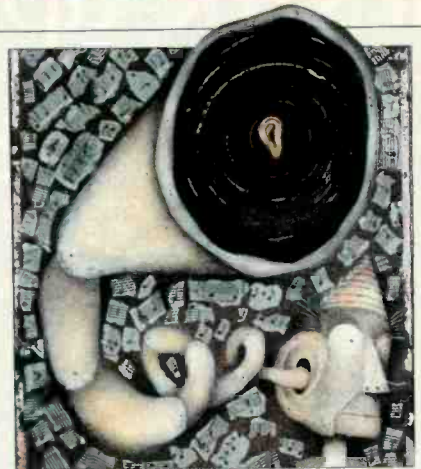
# Stereo Review

Incorporating High Fidelity®

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Cover: *The Soundcraftsmen Pro-EQ 44 equalizer* (see page 70).  
Design by Sue Llewellyn, photo by Jook P. Leung.

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# It's not just the technology; it's the application of the technology.

Denon's "Design Integrity" philosophy has always held *that the way a technology is employed is as important as the technology itself.*

To test this premise, Denon digital audio and studio recording engineers compare their own vast library of digital master tapes with the Compact Discs releases of the same material. This on-going listening and measurement research reveals that at present the finest CD quality can be obtained by the meticulous application of 20-bit digital-to-analog conversion.

Case in point: The DCD-2560 employs *four* separate DACs utilizing Denon's Lambda System Super Linear Converter technology to eliminate the zero-cross distortion and non-linearity that plagues conventional CD players, especially at low signal levels. Each Denon Super Linear Converter is factory hand-tuned for maximum resolution. In addition, Denon's unique half-sample interpolation system produces an effective 16x over-sampling

rate to eliminate phase shift for a more accurate sound stage with true three-dimensional imaging.

20-bit SLCs enable Denon to offer Variable Pitch, which lets you compress recordings, tune your CD player to musical instruments, adjust tempo for dancing, create perfect segues while mixing, etc. Peak Search finds the point in a disc with the highest level to set recording levels most accurately. Auto Space inserts four second pauses between tracks to help locate selections. A Digital Fader fades recordings in and out while dubbing. Time Edit allows you to input the tape length you are using. Pick enhances this function by letting you rearrange the order of tracks for the best fit on the tape. Link extends the process over 2 CDs for longer tape lengths.

The critically-acclaimed Denon DCD-2560. A reaffirmation of one of life's oldest adages: It's not only whether you win the technology race, but also how you play the game.

## DENON

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For Product Information

34504

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by Rebecca Day and  
William Livingstone

## COMPANY ACQUISITIONS

Philips, which owns the Marantz brand name in the rest of the world, has bought North American rights to the name from Dynascan for \$8 million effective January 1. Philips will assume all servicing obligations for Marantz products on that date. Philips has not yet decided how it will position the Marantz line, but the company expects to introduce its own products under the Marantz name early in 1992. . . . Germany's Federal Cartel Office has authorized BASF to acquire the magnetic tape business of Agfa-Gevaert, including factories in Avanches, France, and in Berlin and Munich in Germany.

## EQUIPMENT NOTES

Casio is currently selling its DA-7 portable digital audio tape recorder (\$999). . . . KLH has enlisted the design services of company founder Henry Kloss for two new loudspeakers. The KLH Virtuoso series includes the three-piece KLH 6V (\$1,595) and 17V (\$695) speakers. . . . Kenwood's new KAC-622 car stereo power amplifier (\$149) can be used to drive a pair of full-range stereo speakers with 30 watts each, to power a mono subwoofer with 80 watts, or to drive a pair of stereo satellite speakers and a mono subwoofer, all without the need of special adaptors.

## BIRTHDAYS

Monuments and celebrations are devoted to composers and performers more often than to producers, but National Public Radio is celebrating the fiftieth birthday of rock producer Phil Spector on December 26 with a 2-hour special, "He's a Rebel: A Tribute to Phil Spector." Included are interviews with Brian Wilson of the Beach Boys and with the singer/songwriter Harry Nilsson. Check local NPR listings. . . . Toward the end of 1990 the pianist Earl Wild and the composer David Diamond turned seventy-five, the composer William

Schuman was eighty, and the composer Aaron Copland reached the age of ninety.

## HAPPY RETURNS

Other anniversaries celebrated this season are twenty-five years for Bose Corporation and for TDK in the United States. The Live from Lincoln Center TV series on PBS is in its fifteenth season, and Sony Classical is marking the fortieth anniversary of the Marlboro Festival with reissues of recordings by Rudolf Serkin, Alexander Schneider, Jaime Laredo, and other Marlboro artists.

## DRIVING TEST

Alpine is selling a reference CD for evaluating car audio systems through its dealers. The \$9 disc includes jazz, pop, and classical selections from the American Gramophone, DMP, GRP, Reference Recordings, Sheffield, Telarc, and Windham Hill labels, as well as pink noise from B&K and three minutes of zero data. Proceeds will be donated to the "Just Say No to Drugs" program.

## ROCK HITS

What did Jimi Hendrix, Janis Joplin, Eric Clapton, Lou Reed, and Carl Perkins have in common besides enormous talent for rock music? Each had only one Top 40 hit in his or her career, which also gives them something in common with the Nutty Squirrels, the Singing Nun, the Mormon Tabernacle Choir, and Sniff 'n' the Tears. You can read all about it in *The Billboard Book of One-Hit Wonders* by Wayne Jancik, recently published by Billboard Books. Price: \$19.95 (paperback).

## MUSIC NOTES

The artists chosen by the National Academy of Recording Arts & Sciences to receive the 1990 Living Legends Awards are Johnny Cash, Aretha Franklin, Billy Joel, and Quincy Jones. These four have received a total of forty-six Grammy Awards from the Academy. . . . In connection with the observances of the bicentennial of the death of Mozart, the Mozarteum Orchestra

of Salzburg, Austria, conducted by Hans Graf, will tour the United States from coast to coast in February and March. Capriccio has released a cycle of all the symphonies of Mozart performed by this orchestra and conductor on thirteen CD's or cassettes. . . . A Hollywood Bowl Orchestra has been formed by the Los Angeles Philharmonic Association. The new orchestra (to be separate from the L.A. Philharmonic) will be conducted by John Mauceri and will record for Philips Classics.

## OPERATION DESERT SHIELD

Members of the Electronic Industries Association (EIA) have donated 11,300 portable AM/FM radios and 17,400 batteries to U.S. military personnel serving in the Persian Gulf area. Donated by Aiwa, Dynascan, Sony, and other manufacturers, the radios and batteries will be distributed through the USO. . . . Maxell has donated 15,000 blank video tapes to Montgomery Ward's "Better



Than a Letter" program so that families of U.S. troops in the Middle East can record personalized messages of encouragement and send them to their relatives in uniform. Maxell has also provided blank tape to USO centers and military posts in the Persian Gulf area for troops to use in recording similar messages for their families back home. □



## Music by Mozart.

Don't get us wrong. We wouldn't presume to tamper with something as perfect as *Eine Kleine Nacht Musik* or *The Magic Flute*. We just wanted to make them easier to play.



The M-T5010 dual cassette deck.

So we created the M-T5010, the world's first cassette deck with on-screen commands. It's the newest part of Mitsubishi's Home Theater system, designed to make your audio and video



The M-R8010 Home Theater receiver.





## Words by Mitsubishi.

components work together as one cohesive, easily-controlled unit.

No more straining to see those tiny little LED displays on your audio components, or guessing whether you've done something right. This tape deck has on-screen menus for every function, from recording to scanning. And visual displays that confirm what you're doing every time you press a button.

Of course, the M-T5010 is more than just a

new toy for videophiles. It has all the technical perks you'd expect from state-of-the-art audio, including dual amorphous tape heads, Dolby® HX Pro, and Dolby B & C noise reduction. Add to that functions like blank skip and intro-scan, and you get a cassette deck that makes playing your favorite music easier than it's ever been.

We like to think Herr Mozart would approve.

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STEREO REVIEW is published by  
Hachette Magazines, Inc., a wholly owned  
subsidiary of Hachette Publications, Inc.

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## Unfortunately, most CD changers change more than the discs.

Typically, a CD changer's complex transport mechanism doesn't isolate the playing disc enough to prevent vibration interference.

Something that can turn a perfectly good performance into a rather shaky one.

Fortunately there's a CD



changer that won't add any additional shake, rattle or roll to your music.

The new CDC-805 from Yamaha. The first CD

changer with a vibration-free transport system.

A remarkable accomplishment which isolates and clamps the playing disc, just like a single-disc player, so your music won't suffer from any vibes of the bad variety.

But there's much more to it than merely a superior changing mechanism.

Due to Yamaha's Single-Bit Technology, the CDC-805 sounds far better than most single-disc CD players on the market.

There's also something we call PlayXchange.

A creature comfort that provides uninterrupted music, permitting you to load up to four CDs without interrupting the disc playing.

The CDC-805 is also the only changer with a built-in equalizer.



*The CDC-805. The only CD changer with a five-mode digital equalizer*

Five digital presets designed to give every

type of music even more musical presence—even a flat setting so you can bypass the EQ altogether.

The CDC-805 is the only five-disc changer that can provide 10-disc relay play by patching two CDC-805s together—something definitely worth considering for custom installations.

Here's yet another point well worth considering.

Instead of your typical belt drive, Yamaha's CDC-805 uses long-lasting gears for added reliability. A small, yet significant reason why Yamaha can confidently back every CDC-805 with a two-year limited warranty.

Stop by your Yamaha dealer's showroom for an earful of Yamaha's remarkable new CDC-805.

The first CD changer capable of changing even the most ardent audiophile's mind about buying a CD changer.

**YAMAHA**



## QSound

I have been considering adding a digital signal processor and side and rear speakers to my stereo system for 3-D surround-sound effects. After reading about QSound in November's "Bulletin," however, I have decided to wait and see if the QSound mixing technology would be a cheaper and space-saving alternative. How do the effects from QSound compare with those from surround speakers and a DSP unit? And where can we buy QSound recordings when they are available?

CHARLES ANONYE  
Glen Burnie, MD

*The functions are not really very similar. QSound is designed to permit placements of sound images that are not normally possible with ordinary stereo. Ambience-synthesis units use digital signal processing (DSP) to mimic the acoustical characteristics of typical music performance spaces, such as concert halls, in a home listening room. Recordings made with the QSound process will be distributed in the same way as other recordings and will thus be available from the usual sources, such as record stores.*

## Sound Dispersion

Howard Ferstler's "Sound Dispersion" in October mentions the Acoustic Research AR-LST and AR-3a speaker systems. Sometime after joining AR in 1965, I was directed by Ed Villchur and Roy Allison to redesign the AR-3 with the primary criterion of improved dispersion in the middle and high frequencies. To accomplish this, I had to develop new miniaturized midrange and high-frequency drivers along with a new crossover network. The result was the AR-3a.

Because the new drivers were so small, we had for the first time hemispherically omnidirectional drivers in all frequency ranges—in other words, an approximation of a pulsating half-sphere! The problem was that I was unable to match the on-axis middle- and high-frequency output with that of the woofer. As a consequence, the AR-3a's composite power response exhibited a gentle mid/high-frequency rolloff. We felt that this effect simulated the kind of ambient high-frequency absorption loss

*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.*

of concert halls like Boston's Symphony Hall. It became an identifiable trademark of the so-called New England sound. It is interesting to speculate what directions this regional sound might have taken if I had been able to extract a few more decibels of output from the tweeter and midrange of the AR-3a without sacrificing dispersion.

CHUCK MCSHANE  
Mt. Prospect, IL

## CD Player Listening Tests

The first paragraph of Ken Pohlmann's "The New CD Players" in October really got me upset. He says, "The performance of even very early compact disc players was, after all, excellent compared with what we were used to getting from phonograph equipment." Although I am not an "analogophile," I find this statement outrageous.

For the last six years I have used compact discs primarily because they are more convenient than LP's and because classical music is no longer being released on LP's. I find that the dynamic range of CD's is superior, but I firmly believe LP's are superior in some respects. The frequency range of the music recorded on an LP is limited by the particle size of the vinyl material, and it can easily go up to around 50 kHz. A CD's sampling frequency is 44.1 kHz, and the players' low-pass filters cut off almost everything above 20 kHz.

"My friends say, 'So what? We hear only up to 16 to 20 kHz; the rest is for dogs.'" Real musical instruments played in a concert hall produce harmonic frequencies above 20 kHz that we sense, feel, or imagine. If those frequencies are not reproduced, the character of the instruments changes slightly, and when a recording of the concert is played some of the music is inevitably lost.

GEORGE SKELLY  
Wilmington, DE

*Digital recording requires that the input signal be filtered to remove frequencies greater than half the sampling rate. Consequently, LP's of digital recordings and all CD's cut off sharply above about 20,000 Hz. But even if a digital recorder is not used, there will be little or no real signal above 20,000 Hz on any stereo phonograph record. The main reason is that musical instruments produce almost no energy in that range. And whatever tiny output might exist up there is further attenuated by acoustic absorption and by natural ultrasonic rolloffs in microphones, line-balancing transformers, analog tape recorders, disc cutters, phono cartridges, and loudspeakers. The good news is that such losses don't matter. Nobody can hear much above 18,000 Hz or so, and we have no other*

*means of perceiving high-frequency sound.*

*What comes off a CD normally will sound exactly like what went onto it. This does not mean, however, that you will necessarily prefer a particular CD to an LP of the same recording. The errors introduced by phono reproduction tend to make the sound warmer and more ambient, which may flatter some recordings in a way that CD's, in their brutal honesty, don't.*

"The New CD Players: Can You Hear the Difference?" was excellent. I am an electronics engineer and, of course, a true believer in that type of scientific testing. It removes the ego from hi-fi opinions. I was, however, a little disappointed that Ken Pohlmann had to resort to a certain amount of voodoo in his setup, I suppose to pacify purists.

H. W. MAIER  
San Diego, CA

*Ken Pohlmann replies: By "voodoo" I suppose you are referring to the Monster Cables we used in the listening system. They were selected because they are, without question, excellent cables and their use forestalls criticism from people anxious to dispute the results of the test. If we had used zip cord, for example, some people would have claimed that it was the cables that prevented us from hearing obvious differences between the various players. But the question of whether Monster Cable actually "sounds" better than zip cord was not tackled in this test.*

## Mirella Freni

I would like to thank William Livingstone for his excellent and insightful article on Mirella Freni in November. He captured the essence of this marvelous soprano who has given so much joy to opera lovers around the world.

GERALDINE SEGAL  
Randallstown, MD

## Corrections

The "Laboratory Measurements" box on page 46 in the December issue gave an incorrect figure for the total harmonic distortion at 1,000 Hz and 0 dB of the Nakamichi CDPlayer2. The correct figure is 0.004 percent, as was stated in the main text of the test report.

The review in November of André Camptra's opera *Tancrède* gave incorrect dates for the composer's life span. He was born in 1660 and died in 1744.

The October review of the Jeff Healey Band's "Hell to Pay" states that the song *I Think I Love You Too Much* has an explosive drum finale. That finale belongs to the next track, *I Can't Get My Hands on You*. □

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Many people would like to have this high quality sound reproduction in a variety of rooms and locations, but the thought of placing "traditional" speaker systems throughout the home is not especially appealing. Mounting speakers in a wall is much more convenient. The wall, however, has unique acoustic characteristics that require careful consideration in the design of the *complete in-wall speaker system*.

**C**RITICAL ACCLAIM

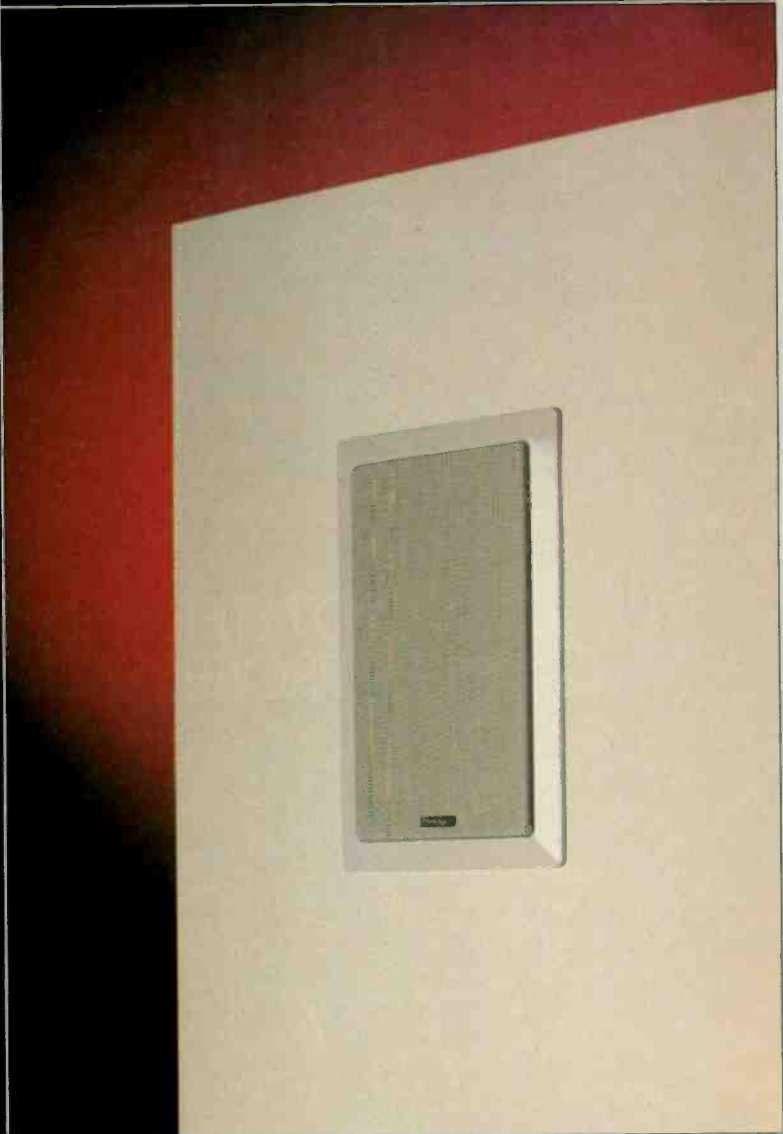
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Reflecting Sony's unique digital expertise, these are headphones only Sony could create. Their sound is so revealing, they help the pros make crucial judgments in the creation of the Compact Discs enjoyed by millions.

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## NEW PRODUCTS



### SONY

Sony's TCD-D3 DAT Walkman is the company's first portable digital audio tape recorder to be available in the U.S. It has analog and digital inputs and outputs and a long-play mode that records up to 4 hours on a 120-minute DAT cassette. The Serial Copy Management System permits a single generation of direct digital copying from prerecorded digital sources. Digital-to-analog conversion is handled by dual 18-bit converters combined with an eight-times-oversampling digital filter. Dynamic range is rated as greater than 90 dB and total harmonic distortion as less than 0.008 percent. Wow-and-flutter is said to be immeasurable. The recorder comes with a carrying case, rechargeable battery, AC adaptor/recharger, analog patch cord, optical digital cable, and one DAT cassette; a coaxial digital output cable is available as an option. The TCD-D3 weighs less than a pound without battery. Price: \$850. Sony, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

Circle 121 on reader service card

### REALISTIC

The Realistic Four-in-One remote control is preprogrammed to operate thousands of audio/video components made by Radio Shack and other manufacturers. It comes with a list of components that have been assigned three-digit codes. When the user enters a code into the controller, it is instantly set to operate the corresponding component. Codes for as many as four different components can be activated simultaneously. The Four-in-One uses four AAA batteries. Price: \$40 (Radio Shack catalog No. 15-1904). Realistic, Dept. SR, 1700 One Tandy Center, Fort Worth, TX 76102.

Circle 120 on reader service card



### BLAUPUNKT

The Blaupunkt Nashville CM40 AM/FM cassette receiver is the first car stereo head unit with a CD-changer remote control designed to fit standard three-hole dashboard cutouts. The CD controller, which works with Blaupunkt's CDC 01 changer, includes disc and track skip and scan, track mix, cue, review, pause, and play functions. The receiver is rated at 20 watts each into two channels or 7½ watts each into four channels, and there are separate preamp outputs for the front and rear channels for use with an exter-

nal amplifier. The cassette section has autoreverse, Dolby B noise reduction, dual-azimuth hard-Permalloy tape heads, a metal-tape switch, program search, and ignition-off pinch-roller release. The tuner has eighteen FM and six AM presets as well as six TravelStore presets, which find and store the six strongest signals in an area. The Nashville has Blaupunkt's security-code theft-deterrent system. Price: \$630. Blaupunkt, Dept. SR., 2800 S. 25th Ave., Broadview, IL 60153.

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### CUSTOM WOODWORK & DESIGN

CWD's modular Woodmore wall system combines natural-oak cabinets with black-oak doors, trim, and storage drawers, which can hold recordings of all types. At the heart of the unit is the Highboy video cabinet, designed to accommodate direct-view TV's with screen sizes as large as 35 inches. As shown, the unit measures 85¼ x 143¼ x 19 inches and has a suggested retail price of \$6,308. The cabinets are available separately and can be finished in either natural or black oak. CWD, Dept. SR, 5200 W. 73rd St., Bedford Park, IL 60638.

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## NEW PRODUCTS



### ONKYO

Onkyo's fourth-generation DT-9000 digital audio tape deck is its first DAT deck for the U.S. market. It uses the company's quartz Accupulse analog-to-digital and digital-to-analog converters, ultra-high-precision digital clocks, and Opto-Coupling infrared data transfer between the digital and analog stages, which keeps them physically separate to prevent digital signals from interfering electrically with the analog output and causing sonic degradation. The deck can

scan 40 minutes of music in 6 seconds. Other features include digital fade-in and fade-out, intro scan, and a remote control with a keypad for direct access to numbered selections. The DT-9000 incorporates the Serial Copy Management System, which allows digital dubbing directly from an original CD or prerecorded DAT but not from digital copies of the originals. Price: between \$1,100 and \$1,300. Onkyo, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446.

### WHARFEDALE

The Diamond IV is the fourth generation of Wharfedale's two-way Diamond speaker, first introduced in 1983. The woofer is a 4 $\frac{1}{4}$ -inch polypropylene cone, and the tweeter is a 1-inch metal dome. Frequency response is rated as 50 to 20,000 Hz  $\pm$  3 dB and sensitivity as 86 db at 1 meter with a 1-watt input. Soft, tapered trim rings around the drivers and wrap-around grille frames are said to create more uniform off-axis response and stereo imaging. The Diamond IV, finished in a black woodgrain vinyl, measures 11 x 7 x 7 inches. Price: \$399.95 a pair. Wharfedale, Dept. SR, 1230 Calle Suerte, Camarillo, CA 93012.

Circle 124 on reader service card



### AUDIO-TECHNICA

Audio-Technica's AT6078 laser-lens cleaner has an eight-brush wet/dry system designed to remove dust, oil, and other contaminants from the lens of a compact disc player. The company recommends using the cleaner once a month to reduce the chances of mistracking. After applying a drop of cleaning solution to the innermost brush on the cleaner disc, you insert it into the player like a regular CD. After 10 seconds, the cleaning and drying process is complete, and the player stops automatically. Price: \$24.95. Audio-Technica, Dept. SR, 1221 Commerce Dr., Stow, OH 44224.

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### A/D/S/

The a/d/s/ SW2 passive subwoofer was designed to be placed between joists in a floor or ceiling, in a closet, or in a deep wall cavity. Frequency response is rated as 32 to 100 Hz  $-$  3 dB and sensitivity as 87 dB sound-pressure level at 1 meter with a 1-watt input. Nominal impedance is 4 ohms. The 10-inch driver has a cast-aluminum basket, a 2-inch dual-wound, high-temperature voice coil, and a ferrite

magnet. Recommended for use with amplifiers rated between 20 and 100 watts per channel, the SW2 measures about 9 x 27 $\frac{1}{4}$  x 13 $\frac{1}{4}$  inches. For in-wall installations it requires a vent 4 inches in diameter. In exposed installations it can be painted to match the surroundings. Price: \$400. a/d/s/, Dept. SR, One Progress Way, Wilmington, MA 01887.

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## NEW PRODUCTS



### TOSHIBA

Toshiba's TRX-2000 integrated satellite receiver/descrambler has an S-video output for use with similarly equipped monitors and VCR's; S-type connections are said to improve picture quality. More than a hundred channels divided into twelve categories are factory-preset and can be selected via on-screen menus. A UHF transmitter built into the unit's handheld remote control enables all key functions of the receiver to be operated from anywhere in a home. Dual audio/

video outputs allow on-screen graphics signals to be sent to a monitor/receiver while a signal without graphics is sent to a VCR, and dual-source switching lets the unit serve as a control center. Other features include twenty user-programmable presets and a built-in VideoCipher II Plus descrambler module. Price: \$1,949. Toshiba America Consumer Products, Dept. SR, 1010 Johnson Dr., Buffalo Grove, IL 60089.

*Circle 127 on reader service card*

### BOSE

The Bose 901 Series VI Direct/Reflecting speaker system is now available in two new variations, the limited-edition black piano-finish Concerto (shown) and the Classic, which has a walnut-finish cabinet with a dark-brown grille cloth. Both models come with a black-finished outboard active equalizer. Black pedestal stands are included with the Concerto, optional with the Classic. Each complex, injection-molded enclosure has reactive air columns that isolate its nine 4½-inch Helical Voice Coil drivers to reduce distortion and enhance bass performance. The driver positions are designed to re-create the balance of direct and reflected sound heard in a live performance. The system's nominal impedance is 8 ohms, and power handling is said to be unlimited in noncommercial applications. Prices: Concerto, \$2,200 a pair; Classic, \$1,499 a pair. Bose Corp., Dept. SR, The Mountain, Framingham, MA 01701.

*Circle 128 on reader service card*



### TERK

Terk Technologies' Model 9425 Wedge powered antenna has an AM section designed by audio engineer Larry Schotz and an FM section that uses Terk's Gamma Loop circuitry. A three-position switch on the side sets the gain at +9, +18, or +33 db. The Wedge is said to increase FM signal strength and reduce multipath distortion. It operates omnidirectionally or directionally depending on whether it is placed flat or stood upright. Dimensions are 1 inch deep and 5 inches square. Price: \$60. Terk Technologies, Dept. SR, 233-8 Robbins Lane, Syosset, New York 11791.

*Circle 129 on reader service card*

### CARVER

Carver's TLM-3600, a ten-disc magazine-type compact disc changer, uses an 18-bit, eight-times-oversampling digital filter and dual 18-bit digital-to-analog converters. It also incorporates Carver's Digital Time Lens sound-enhancement circuitry. Operating features include thirty-two-track programming, intro scan, random play, and repeat, skip, and scan functions. A full-function remote control that duplicates most front-panel features is included. Price: \$700. Carver Corp., Dept. SR, 20121 48th Ave. W., Lynnwood, WA 98036.



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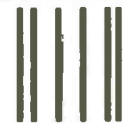
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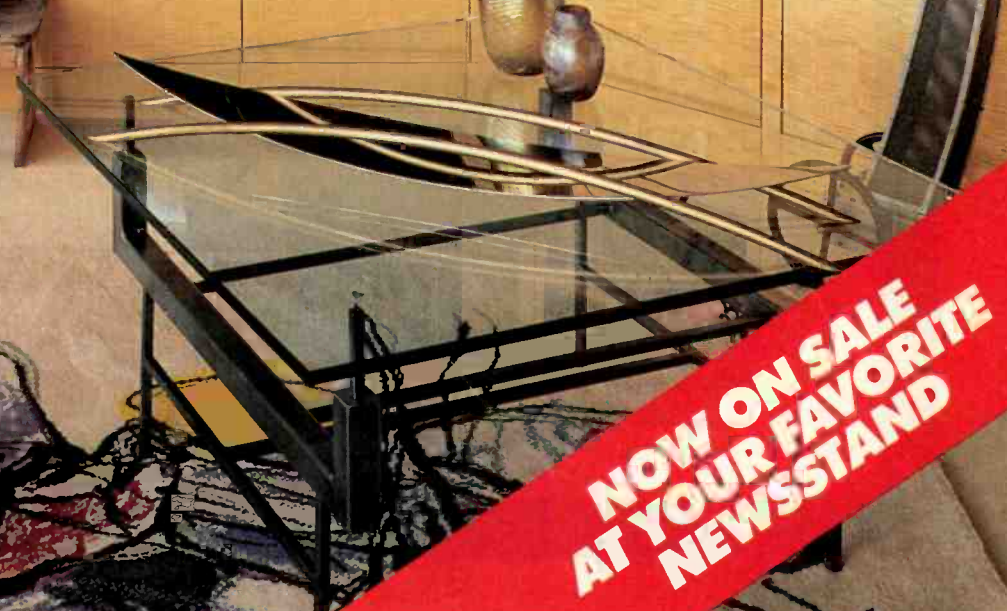
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FUTURE CLASSICS**



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NEWSSTAND**

## Michael Hedges Plays Something Unusual. It's Called A Guitar.

The music Michael Hedges plays is unusual. Some say radical. It borrows from jazz, rap, folk, rock, funk, classical. And gives back something that goes beyond genre.

And one reason Hedges' music is so different is that his definition of a guitar isn't limited to six strings

raw, chunky sound that Hedges achieves by hitting strings so hard they rebound against the fretboard, creating a percussive feeling.

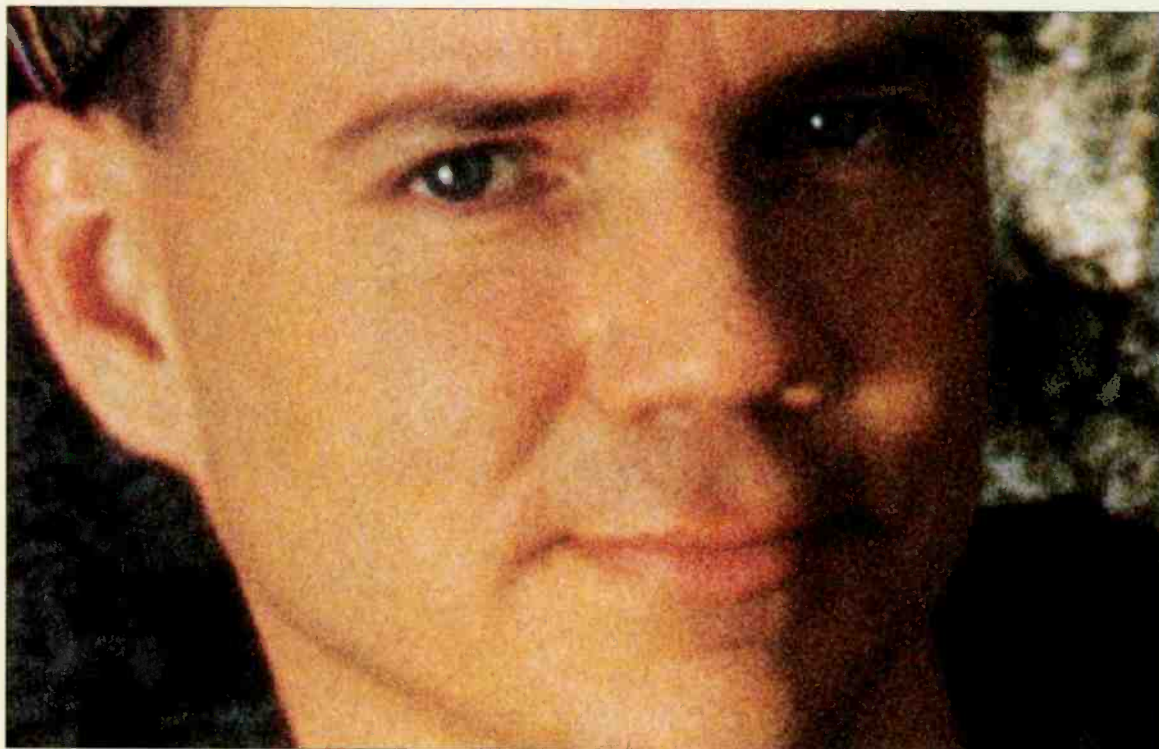
On another song, *Point A*, he

simultaneously. This is sonic territory never before explored on guitar.

But despite his lust for new toys – like 11- and 17-string harp guitars, and a snazzy



*The HD8's custom tweeter and woofer accurately recreate Michael Hedges' guitar.*



Get a 10-song Up Close Michael Hedges CD compilation. Send \$5 check to: Boston Acoustics, Dept. U6, P.O. Box 625, Holmes, PA 19043. Allow 4-6 weeks for delivery. Offer good until Feb. 28, 1991 or while supplies last.

and an EADGBE tuning. To Hedges, that's only a foundation.

Take, for example, the song, *The Rootwitch*, from his latest Windham Hill recording, *Taproot*. On it, Hedges employs a Martin D-28 in a BADEAB tuning. What's different here, is that Hedges uses neither strumming nor plucking on *The Rootwitch* – only hammer-ons, pull-offs and slaps. The result: a

plays a Steinberger guitar with TransTrem™, a whammy bar that

shifts among six different keys. As Hedges plays chords and harmonics, he deftly changes key several times in the same phrase, using the TransTrem to bend each note

6-string bass with whammy bar – Hedges never lets his gear get the best of him. In fact, listening to his five releases leaves one wondering if he was born with twelve fingers on each hand.

Visit a Boston Acoustics dealer and hear Michael Hedges on a pair of HD8 Bookshelf Speakers.

Music this good should be heard on speakers this good.



*The HD in HD8 means High Definition. By keeping rattle and diffraction to an absolute minimum, we've managed to create one of the tightest, cleanest bookshelf speakers you've ever heard. At any price.*

**Boston**Acoustics

Announcing the Seventh Annual

# RODRIGUES CARTOON CAPTION CONTEST

**S**HARPEN your wits, don your thinking caps, and enter the Seventh Annual Rodrigues Cartoon Caption Contest. Once again the editors have commissioned the artist Charles Rodrigues to supply a drawing, and we invite the readers to submit funny captions for it.

The person who sends in the caption judged to be the most amusing will receive the original drawing shown below, a cash prize of \$100, and the distinction of seeing his or her name in this magazine along with the winning caption when the contest results are announced. If you win, you will have the pleasure of knowing not only that you have succeeded but that thousands of others have failed.

Anyone may enter, and there is no limit to the number of times you may enter, but each caption submitted must be on a separate sheet of paper that also contains the clearly legible name and address of the person who submits it. Entries with more than one caption per page will be disqualified. All entries must be received by STEREO REVIEW no later than March 1, 1991.

In addition to members of the editorial staff of STEREO REVIEW and Rodrigues himself, the distinguished panel of judges will include the winners of the six previous contests: Thomas Briggie, of Akron, Ohio; Michael Binyon, of Los Osos, California; Bruce Barstow, of Philadelphia, Pennsylvania; Matt Mirapaul, of Evanston,

Illinois; Marc Welenteychik, of Richmond, Virginia; and Douglas Daughette, of Augusta, Georgia. (We are proud of that broad, coast-to-coast geographical distribution.) Entries will be judged on the basis of originality, appropriateness, and humor, and the decision of the judges will be final.

So take pen in hand, take a look at the drawing on this page and let your creative imagination take over. Who are those guys in front of Plaza Stereo? And why are they driving stakes through those speakers? And where is that store anyway, in Transylvania? In Twin Peaks? The world is waiting for your ideas on this subject.

The winning caption (and a selection of runners up) will be published in the June or July issue. Every year we plan to announce the winner in June, but in the history of this contest we have never managed to complete the arduous task of judging before the July issue. This may be the year we surprise you.

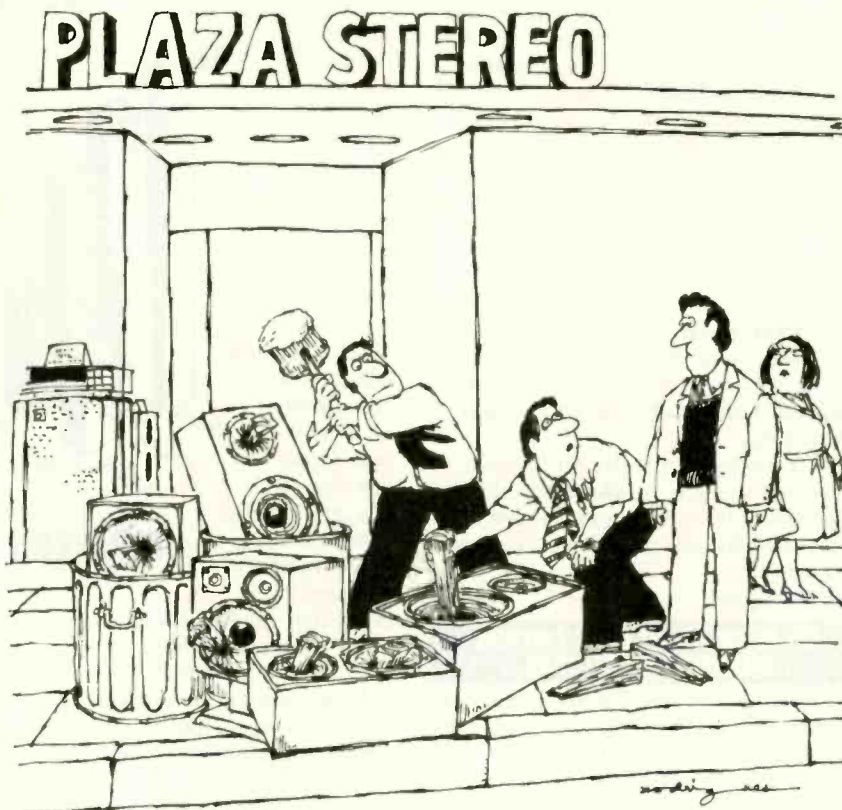
The usual restrictions and disclaimers are printed below. Send entries to:

Rodrigues Contest  
STEREO REVIEW  
1633 Broadway  
New York, NY 10019

*No purchase is necessary. Anyone may enter except the staff of Stereo Review and its parent company (Hachette Magazines, Inc.) and their immediate families. All entries become the property of Stereo Review, and none will be returned. If you wish to be notified of the results of the contest by mail, send a stamped self-addressed envelope to the above address.*

*In the unlikely event of duplicate entries, the one first received will be considered the winning entry. The names of the winner and perhaps a dozen runners-up will be published in Stereo Review and may appear in promotional literature for the magazine. Submitting an entry will be deemed consent for such use.*

*Stereo Review will arrange the delivery of the prize; any tax on it will be the responsibility of the winner. The judges have every intention of reaching a decision in time for the publication of the results in the June 1991 issue, but Stereo Review reserves the right to delay the announcement until July if the response is as overwhelming as last year's.*



# HOW MUCH SHOULD A GOOD AMPLIFIER COST?

*Reflections on the esoteric myths and economic realities of power amplifier design, by Bob Carver.*

Thumb through *Audio's* Annual Equipment Directory and you'll see vivid proof that all power amplifiers are neither created equal nor priced equally.

Two hundred watts per channel can cost you as much as \$8,400 or as little as \$599. You can own an amp from a multinational mega-manufacturer who also makes TV's, microwaves and cellular phones. Or an amp from a company so small that the designer is also the assembler and shipping clerk.

Can it be that amplifiers are sonically equal? Some seem to have muscular power reserves far beyond their FTC-rated output. Others sound great

until they're challenged by a dynamic passage and then sound like a Buick hitting a row of garbage cans. Some are (to indulge in audiophile jargon) so "fluid" that you practically need a drop cloth under them. Others seem to sound harsh, "metallic" and brittle at any output level.

A casual comparison of perceived sound quality versus price tags may lead to an erroneous conclusion: that an amplifier must be *expensive* to sound good.

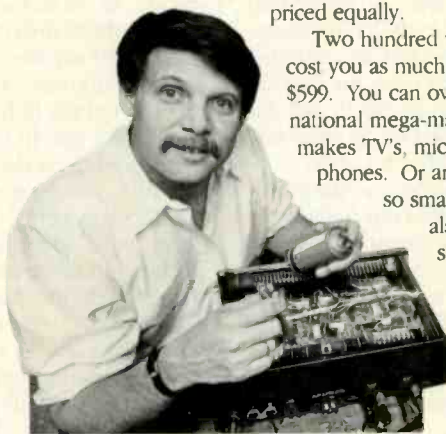
The truth is a bit more complicated: Cosmetic glitz aside, an amplifier's cost is primarily determined by its power supply.<sup>1</sup> In other words, within reason, you generally do get what you pay for when you buy a conventional amp design. But the key word here is "conventional."

My decidedly *un*-conventional Magnetic Field Power Supply is capable of outperforming conventional power supplies of the same size. Result: A significantly better power amplifier value for you.

Let me explain.

## NO MAGIC. JUST FOUR CRITICAL QUANTITATIVE FACTORS.

When I fervently state that "*the sound of an amplifier need not be related to its price,*" you might think we're veering off into the land of



Snake Oil and Gimmicks. Quite the contrary.

I and other members of the scientific audio community know that just four factors determine the sonic characteristics of an amplifier:

1. *Current output*
2. *Voltage output*
3. *Power output*
4. *Transfer function* as evidenced by the interrelationship of frequency response and output impedance.

These factors transcend the usual trivial debates over tubes vs. solid state, MOS-FETs vs. bi-polar, Class A vs. AB, silver Leitz wiring vs. copper, gold-plated front panels, WonderCaps and my favorite: hand-ground-open transistors filled with a proprietary crystalline substance that stops ringing (honest, I'm not kidding!). An amp can have any combination of these entertaining variables (plus special bricks stacked on top) and yes, sound wonderful...provided it ALSO has high current, voltage and power output and the correct output impedance.

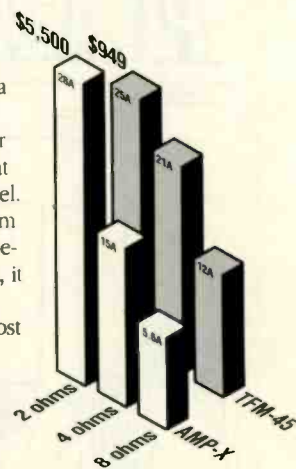
Thus the Four Factors explain why expensive amplifiers generally sound better than cheap amplifiers. But also why that doesn't necessarily have to be the case.

## FACTORS 1-3: THE POWER SUPPLY BEHIND THE SOUND

An amplifier's power supply produces current and voltage. A preponderance of one without the other is meaningless.<sup>2</sup> To maximize SIMULTANEOUS current and voltage output using traditional design approaches costs serious

money. For example, we recently tested a competitor's \$2,000 amplifier that was rated at 20 watts/channel. Believe me, from a parts and materials standpoint, it was worth \$2,000, with most of that money being spent on an amazingly rugged power supply. Another more extreme example is my own ultra-conventional Silver Seven Tube amplifier design. Its "money-is-no-object" power supply helps set the price of a pair of S-7's at around \$20,000.00.

Now, since it is universally agreed among amplifier designers that current/voltage/power output directly affects the sound of an amplifier,



Absolute maximum output  
**CURRENT**  
each channel



and since good traditional power supplies are costly, price and sonic quality ARE often closely related.

But what if there was a way around the economic constraints of conventional, inefficient power supplies? What if there was a power supply that could

deliver awesome simultaneous current and voltage into real-world speaker impedances without shocking your pocketbook?

That's just what my patented Magnetic Field Power Supply does. Without gimmicks, mysticism or loss of bass response. Simply put, a Magnetic Field Power Supply uses progressively more of each line voltage swing as amplifier power demand increases. It's just plain more efficient. How and why this works is explained in our new White Paper called "The Magnetic Field Story Parts I, II & III" which you can get free by calling 1-800-443-CAVR.

Right now, let's consider the tangible benefits. The series of comparison charts in this ad shows how my Magnetic Field Power Supply successfully challenges the previously hard-

and-fast rule that high-performance power supplies must be expensive. Amp X is a highly-respected solid state design rated at 200 watts into 8 ohms. It cost \$5,500. My TFM-45 is rated at **375 watts per channel both channels driven into 8 ohms 20-20kHz with less than 0.1% THD.** It has a suggested retail of \$949.

Even more impressive is this same sort of comparison chart with the TFM-45 vs. other amplifiers in its own price range. In deference to how utterly

we trounce similarly-priced, conventional competition, we've confined those charts to our new White Paper.

To summarize: Magnetic Field Power Supply technology allows reasonably-priced power amplifier designs to deliver simultaneous



TFM-45; 375 watts RMS/ch. into 8Ω 20-20kHz with no more than 0.5% THD (\$949 sugg. retail.) and TFM-15; 100 watts RMS/ch. into 8Ω 20-20kHz with no more than 0.1% THD (\$399 suggested retail).

## FACTOR 4: TRANSFER FUNCTION

Consider two hypothetical amplifiers with identical power supplies. Same power rating, same gain, etc. Yet they still sound different when powering identical speakers through identical cables.

Why? A fourth quantifiable factor is at work. One that, unlike power supply output, is totally independent of economic constraints.

I've left Factor 4 (transfer function/frequency response/damping) until last intentionally. Because until an amplifier can deliver sufficient power with simultaneous current and voltage (Factors 1-3), transfer function is immaterial.

Frankly, I'm guilty of not making this fully clear in the past. Some readers may have gotten the impression that by magically adjusting some arcane parameter called transfer function, one could somehow cause a cheap amp to sound like an expensive one. Nothing could be further from the truth. If there's no guts (power supply), there's no glory (optimized transfer function).

By transfer function, I mean the effect an amplifier's output impedance has on real world frequency response. I don't mean the flat, "DC to light" Rated Full Power Bandwidth found in column 11 of *Audio's Equipment Directory*, which is measured using a resistor as a load. Rather, I'm referring to the frequency response curve that occurs when an amplifier and speaker cables interact with a specific speaker.

As distinctive as a fingerprint, this curve determines the "sound" of each amplifier design. Its warmth or harshness. The quality of the bass. The definition of its upper registers. Even the configuration of the stereo "sound stage" it can create.

My engineering department and I are capable of making one amplifier design sound like

current and voltage levels previously only found in extremely expensive "esoteric" designs. Or to look at it another way, in a given price range (say \$900-\$1,000), Carver simply gives you far more for your money.

another amplifier design to within 99 parts out of 100 (a null of 40dB). For example, we've used Transfer Function Calibration to closely emulate the sonic characteristics of my reference Silver Seven in our TFM-45 and TFM-42 solid state designs. In other cases we've used the process to simply adjust the sound of an amplifier to have pleasant but unique sonic characteristics: in general, a warm "tube" sound with rich, rolling bass and soft yet detailed treble (such as our TFM-22/25, S-7t and TFM-15). Either way, we use painstaking measurement and adjustment processes to finetune output impedance/frequency response. Not magic.

And, needless to say, we start with highly capable power amplifier designs before the Transfer Function Modification process.

## ARE YOU INTRIGUED...OR THREATENED?

My Transfer Function Calibrated power amplifiers have suggested retail prices of from \$399 to \$1,000. That I even dare to suggest they can sound as good as designs in the \$2,000 to \$6,000 price range has not endeared me with some audiophiles or underground magazine writers.

That's a real shame, because I have absolutely nothing but respect for

well-made, high-ticket conventional amplifiers. Like Rolexes and Lamborghinis, they are a joy to own if you can afford them. But just as a Rolex doesn't tell time any better than the inexpensive watch I'm wearing right now, good sound does not necessarily have to be costly.

If this concept intrigues you, please visit a Carver dealer soon. Bring demo material you're familiar with and be willing to do some critical listening. Compare my designs to competition costing about the same amount as well as to more expensive models.

Your ears alone should be the final arbiter. I feel confident that you will join the tens of thousands of audiophiles who have gotten the best possible value by owning Carver.

*Bob Carver*

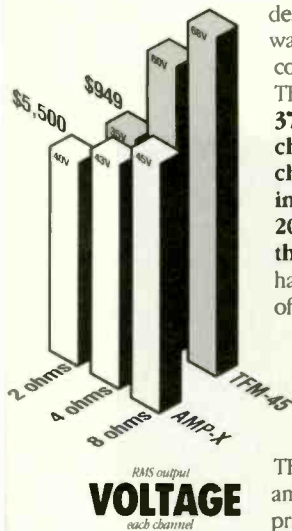
Bob Carver, President

# CARVER

CARVER CORP., LYNNWOOD, WA, U.S.A. 1-800-443-CAVR  
Distributed in Canada by Evolution Audio Inc. 1-(416) 847-8888

<sup>1</sup> My definition of cosmetic glitz is any part of an amplifier whose sole audio contribution is to cause one's friends to go, "Ooooo!" when they see one's new purchase. My own Silver Seven amplifier's hand-rubbed piano lacquer and solid granite surfaces meet this definition.

<sup>2</sup> Since power (watts) equals voltage times current, the same wattage can represent significantly different combinations of voltage and current — and thus very different performance into the same load.



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who make music  
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CIRCLE NO. 8 ON READER SERVICE CARD

## THE HAPPY HOOKUP

Making sure that your audio/video system does what it's meant to do —thirteenth in a series on the basics of audio.

BY IAN G. MASTERS

**A**T one time, it might have been reasonable to think of "a stereo" as one object, contained in a single cabinet that just had to be plugged in and turned on. Some modest units today fit that description as well, but to obtain anything more than minimal sound quality, you need a stereo system made up of separate components, usually from a variety of sources. Once you have selected your equipment, bought it, and taken it home, therefore, you will be faced with the challenge of setting it all up and making it work together.



It is possible to have your dealer put the system together for you, but that won't help if you have to move the system later or if you make additions to it. You will understand your system much better if you roll up your sleeves and do it yourself. But that need not be difficult as long as you approach the task in an organized fashion.

To take advantage of the capabilities of even a modest system, you will have to plan it carefully and pay a great deal of attention to both the physical placement and the interconnection of the various components. When you are making your equipment pur-

chases, bear in mind what you will eventually have to do to make the system work.

All systems require wires, for instance, so before you leave the store make sure you have enough. Most components are supplied with the appropriate patch cords, but a few may not be, so rather than get all the boxes home and then find you have to run out and buy more wires before you can even begin, it's a good idea to make sure they are included at the store. Coaxial cable for video signals is one sort of wire you might have to buy separately, as the lengths typically included with VCR's are minimal.

The one thing you will definitely have to buy is speaker wire. As to the sort you should choose, the main determining factor is the wire's thickness. Most specialty speaker cables are heavy enough to be appropriate for the longest runs (but this category definitely doesn't include the sort of light, clear-plastic-coated wire often labeled "speaker wire"). When you buy conventional wire, however, you'll find there is a wide choice of thicknesses. Ordinary 18-gauge lamp cord is probably adequate for short runs of, say, 15 feet or less, and few installations require anything heavier than 16-gauge. For very long runs, however, you should step up to 14- or even 12-gauge cable.

### Unpacking

Once you have brought home everything you need, there will be a strong temptation to rip all the boxes open immediately, pull out the components, and plug them together in some fash-

# The first CD Carousel with Denon sound quality.



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

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

For Product Information



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Denon America Inc., 222 New Road, Parsippany, NJ 07054 (201) 575-7810

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

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

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

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

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

**DENON**  
*The first name in digital audio.*

CIRCLE NO. 27 ON READER SERVICE CARD

# THE BASICS

ion just to see how they work. While this is a natural enough impulse, it's one that should be controlled—a more methodical approach will reduce the likelihood of mistakes.

Before you proceed, look at the first few pages of the instruction book for each component for any specific directions about unpacking. When you have removed a component, put all the packing material back in the carton and save the box. If you have to send equipment in for service, or when you move to a new home, you will need the cartons. Check the back of each component, note down all the serial numbers, and put your list in a safe place.

Some components require a small amount of assembly or adjustment before they can be used. Most CD players, and some cassette decks, have **transit screws** to keep their moving parts from rattling around during shipment, and these screws must be loosened or removed. One piece of equipment that often needs considerable assembly is a turntable: You may have to install the platter, the dust cover, the tonearm counterweight, or the cartridge headshell. Although it's a good idea to put everything together right out of the box, the final assembly stage—balancing and adjusting the tonearm and cartridge—should be left until the turntable is in its final playing position.

A rough positioning of the components at this stage will show you what works physically. You may find that the receiver, say, looks peculiar sitting on top of the cassette deck because it's an inch wider; or the CD player might be 3 inches deeper than the VCR and will sit on it only at an angle. It is easier to rearrange the components now, before they are connected together. Also keep in mind things that will make the system easier to operate after it is set up. For instance, if you intend to make a lot of audio recordings, place the cassette deck where its level meters will be easily visible. And make sure that there is a clear line of sight from your listening position to components with infrared remote controls.

## *A Matter of Power*

Before you deal with any signal connections, you will have to decide how to get AC power to each of the components. With most systems, it is desirable to have everything operate from a

single power switch, usually on the receiver. Most receivers, integrated amplifiers, and preamps have both **switched** and **unswitched AC outlets** on the back, but unless you have a very uncomplicated system, you will probably not be able to connect everything directly to these outlets. If the other components have their own outlets, you may be able to string them together in series, but make sure that the total maximum power consumption of all the components does not exceed the controlling component's capacity. An alternative is to buy a **power strip**



with five or six AC outlets and a master power switch.

Some equipment is intolerant of having AC power completely removed. With a videocassette recorder, for instance, shutting off the power anywhere but at its own switch will disable its clock and timer and may erase any channel presets in its memory. Such components have to be powered from the unswitched outlet of your receiver or amplifier or even directly from a wall outlet.

Whatever arrangement you decide on, one thing you should avoid is a tangle of power cords behind the system. Not only do these cords have a tendency to tie themselves in knots,

but there is a risk that tangles will cause audible hum. Most power cords come coiled up and held either by a plastic retainer or a twist tie of some sort; undo enough of the cord to reach to the appropriate power outlet and secure the rest with the supplied retainer. Then label each plug in case it has to be disconnected and reconnected later. In fact, all the cables that tie your system together should be labeled. Patch cords look pretty much alike, and once the system is wired up, it's often hard to tell what leads where. You may want to change things in the future, and labels will save you a lot of trouble.

## *First Connections*

At this stage you should place each component close to its final position, but without obscuring the connections on the rear panel. Attach the speaker cables to the **output terminals** of the amplifier or receiver, being sure to observe any **polarity** markings (+ and - or red and black), and check to make sure there are no whiskers of wire protruding that might short-circuit against the chassis or the other terminal.

Next, if you've chosen separates instead of a receiver, connect the central audio components—the power amplifier, preamplifier, and tuner or the integrated amplifier and tuner—using the appropriately marked cords (make sure the power switches are off). When you have this nucleus assembled, perform a few simple tests to make sure it is connected properly.

Before you turn the power on, check the various controls on the receiver or preamplifier to make sure that the tape-monitor switches are off, that the tone controls are in the "flat" position, that the balance control is in the center, and that any speaker-selection switches are activated correctly for your setup. With the level controls down, turn on the power and observe whether all the appropriate pilot lights are illuminated. Select FM as a signal source and tune in a station, then turn the sound up gradually. Observe whether sound is being produced and whether it is coming out of both speakers. If there is any problem, shut the system down immediately and recheck your connections and settings.

If you're hearing sound from both speakers, turn the balance control all

# THE BASICS

the way to the left and then to the right, and note whether sound is being produced only by the appropriate speaker in each case. Next, place the speakers a few feet apart, and feed a mono signal to both of them at equal level. If the speakers are **in phase** (that is, if they have the correct relative polarity), the sound should appear to come from a very distinct point midway between the speakers. To exaggerate the effect, put your head directly between them—the sound should seem to originate right between your ears. If you are in any doubt, reverse the wires for one speaker only and repeat the test; the difference will immediately be obvious.

Once the central components and the speakers are working properly, it's time to deal with the source components. Most of us spend a large portion of our hi-fi listening time tuned to FM, so it's worth taking some trouble to make sure you are receiving a high-quality signal. This can be simple or difficult, but you never really know until you hook up an antenna and see what it does.

The simplest antenna is the T-shape wire **dipole** provided with most receivers and tuners. For many applications, particularly in cities, where you are close to the broadcasting antennas, a dipole is enough, but it has to be positioned carefully. Hook it to the **300-ohm antenna terminals** on the rear panel of your receiver or tuner, and then move it about until the reception is best. It's not a good idea to nail the dipole to the wall just yet, however, as you may well find a better position after living with it for a while.

If the dipole turns out to be clearly inadequate, an **indoor tunable antenna** may be the answer. The next step up is the **rooftop antenna**, but this may be impossible if, say, you live in an apartment building. In that case, you may have to subscribe to your cable-TV company's FM feed, if one is available.

When it comes to other sources, you may have to make some decisions, especially if you want to attach more than one recording device. All but the most modest of receivers and preamplifiers provide two or more **tape-monitor circuits**, and these are usually interconnected in some way, so this is the time to decide which recorder should be attached to which circuit. If you are planning to use your system

for dubbing tapes, the choice may be critical, as many preamps and receivers allow copying from Deck A to Deck B, but not the other way around.

Setting up your tape equipment is normally straightforward, but it can be more complicated if it has to be done in conjunction with a signal processor—an equalizer, say, or a surround-sound decoder. With some receivers and amplifiers, a signal processor will have to be placed in one of the tape-monitor loops. For this reason, most such components have built-in tape-monitor circuits to replace the ones they occupy.



The remaining components, such as compact disc or videodisc players, should be much simpler to hook up because they are single-ended—they simply supply a signal to be reproduced. The only difficulty you are likely to face with this sort of equipment is if you have more of it than your preamp or receiver can accommodate. The best way to prevent this is by choosing equipment with the right number of inputs in the first place.

## The Vinyl Touch

Although more and more buyers are choosing to do without vinyl capability, anyone with a collection of LP's will undoubtedly add a turntable, and that should be set up next. Most turntables are supplied with a tonearm already mounted, but in some very ambitious systems, tonearms are sep-

arate components. Where possible, it is advisable to have your dealer mount the arm before delivery; but if you find that you have to do it yourself, follow the instructions *exactly*—any shortcuts can seriously compromise performance.

It's more probable that you will have to mount just the phono cartridge. Be very careful to observe things like **overhang** and positioning in the **headshell**, and make sure that the electrical connections are both secure and correct—most tonearm and cartridge manufacturers color-code the connections, but some don't. If you have a modular **P-mount** cartridge and arm, things will be much simpler: Just plug the cartridge in and forget it.

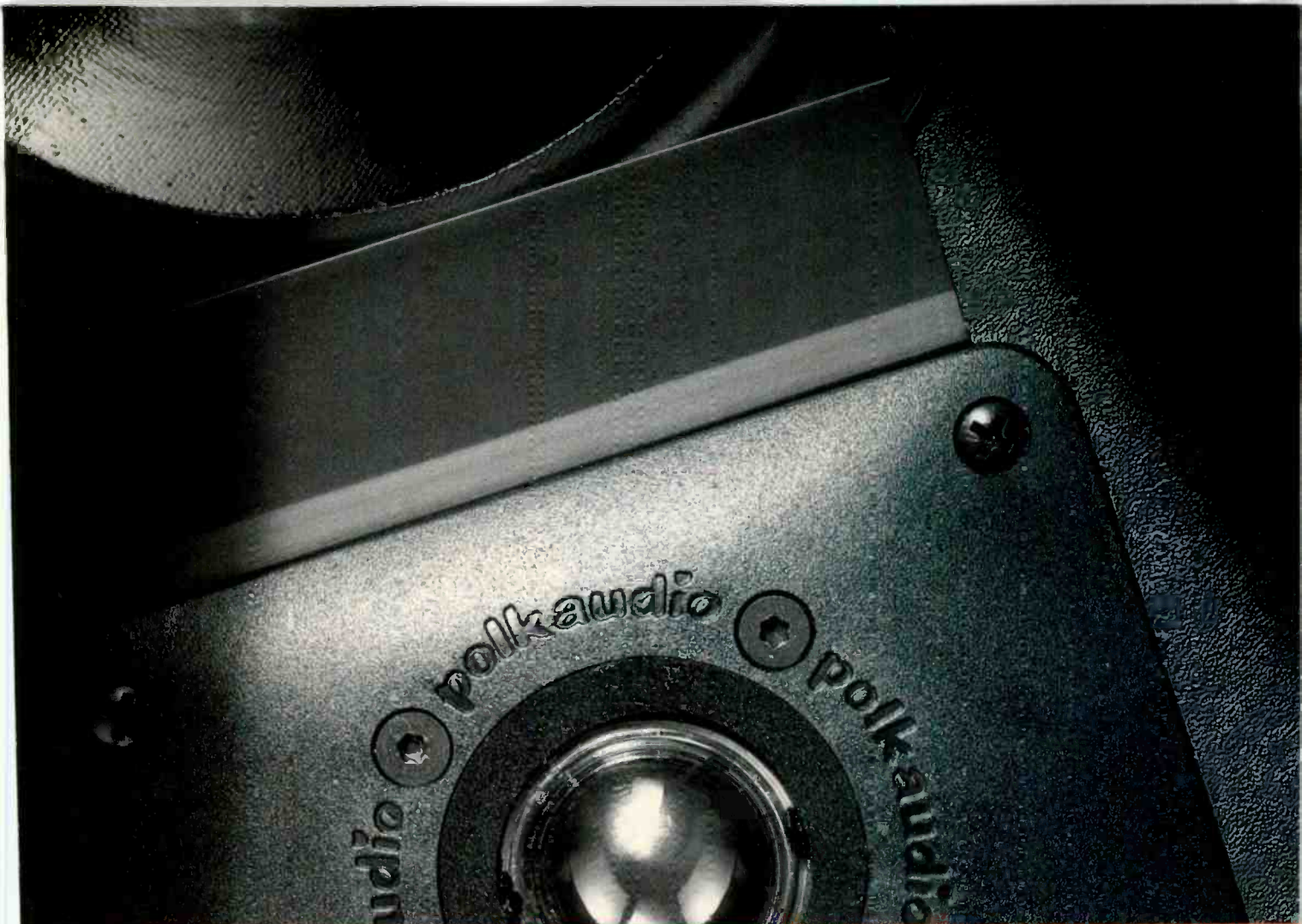
After you have put together the turntable/arm/cartridge combination, move it to its final position and hook it up. A separate ground wire is included because the signal from a phono cartridge is extremely weak and therefore more susceptible to hum than other parts of the system. It's a matter of insurance and is often not needed.

## The Last Step

As you gradually interconnect your equipment, you will probably place the pieces in their final positions. What you should leave until last is the most critical part of the system: the speakers. The sound they will produce is as much a product of their acoustic environment as of their inherent properties, so great care must be taken to insure they are performing optimally.

Make sure the speakers are in acoustic environments that follow the manufacturer's suggestions, if any, and that their respective placements are as similar as possible. Surfaces close to the speakers have a profound influence on the overall impression a speaker makes. It's important that the two channels sound alike, and this is extremely hard to achieve if the room acts on them differently. So avoid putting one speaker in a corner and the other along a wall or next to a doorway, for example. Be prepared to move the speakers around a bit—sometimes very slight adjustments of position can result in dramatic improvements in the sound.

*NEXT: Making sure your audio system will sound as good years from now as it does today.*



Sound that astonishes the ear...



## Today's Generation Of Music Lovers

Years ago, it didn't matter what speakers looked like as long as they sounded good. Admittedly, some of the best sounding speakers did not always blend perfectly into everyone's decor.

Today, those of us who consider music an important part of our life and who demand the highest performance possible from our stereo components prefer that our loudspeakers reflect our lifestyle by complementing our taste in home furnishings.

The new RTA 15TL, representing over 18 years of Polk's research and development, is already setting new standards of sonic excellence. And its elegant cabinet is a beautiful visual addition to any environment or listening room.



*By using a rare ULV Magnetic Fluid to cool a tweeter's voice coil, both performance and reliability are vastly increased.*

Low Viscosity Magnetic Fluid, nearly as thin as water, to cool the SL 3000's voice coil, power handling capacity would increase. Indeed, the SL 3000 tweeter can significantly exceed normal listening levels without loss of performance or reliability.

## The Clear Imaging of Polk's Line Source Array

By arranging its four 6 1/2" drivers in a vertical line source along with the SL 3000 tweeter, superior imaging and midrange purity is achieved. This line source technology is the same advanced principal used in Polk's flagship "Signature Reference Series."

By clearly focusing midrange frequencies and avoiding floor and ceiling reflections, Polk's Line Source delivers a wide open, natural sound without tonal coloration. Consequently, the RTA 15TL performs superbly in a wide variety of room sizes and placements.

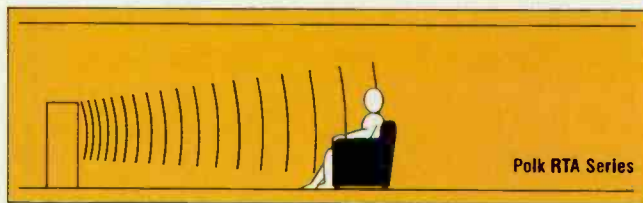
# ...from speakers that seduce the

## It All Begins With The Remarkable SL 3000 Trilaminare Tweeter

Working with the Johns Hopkins University Center for Non-Destructive Testing, Polk engineers utilized Laser Interferometry to test tweeter designs and materials. They found that ultimately, by vapor-depositing stainless steel and aluminum to a polyamide dome surface, an

extended, very flat frequency response, out to 26 kHz, was achieved.

Polk also discovered that by using a rare Ultra



*Polk's Line Source Technology reduces floor and ceiling reflections by focusing the vertical dispersion of midrange frequencies.*

## Controlling Diffraction To Create A Lifelike Stage

The grille of the RTA 15TL has been specially designed to eliminate mid and high frequency diffraction and to actually enhance dispersion. In fact, the RTA 15TL sounds better with the grille on than off.



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eye.

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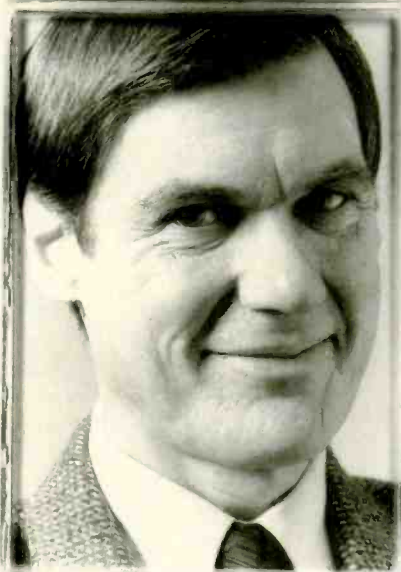
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*The RTA 15TL is available in natural oak, natural walnut and black oak wood veneer finishes.*

Where to buy Polk Speakers? For your nearest dealer, see page 125.

by Ian G. Masters



### Concealing Wiring

**Q** *The cables joining my rear speakers and subwoofer to the rest of the system are currently hidden under the edges of the living-room carpet, along the walls. We plan to install hardwood floors, which will have to be applied directly to the concrete slab beneath, but we don't want the wires to be visible. Any suggestions on hiding the wiring and on how that should affect the choice of cables?*

FRANK O'HALLORAN  
Folsom, LA

**A** Your options depend to some extent on how the room is built. It may be possible, for instance, to poke a couple of small holes at each end of the side walls and fish the cables through, or a dropped ceiling may permit stringing the wires overhead. If these approaches are not feasible, the task of hiding the wires becomes harder but not necessarily impossible.

In the first place, you might consider placing the subwoofer up front rather than in the back. Its position is not really critical, so you can put it pretty much wherever the wiring permits. As for the rear speakers, they probably will not have to handle large amounts of power, so it may be possible to use fairly light wire, which would be easier to hide than heavy-gauge cables.

If you are contemplating some sort of baseboard at the bottom of the walls, that might serve to cover the wires. Some types of molding have space behind them; if not, placing the baseboard off the floor (or out from the wall) by the thickness of the wire would probably not be noticeable but would enable you to

tuck the cables into the gap. There are also very flat ribbon cables available that might fit under a baseboard or even be glued directly to the wall and concealed with a coat of paint.

### Receiver Strapping

**Q** *I am using an old 110-watt-per-channel receiver to power my subwoofer. Is there any way to "strap" the outputs of the two amplifier channels to yield a significant increase in power?*

JOHN P. MAKOWSKI  
Chicago, IL

**A** Strapping, or bridging, is a technique for combining the two channels of a stereo amplifier to produce a single mono signal of higher power, typically somewhat higher than the sum of the two channels operating normally. It may seem an attractive way to power a mono subwoofer, but it only works if the amplifier was specifically designed to operate that way. The instruction manual should tell you how to go about it if you can; if it doesn't mention it, don't try to do it.

I doubt there would be much benefit in your case anyway. An amplifier that puts out more than 100 watts should be more than powerful enough even for quite insensitive subwoofers, and doubling the power would yield only a barely audible increase of 3 dB in volume.

### Variable-Level Outputs

**Q** *My CD player and cassette deck both have variable-level output controls, so I have eliminated the need for a preamplifier by feeding both components directly to the inputs of my power amplifier. To change the source, I simply unplug the power-amp leads from one component and attach it to the other. Would the level control on a preamplifier be sufficiently superior to the output controls I am using now to make adding the extra component worthwhile?*

GREGORY A. WAGENER  
Chicago, IL

**A** A simple level control, whether inserted in the output stages of a CD player or included in a preamplifier, is a pretty benign thing and unlikely to cause signal degradation. The setup you are now using would therefore not be improved significantly by the use of fixed-level outputs and a preamp.

I suspect, however, that your power amplifier has its own input-level controls. If not, you would be likely to get some very unpleasant—and potentially damaging—noises when you switch cables between your CD player and cassette deck (unless you shut off the power before changing sources). If your amp does

have an input control, the path with the fewest circuit elements would be from the player's fixed outputs to the amplifier's inputs, with the playing level controlled at the amplifier. This setup might mean some sacrifice in convenience, though, and any audible improvement it might provide (very unlikely) would be negligible.

### Speaker Standards

**Q** *Almost all speaker-sensitivity ratings I have seen are given in dB SPL (decibels of sound-pressure level) measured at 1 meter with 1 watt input. In STEREO REVIEW's speaker reviews, however, the measurement is made with a 2.83-volt input. What, if anything, is the standard?*

M. TOD WHITLEY  
Gardendale, TX

**A** One-watt/one-meter is one of those easily remembered formulas that ad writers like, and that's probably why it is the closest thing to an accepted standard in speaker specifications. Unfortunately, it's a little misleading.

The power flowing from an amplifier into a loudspeaker at any given moment is determined by the voltage being produced by the amp and by the impedance of the speaker. Impedance is a complex thing, however, and though most speakers have a "nominal" impedance expressed by a single number, usually 8 ohms, in reality this rating is only an average. Almost all speakers have impedances that vary significantly with frequency—much higher at some frequencies, lower at others—so the power in the circuit varies all over the place even if the amplifier's output voltage remains constant. But a loudspeaker with flat frequency response will produce the same output at all frequencies for a given input voltage, even if the impedance, and thus the power, changes radically with frequency. Consequently, the sensible thing is to specify sensitivity for a standard input voltage rather than a standard input power, which would tend to give different outputs at different frequencies.

If specification writers could break themselves of the 1-watt/1-meter chant and specify a standard voltage instead, the result would be more consistent sensitivity ratings that would take into account both overall impedance differences between speakers and frequency effects as well. The natural voltage to specify, although admittedly this is arbitrary, is one that would produce 1 watt into a purely resistive load of 8 ohms: that is, 2.83 volts. In most cases, the "1 watt" you see on a specification sheet is just a catchy shorthand rendering of "2.83 volts." □

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— Stereo Review, Julian Hirsch



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by Julian Hirsch



## CAN SPEAKER PERFORMANCE BE MEASURED?

**I**N three words, yes and no. Now let me expand on that oversimplified answer. Many aspects of a loudspeaker's performance *can* be measured, but we are concerned, first and foremost, with somehow defining the sound quality of a speaker system (normally, a pair of speakers positioned somewhat arbitrarily in an undefined room). This, after all, is a major goal of the speaker reviews in STEREO REVIEW and other audio publications.

Let us approach this problem from two directions: (1) the acoustical stimulus of the listener's eardrums by the sound field created in a room by the speakers, and (2) the electrical signal presented to the speakers' input terminals by an amplifier.

The characteristics of the input signal are (or can be) known with considerable accuracy and can be taken as the reference to which the acoustical stimulus is compared in order to establish how faithfully the input signal has been translated into an acoustic pressure wave entering the listener's ear. One might assume that if the two waveforms (acoustic and electrical) are identical, then the transfer of the

electrical input signal to the listener's brain (or at least to one of its entrance ports) has been accomplished with a reasonable degree of accuracy. Alas, things are not that simple.

For one thing, in order to measure the sound pressure at the eardrum, it is necessary to insert a tiny probe microphone into the subject's ear. This is hardly a normal listening condition, although the procedure is used in psychoacoustic research (usually to measure the subject's hearing acuity rather than the quality of a loudspeaker).

The usual alternative way of dealing with this matter is to use a calibrated measurement microphone placed approximately where a listener's ear might be located in an actual hi-fi installation. Since reflections of the sound from the boundaries of the room, as well as the standing waves created in the room by those reflected signals, can have a profound effect on the result of such a measurement, it is often made in an *anechoic chamber* (a room designed to absorb sound on all its inner surfaces, thereby eliminating or reducing reflected energy).

There are several problems in the use of an anechoic chamber for measurement of loudspeaker sound quality, although it can be invaluable for determining the characteristics of individual drivers. In order to remain echo-free down to low-bass (or even mid-bass) frequencies, the chamber must be very large, and consequently very expensive. Although many loudspeaker manufacturers have anechoic chambers, few of these are big enough for accurate measurement of the bass output of even a moderate-price speaker. Fortunately, there are other methods of realizing many of the benefits of anechoic measurement without

the use of an anechoic chamber. In general, these involve a mathematical computation process known as the *fast Fourier transform* (FFT).

There is a more serious difficulty in the use of anechoic test chambers for evaluating speaker sound quality, as

*Although the linkage of room and loudspeaker performance makes the prediction of a speaker's sound uncertain, there are ways to make measurements in an ordinary room that can be useful for a rough overall assessment.*

opposed to the frequency response of specific drivers or combinations of drivers. The problem is that we do not listen to high-fidelity music systems in anechoic chambers. The sound is, to put it mildly, unsatisfactory. The acoustic properties of the listening room can have as much to do with sound quality as the actual performance of the speakers themselves.

Although this linkage of room and loudspeaker performance makes the prediction of a speaker's sound in any particular room rather uncertain, there are still ways to make measurements in an ordinary room that can be useful for a rough overall assessment of a speaker's capabilities. And these methods are much less expensive (and more economical of space) than building an anechoic chamber.

Unfortunately, there are no meaningful test standards that enable measurements made by different people to be interpreted by others to predict the sound quality of a speaker. It is difficult enough for a tester to do that from his own measurements, let alone from someone else's.

Next month, I will describe in some detail how I test speakers and interpret those measurements, but I would like to close this column by commenting on a somewhat related problem posed by a reader, who wonders about the effect of the nonlinear frequency sensitivity of the human ear on loudspeaker comparison tests. He postulates two speakers, one (A) with a rising low-frequency response and the other (B) with a

### *Tested This Month*

OPTIMUS CD-6100  
COMPACT DISC PLAYER  
PIONEER VSX-D1S  
AUDIO/VIDEO RECEIVER  
PANASONIC LX-1000  
COMBI-PLAYER  
KLIPSCH KG<sup>3</sup>  
SPEAKER SYSTEM  
DENON DTR-2000  
DIGITAL AUDIO TAPE DECK

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## TECHNICAL TALK

"flat" response. (Let's not worry at this point about what a "flat" response from a speaker might be—more about that next month.)

Aware that a speaker comparison *must* be made at identical listening levels (also not as easy to achieve as some people think), this reader suspects that at low levels speaker A would sound relatively flat, since its inherent response resembles a loud-

*I never give too much weight to any speaker demonstration outside my own home. I have rarely found a speaker that sounded the same at a manufacturer's or dealer's demo as it does in my own listening room.*

ness-compensation curve. (Such a response curve, as supplied by the loudness control of an amplifier or receiver, is intended to compensate for the human loss of sensitivity to low frequencies at reduced listening levels.) On the other hand, speaker B would sound deficient in lows because of the same effect. At a higher listening level, however, the emphasized lows of speaker

A would be audibly excessive, whereas speaker B would presumably sound as "flat" as it measures. By extension, a speaker deficient in lows should sound more accurate at high volume levels.

The reader's question is, "What is the correct listening level at which to compare speakers?" He suspects that, if comparisons are done in a dealer's listening room, they should be done at levels similar to those one would use at home.

I think he is correct, although I must confess I have never given the matter much thought. I never give too much weight to *any* speaker demonstration I hear outside my own home. I have rarely found any speaker that sounded the same at a manufacturer's or dealer's demo as it does in my own listening room (it might be better, worse, or simply different). This may result in part from the relative volume-level differences, but I suspect it is largely a function of room acoustics or the specific locations of the speakers. A manufacturer's demo, if it is done correctly, is usually preceded by careful positioning and orientation of the speakers, along with acoustic treatment of the room. The moral is, don't buy any speakers unless the dealer will permit you to return them if they don't sound satisfactory in your own listening room. □



*"... and that goes for any of you other strings. I will not tolerate woodgrain-vinyl instruments in this orchestra!"*

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JOOK P. LEUNG

## OPTIMUS CD-6100 COMPACT DISC CHANGER

*Julian Hirsch, Hirsch-Houck Laboratories*

**T**HE Optimus CD-6100 compact disc changer, distributed through Radio Shack stores, is designed to play as many as five discs automatically. Unlike most early CD changers, whose separate magazines had to be loaded with discs before playing, the CD-6100 has a built-in front-loading "carousel" mechanism that accepts either 5- or 3-inch discs.

Loading it is similar to loading a single-disc player. At a touch of the open/close button, the carousel platform moves forward to expose three of its disc wells to view, although only one at a time is accessible for loading or removing a disc. The DISC SKIP button rotates the platform for access to any of the other disc positions. After the discs are loaded, pressing the open/close button moves the platform into the cabinet, with Disc 1 positioned over the playing spindle. The

DISC SKIP button can be used to move any of the other discs into the playing position.

Operation of the player is straightforward and conventional for the most part. The other front-panel buttons include play/pause, stop, and a pair of track-skipping controls labeled ASMS (for Automatic Search Music System). Other buttons are used to program a sequence of as many as fifty tracks in any order from any or all of the loaded discs and to initiate shuffle play, which selects a random sequence of tracks or discs.

The pushbutton power switch is at the upper left of the panel. A timer switch at the lower left allows unattended, straight-through (unprogrammed) playback when the unit is powered through an external timer. There is a front-panel headphone jack with level knob, and the rear apron contains standard analog line-output jacks.

The display window along the bottom edge of the panel has symbols showing the player's operating status (pause and play), a row of numerals from 1 to 5 (the number of the playing disc is circled), and larger numerals for the track number and elapsed playing time. A small TIME button above the disc carousel toggles the display to show the remaining time on the track or the disc (when a disc is first loaded, the display shows its total number of tracks and total playing time).

The specifications for the CD-6100 indicate that it uses quadruple-over-sampling (at 176.4 kHz) and digital filtering as well as dual digital-to-analog (D/A) converters. Its frequency response is rated as 20 to 20,000 Hz  $\pm$  1 dB, its dynamic range as more than 90 dB, and its signal-to-noise ratio (S/N) as more than 100 dB. At 1,000 Hz, the rated total harmonic distortion (THD) is less than 0.05 percent, and the stereo channel separation is rated as more than 95 dB.

The CD-6100 is supplied with a compact wireless remote control that also augments the front-panel control functions. In addition to the standard disc-transport controls, it has a FADER button, which smoothly increases or

## TEST REPORTS

decreases the volume over a 5-second period. Other buttons provide direct access to any of the discs and duplicate the DISC SKIP function. The remote control also has a fast-forward/reverse scan mode with sound and a repeat function that is effective in all modes, including programmed operation.

The Optimus CD-6100 is a compact unit, measuring 14 inches wide, 15¼ inches deep, and 4¼ inches high. It weighs only 11 pounds, 5 ounces. Price: \$250. Radio Shack, Dept. SR, 700 One Tandy Center, Fort Worth, TX 76102.

### Lab Tests

The Optimus CD-6100 delivered 2.1 volts output at 1,000 Hz from a 0-dB (maximum-level) test recording. Its frequency response was flat within +0.02, -0.3 dB from 20 to 20,000 Hz, and the channel levels were matched to better than 0.01 dB. The separate D/A converters for the left and right channels kept the phase shift between channels to less than 0.06 degree over the full audio range. De-emphasis response error was less than 0.15 dB from 100 to 16,000 Hz.

The channel separation (slightly different for left and right channels) was 90 to 96 dB at 100 Hz, 86 to 90 dB at 1,000 Hz, and 62 to 68 dB at 20,000 Hz. The 1,000-Hz distortion (THD plus noise) was 0.074 percent from -60 to -20 dB, increasing to about 0.08 per-

*The Optimus CD-6100 compact disc changer has a built-in front-loading "carousel" mechanism that accepts five 5- or 3-inch discs. Loading it is similar to loading a single-disc player.*

cent at 0 dB. At a constant 0-dB signal level, the distortion measured between 0.09 and 0.05 percent from 20 to 1,000 Hz, and it increased to 0.22 percent at 10,000 Hz and 0.8 percent at 20,000 Hz.

The low-level linearity of the D/A converters was exceptional, especially for conventional ladder-type con-

verters. From -60 to -90 dB the amplitude error rarely exceeded 0.5 dB, and the levels of the two channels were closely matched. A spectrum analysis of the noise and hum in the player's output showed 60- and 180-Hz levels of -119 and -113 dB, respectively, with the random noise level decreasing from -115 dB at 10,000 Hz to -140 dB at 20 Hz. The A-weighted noise in the audio range was -107.2 dB. The player's dynamic range (EIAJ) was about 90 dB, and quantization noise was at -80 dB. The playback speed error measured -0.0013 percent.

Although the CD-6100 is not a heavy player, it proved to be relatively impervious to physical shock. It was difficult to cause mistracking by fist blows to the sides of the cabinet, and a firm slap or blow on the top was needed to impair the laser tracking audibly. The slew rate of the laser servo was average; it required 2.5 seconds to go from Track 1 to Track 15 of the Philips TS4 test disc. When disc changes were involved, the elapsed time between the selected tracks was typically 7 to 8 seconds.

The error-correction system of the CD-6100 was good, requiring a defect size of 1,250 micrometers to cause audible mistracking. The headphone volume, with medium-impedance (AKG 340) phones, was adequate though never really loud.

### Comments

The Optimus CD-6100 proved to be a very satisfactory CD player, even for conventional use with a single disc loaded. It is no more difficult to use in the single-play mode than other CD players (in fact, it's simpler), and its performance was at least as good as that of most competitively priced models. And, where extended programs are required, its five-disc capacity will provide up to 5 or 6 hours of uninterrupted music.

Although the instruction booklet is quite specific concerning how to program a playback sequence, the procedure is unlike that of most single-play units. We needed some experimentation to get the hang of it, but after a little hands-on experience the process was easy. In all, at \$250 the Optimus CD-6100 changer represents exceptional value.

Circle 140 on reader service card

### FEATURES

- Quadruple oversampling (at 176.4 kHz) and digital filtering
- Dual 16-bit D/A converters
- Carousel loader accepts one to five 5-inch or 3-inch discs
- Programmable to play for up to fifty tracks from loaded discs
- Shuffle-play mode
- Track skipping in either direction
- Fast scan in either direction with audible output
- Initial display of total tracks and playing time on disc
- Operating display of current disc
- and track numbers, elapsed time in track (switchable to remaining time in track or on disc), play or pause mode
- Headphone output with volume control
- Switch for external-timer operation
- Remote control provides direct access to any disc, automatic level fade in and out of pause mode, repeat of disc or programmed sequence; also duplicates main front-panel controls

### LABORATORY MEASUREMENTS

**Maximum output level:** 2.1 volts

**Total harmonic distortion at 1,000 Hz:** 0.09% at 0 dB, 0.075% from -20 to -60 dB

**Signal-to-noise ratio (A-weighted):** 107.2 dB

**Dynamic range:** 90.8 dB

**Channel separation:** 93 dB at 100 Hz, 88 dB at 1,000 Hz, 65 dB at 20,000 Hz

**Maximum interchannel phase shift:** 0.6 degree at 13,000 Hz

**Frequency response:** +0.02, -0.3 dB from 20 to 20,000 Hz

**Low-level linearity error (average of both channels):** +0.6 dB at -60 dB, -0.22 dB at -70 dB, +0.6 dB at -80 dB, +0.75 dB at -90 dB

**Speed error:** -0.0013%

**Stepping time:** 2.5 seconds (7 to 8 seconds between discs)

**Cueing accuracy:** A

**Impact resistance:** top, B; sides, A

**Defect tracking:** tracked 1,000-micrometer defects on Pierre Verany #2 test disc



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to set a new standard for bass quality and authority in a system of this size. The voice coil of this woofer is vented for increased power handling and effortless reproduction of dynamic musical passages.

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## PIONEER VSX-D1S AUDIO/VIDEO RECEIVER

*Julian Hirsch, Hirsch-Houck Laboratories*

**T**HE VSX-D1S is Pioneer's most powerful audio/video receiver. It contains a versatile AM/FM tuner and a preamplifier with Dolby Pro Logic decoding as well as digital signal-processing (DSP) circuits that can synthesize four additional surround modes. All surround parameters (including the relative levels at all speakers, delay times, etc.) can be altered by the user and the results stored in memory as an additional option. The VSX-D1S has five power amplifiers: one each for left, right, and center front speakers and left and right rear speakers. The receiver's operating features are so numerous that we can merely mention some of the most important ones.

The main (front) speaker amplifiers are rated to deliver 130 watts each into 8 ohms from 20 to 20,000 Hz with no more than 0.005 percent total harmonic distortion (THD). The center-channel and rear speaker amplifiers are rated at 40 watts each into 8 ohms at 1,000 Hz

with 0.08 percent distortion. The pre-amplifier output and power-amplifier input for each channel are brought out to separate jacks on the rear apron, where removable jumper links permit the use of external power amplifiers.

The tuner section has preset memories for up to thirty stations, either AM or FM, using only ten buttons. The display can be programmed to show the call letters and program category (jazz, rock, etc.) as well as the frequency of any preset station.

The preamplifier has audio inputs for a moving-magnet (MM) phono cartridge (with an input-sensitivity control), a CD player, two audio tape decks, another line source, a videodisc player (VDP), three VCR's, and an additional video sound source. In addition to the composite (RCA-jack) inputs and outputs for three VCR's, there are separate DIN sockets for use with S-video-compatible VCR's. There is also an S-video input for a compatible videodisc player.

Video programs (excluding S-video) entering the receiver can be passed through an enhancer circuit to adjust picture quality. A novel split-screen feature enables the monitor to show the original picture on half the screen and the enhanced picture on the other half, simplifying adjustment. Up to five different settings can be stored.

Another novel feature of the VSX-D1S is its multiroom mode. The receiver can supply independent programs to two rooms, and with an accessory MR-100 remote sensor, users in the remote location can control its program source and volume level. When the VSX-D1S is used in this mode, its rear-channel amplifiers drive the remote speakers.

Below the large display window, numbered buttons select preset stations or give direct access to any frequency. Small round buttons to their right select the various factory-set surround modes, identified as Jazz, Dance, Church, Hall, and Theater. The Theater mode can be used with standard Dolby Pro Logic surround settings or with Dolby three-channel logic without a center speaker.

Twelve large, square buttons across the bottom of the panel select the audio and video input sources. Two smaller buttons to their left permit separate

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Polson: Flesh & Blood (Capitol) 50207

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Joe Cocker: Live! (Capitol) 00529

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Johnny Gill (Motown) 00738

Damn Yankees (Warner Bros.) 14852

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Diana Ross & The Supremes: 20 Greatest Hits (Motown) 63867

The Cure: Disintegration (Elektra) 01109

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Marcus Roberts: Deep In The Shed (Novus) 73646

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Whitney Houston: I'm Your Baby Tonight (Arista) 10663

Sin ad O' Connor: I Do Not Want What I Haven't Got (Chrysalis) 33512

Pat Metheny: Question And Answer (Geffen) 73522

Hank Williams, Jr.: Lone Wolf (Warner Bros.) 64311

The Who: Who's Better, 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 Productions: Edutainment (Jive) 63675

Days Of Thunder/ Sdk. (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 Forward (GRP) 00829

Styx: Classics (14 Gt. Hits) (A&M) 14822

Fleetwood Mac: Behind The Mask (Warner Bros.) 47666

Guns N' Roses: Appetite For Destruction (Geffen) 70348

Frank Sinatra: Capitol Collector's Series (Capitol) 64362

Travelling Wilburys: Vol. 1 (Wilbury) 00711

John Hiatt: Stolen Moments (A&M) 44540

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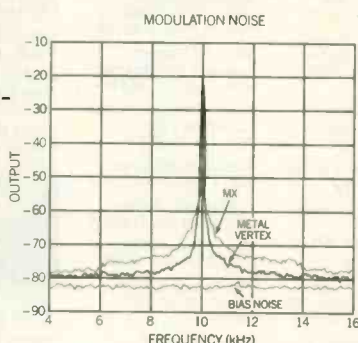
makes this mechanism truly unusual is the golden emblem center, which is not simply decorative but serves to dampen external vibrations even further. Bad vibes aside, our new Metal Vertex cassette shell also provides unmatched durability and heat resistance.

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0004520

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## FEATURES

- Digital frequency-synthesis AM/FM tuner with thirty station presets
- Preset scan
- Independent power amplifiers for five channels (stereo main, rear surround, center front)
- Adjustable digital delay for spatial enhancement
- Dolby Pro Logic decoding; three-channel setting for use without a center speaker
- Digital (DSP) surround modes include Jazz, Dance, Church, Hall, and Theater (Dolby Pro Logic); all user adjustable
- Audio inputs for phono (MM), CD, line, two tape decks, three VCR's, videodisc player
- Video circuits for three VCR's, videodisc player, TV set, all with S-video connectors
- Video outputs to two monitors
- Separate preamplifier outputs and power-amplifier inputs for all five amplifiers
- Dolby Pro Logic power-amplifier mode with equal output in left, right, and center front channels, increased output in rear channels
- Subwoofer output for externally amplified subwoofer
- Speaker outputs for two pairs of main speakers, two center speakers, two rear speakers
- Two-zone operation with optional MR-100 multiroom remote-control sensor
- Inputs for 300-ohm and coaxial 75-ohm FM antennas and AM loop antenna
- Bass, midrange, and treble tone controls
- Digital Simulated Stereo System for mono sources
- Video Enhancer circuit with split-screen option
- Jog knob for control of six selectable functions
- Front-panel display of complete operating status, including station call letters (when programmed)
- Programmable infrared remote control; preprogrammed for system control of Pioneer SR series components
- Power/impedance selector for operation with 4-ohm speakers
- Three AC outlets (two switched)

## LABORATORY MEASUREMENTS

- Tuner Section** (all figures for FM only except frequency response; measurements in microvolts, or  $\mu\text{V}$ , referred to 300-ohm input)
  - Usable sensitivity:** mono, 14.5 dBf (2.9  $\mu\text{V}$ )
  - 50-dB quieting sensitivity:** mono, 15 dBf (3  $\mu\text{V}$ ); stereo, 37.5 dBf (41.2  $\mu\text{V}$ )
  - Signal-to-noise ratio at 65 dBf:** mono, 75.8 dB; stereo, 72 dB
  - Harmonic distortion (THD + noise) at 65 dBf:** mono, 0.059%; stereo, 0.155%
  - Capture ratio at 65 dBf:** 2.3 dB
  - AM rejection:** 50 dB
  - Selectivity:** alternate-channel, 70 dB; adjacent-channel, 10 dB
  - Stereo threshold:** 20 dBf (5.5  $\mu\text{V}$ )
  - Pilot and subcarrier leakage:** 19 kHz, -56 dB
  - Hum:** -65 dB
  - Stereo channel separation at 100, 1,000, and 10,000 Hz:** 45, 48.5, 49.5 dB
  - Frequency response:** FM, +1, -0.6 dB from 30 to 15,000 Hz; AM, +1, -6 dB from 78 to 2,100 Hz
- Amplifier Section**
  - 1,000-Hz output power at clipping:** front channels, 157 watts each into 8 ohms, 210 watts into 4 ohms; center channel, 60 watts into 8 ohms, 93 watts into 4 ohms; rear channels, 60 watts each into 8 ohms, 83 watts into 4 ohms (power switch set for 8 ohms)
  - Clipping headroom** (relative to rated output): front channels, 0.82 dB; center channel, 1.76 dB; rear channels, 1.76 dB
  - Dynamic power output:** front channels, 189 watts each into 8 ohms, 253 watts into 4 ohms, 324 watts into 2 ohms; center channel, 62 watts into 8 ohms, 91 watts into 4 ohms; rear channels, 60 watts each into 8 ohms, 82 watts into 4 ohms
  - Dynamic headroom:** front channels, 1.6 dB; center channel, 1.9 dB; rear channels, 1.8 dB
  - Maximum distortion** (20 to 20,000 Hz into 8 ohms): 0.13% at 15,000 Hz and 130 watts output (front channels)
  - Sensitivity** (for a 1-watt output into 8 ohms): CD, 15.3 mV; phono, 0.28 mV
  - A-weighted noise** (referred to a 1-watt output): CD, -76.2 dB; phono, -70 dB
  - Phono-input overload:** 128 mV at 1,000 Hz, 41.5 mV at 20 Hz
  - Phono-input impedance:** 52,000 ohms in parallel with 240 pF
  - Tone-control range:** 100 Hz,  $\pm 8$  dB; 1,000 Hz,  $\pm 8$  dB; 10,000 Hz,  $\pm 8$  dB
  - Loudness-contour range:** +6.8 dB at 30 Hz, +1.7 dB at 16,000 Hz (response independent of volume setting)

selection of program sources for listening and recording.

To the right of the display window is a large volume knob with a red LED index marker. Below it is the multipurpose jog knob, which controls several digitally operated functions, including AM beat reduction (AM B.R.), tuning, entering station call letters into memory (CHARACTER), the video enhancer, delay for surround-sound modes, and echo density of the rear channels in a music surround mode (EFFECT).

A small JOG MODE button near the dial toggles the control between its various functions, depending on the current operating mode (nonapplicable functions are locked out). In each case, turning the knob varies the setting for the selected function, with the current setting displayed in the window. In the tuning mode, it becomes a tuning knob, supplementing the buttons for step-by-step tuning, auto-scan tuning, preset selection, and direct frequency setting.

Other small buttons near the volume knob operate the audio muting, restore the default settings of the principal operating controls (RETURN), turn on the Digital Simulated Stereo System (DSSS) for use with mono program material, and open the door that hides less-often-used controls. Pressing the DOOR OPEN button causes the entire lower portion of the panel, the part containing the input-selector buttons, to hinge downward, revealing a number of small buttons and the input jacks for VCR3.

Some of the hidden controls are used for tuner operation, such as step and scan tuning, storing station call letters in memory, preset storage, AM B.R., and another tuning feature called Hyper Intelligent Tuning System (HITS), the main effect of which is to find the next receivable station in the band. Other controls modify the bass and treble response separately for front, rear, and center channels; there is also a midrange tone adjustment for the three front channels. Another group adjusts the relative levels in the center and rear channels and the overall left/right balance. A test-tone button activates a random-noise test signal that automatically steps through the five channels to help in balancing their levels for surround operation.

The display window, which measures 2 1/8 by 9 1/2 inches, contains a vast



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Henry Kloss created the dominant speaker models of the '50s (AR), '60s (KLH) and '70s (Advent)—as well as our highly acclaimed Ensemble and Ambiance™ speakers. While packing a stereo system into a suitcase before a vacation, he realized that an amplifier, a CD player and two small speakers take up the same space required for an acoustic suspension woofer to reproduce really deep bass. That was the inspiration for BassCase, Model Eleven's bass speaker enclosure which doubles as the entire system's carrying case.

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.

## The best sound comes in four small packages.

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...

We make it possible to audition

"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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## TEST REPORTS

amount of information on the status of virtually every part of the receiver. A multibar display shows the program level separately for the left and right channels (front and rear) and the center channel. When you adjust the tone controls, this display changes to show the control settings; it reverts to level readings a few seconds after the adjustment is completed.

At the left of the panel are the power button, a DIRECT button that bypasses all the signal-processing circuitry, and a button to activate the multiroom mode. There are also separate switches for connecting the two pairs of front speaker outputs and a stereo headphone jack.

The VSX-D1S is supplied with a wireless remote control that is designed to serve as a system control. About half of its buttons are duplicates of the receiver's most commonly used controls (the master volume knob is motor-driven when the remote is used). The markings on the rest of the buttons indicate that they are intended to operate a cassette deck, a VCR, a CD player, a videodisc player, and a TV set. In the control's SR Recall mode, these buttons are preprogrammed to operate Pioneer components identified with the SR logo.

The remote control is a "smart" one, however, and it can learn the infrared commands for most components from other manufacturers. Although Pioneer cannot guarantee that the remote unit will operate all the functions of every product, the manual offers suggestions for the most effective programming of the controller.

The rear apron, in addition to all the signal input and output jacks, has binding-post terminals for two pairs of front speakers and two center speakers (when it is not practical to locate a single speaker under or in front of the TV set, it may be possible to place speakers symmetrically on either side of it to serve the same purpose). The speaker terminals accept only stripped wire ends, not banana plugs). There are spring-loaded connectors for two rear speakers.

A power impedance selector on the rear apron reduces the operating voltage on the front-channel output transistors for safe operation with 4-ohm speakers. There are binding posts for a 300-ohm FM antenna and the supplied AM loop antenna as well as a coaxial

jack for a 75-ohm FM antenna. Two of the three AC outlets are switched.

The VSX-D1S is a large, heavy receiver, measuring 16½ inches wide, 18 inches deep, and 6¾ inches high. It weighs 33 pounds. Price: \$1,400. Pioneer Electronics, Dept. SR, 2265 E. 220th St., Long Beach, CA 90810.

### Lab Tests

When we tested the VSX-D1S's amplifiers, we did not attempt to drive all five simultaneously, which would be an unrealistic condition given their phase and amplitude relationships in the surround-sound modes. Instead, we drove the two front channels as for any stereo amplifier, and we later drove the center and rear amplifiers from their rear-panel inputs, bypassing the preamplifier section.

The receiver's well-ventilated top

*The Pioneer VSX-D1S is a true powerhouse receiver, more than able to drive the vast majority of speakers to their limits without straining.*

cover became fairly hot during its pre-conditioning period and subsequent tests. With both front main channels driving 8-ohm loads at 1,000 Hz, the outputs clipped at 157 watts per channel. With 4-ohm loads the output at clipping increased to 210 watts per channel. The respective dynamic power outputs were 189 and 253 watts. We also measured dynamic power into 2 ohms, for a reading of 324 watts. We did not attempt 2-ohm operation in the continuous-power tests in view of the VSX-D1S's very high power rating and the risk of blowing fuses or even damaging the receiver.

The rear and center channels each delivered 60 watts into 8 ohms. The 4-ohm output was 83 watts for the rear channels and 93 watts for the center channel. The fact that two channels were being driven in one case and one channel in the other probably explains the difference in available power. The dynamic power outputs of these amplifiers were essentially the same as their clipping-level outputs.

The 1,000-Hz distortion (THD plus noise) of the front-channel amplifiers at 130 watts into 8 ohms was 0.02 to

0.04 percent from 20 to 4,000 Hz, rising to 0.06 percent at 20,000 Hz. At 1,000 Hz, it was 0.02 percent at 130 watts. Into 4 ohms, the distortion was about 0.015 percent just below the 210-watt clipping point. The distortion of the rear and center channels was 0.02 percent or less at 40 watts up to 2,000 Hz, increasing to 0.3 percent at 20,000 Hz.

The amplifier section's frequency response (front channels), relative to the 1,000-Hz level, was down 0.4 dB at 20 Hz and 1.5 dB at 20,000 Hz. In the Direct mode (bypassing the signal-processing circuits), the response was flat within ±0.1 dB over the full range of 20 to 20,000 Hz.

The tone-control response curves were conventional, with the midrange control's effect centered at 1,000 Hz. RIAA phono-equalization error was less than 0.5 dB from 20 to 20,000 Hz. The rear-channel amplifier response was down 0.1 dB at 20 and 10,000 Hz and 0.4 dB at 20,000 Hz. The switchable loudness compensation boosted both low and high frequencies slightly, and its response was independent of the volume setting.

The amplifier section required an input of 15.3 millivolts (mv) at a high-level input or 0.28 mv at the phono input for a reference output of 1 watt into 8 ohms. The respective A-weighted noise levels were -76.2 and -70 dB. The high-level (CD) input overloaded at 2.3 volts, and the phono input overloaded at 128 mv at 1,000 Hz and 41.5 mv at 20 Hz. Phono response cut off very sharply above 20,000 Hz, preventing overload measurements at that frequency.

The FM tuner section had good 50-dB quieting sensitivity: 15 dbf in mono and 37.5 dbf in stereo. Mono usable sensitivity was 14.5 dbf, and the stereo threshold was 20 dbf. The FM tuner's distortion at 65 dbf was 0.06 percent in mono and 0.155 percent in stereo, and the respective noise levels were -75.8 and -72 dB.

The FM frequency response was within +1, -0.3 dB from 30 to 15,000 Hz. Channel separation was 48 to 50 dB from 400 to 10,000 Hz, 38 dB at 20 Hz, and 44 dB at 15,000 Hz. Capture ratio was 2.3 dB, AM rejection was 50 dB, and image rejection was 45 dB.

Selectivity was good, measuring 70 dB for alternate-channel (400-kHz) spacing and 10 dB for adjacent-channel (200-kHz) spacing. The 19-kHz pilot-

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carrier leakage was at a  $-56$ -dB level, and the 38-kHz component was undetectable. Power-line hum was  $-65$  dB, predominantly at 120 Hz.

The AM tuner's frequency response was  $+1$ ,  $-6$  dB from 78 to 2,100 Hz. We also attempted to measure (and hear) the effect of the AM beat-reduction circuit. Our measurements indicated that it produced a sharp dip in the audio output, tunable (with the jog knob) from as low as 1,000 Hz to higher than 10,000 Hz. The AM frequency response cut off quite sharply above 3,000 Hz, however, and measurement of the null depth was difficult. It appeared to be at least 10 dB.

### Comments

The Pioneer VSX-D1S is an unusual, unconventional receiver in respect to its overall concept, features, and performance. At first acquaintance, it is nothing less than overwhelming despite the relatively uncluttered, open appearance of the front panel. The rear apron is enough to drive anyone to the manual.

The manual, all fifty pages of it, is complete and for the most part well written. Nevertheless, there is a lot of it to study, and no matter how familiar you may be with modern stereo A/V receivers, I guarantee that you will not get too far with this one until you get some hands-on experience with it, manual at the ready.

We did not use the receiver with video or phono sources, nor did we attempt multiroom operation (the optional remote sensor was not included). We did use it in a four-speaker surround-sound installation, mostly with tuner and CD programs, and with a videodisc player and laserdiscs to judge its Dolby Pro Logic performance.

Briefly, the VSX-D1S is a component that grows on you with use. At first, I was somewhat turned off by the complexity of its many control functions and features, often identified with obscure nomenclature or acronyms, as well as by a couple of below-average test results (for instance, the CD and other high-level inputs could be overloaded by some typical input signal levels). But after extended use, its performance and versatility prevailed.

The FM tuner section performed well with respect to distortion, interference rejection, and sensitivity. Not only does the VSX-D1S have many

more preset memories than most other receivers, but the option of manual tuning with the jog control gives it the feel and convenience of analog tuning along with the accuracy and stability of digital frequency synthesis.

The Digital Simulated Stereo System feature is supposed to synthesize a stereo-like effect from mono programs. I tried it with a variety of programs but was unable to obtain anything audibly different from the source.

The AM tuner was typical, which is to say about as far from high fidelity as one can get. The justification for the AM beat reducer seems debatable, since I cannot imagine how a beat tone between stations (10 kHz apart in North America) could possibly be audible through a bandwidth of less than 3,000 Hz. I was never able to hear such a tone, so I cannot judge how effective the tunable notch would have been in eliminating it.

Fortunately, the benefits of the receiver's other features were very audible and more than made up for its few less-impressive qualities. Obviously, the VSX-D1S is a true powerhouse receiver, more than able to drive the vast majority of speaker systems to their limits without straining its amplifiers. If you want to optimize its performance for Dolby Pro Logic playback, you can flip a switch on the rear apron to drop the left and right front

amplifiers' ratings to 70 watts each and increase the rear amplifiers to 50 watts per channel and the center amplifier to 70 watts. This will give better power distribution for Dolby Surround soundtracks, which put a lot of energy into the center channel.

The music surround effects were excellent. The factory-preset characteristics should be suitable for almost any needs, but they can be modified as required and saved as optional modes. Adjusting the "effect level" with the jog control can make a huge difference in the sound quality. Although the manual is not at all specific as to the parameter(s) the control adjusts, it seemed to be largely the echo density (and possibly level).

The final proof of this system's merits was its Dolby Pro Logic surround mode, which was excellent. Although we did not use the receiver to control the video signals from the laserdisc player, the sound from the laserdiscs we played was everything we would expect to hear from a Dolby Pro Logic setup.

All in all, the Pioneer VSX-D1S is a large, heavy, powerful, expensive, highly versatile, and fine-sounding receiver. Although it might not be suitable for a neophyte, and could challenge the most experienced audiophile, the effort of mastering its intricacies is well justified by the results.

*Circle 141 on reader service card*



*"I don't understand it, Lowell. Why would anybody want to build a three-way speaker system in a bottle?"*

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## PANASONIC LX-1000 COMBI-PLAYER

*Julian Hirsch, Hirsch-Houck Laboratories*

**P**ANASONIC calls its new LX-1000 a Multi Laser Disc player, but it uses only one laser and handles discs strictly one at a time. That disc can be in almost any optical format, however, including 3- and 5-inch music CD's, 5-inch CDV's (with video), and 8- and 12-inch laser videodiscs in either the CAV or CLV format. (A CAV disc plays for a maximum of 30 minutes on a side, whereas a CLV disc can play for as long as 1 hour on a side, at the sacrifice of some special viewing features.) The only current optical disc formats not compatible with the LX-1000 are CD+G (graphics), which has never really gotten off the ground, and CD-ROM, which is designed for data storage rather than home entertainment.

One of the LX-1000's most ingenious features is its ability to play both sides of a laserdisc automatically by moving the pickup mechanism from one side of the disc to the other. During

the change, which takes about 11 seconds, the last frame of the first side remains frozen on the video screen.

The LX-1000 features a digital time-base corrector to minimize jitter resulting from disc warpage and speed fluctuations and a digital Y/C comb filter that precisely separates luminance (Y) and chrominance (C) signals, to improve picture quality when the player's S-video output is used. A correspondingly high standard of audio quality is provided by 1-bit MASH digital-to-analog (D/A) converters and the use of a separate power transformer for the player's audio section. In addition to the S-video jack and two sets of audio output jacks (each with its own composite-video output) for use with the system amplifier and a TV monitor or receiver, the LX-1000 has an optical digital audio output.

The player's exterior is strikingly simple and attractive, with only the most essential controls visible. The

power button and the headphone jack and its volume control are at the left side of the panel, and the play, pause, stop, and drawer open/close buttons are at the right. Below these buttons is a large jog knob whose spring-loaded outer shuttle ring is a fast-scan control for all types of laserdiscs. The inner knob, which can be turned continuously in either direction, advances or retards the playing point (picture and sound).

The disc drawer, which extends across most of the top of the front panel, is hidden from view by a hinged door that swings down at the touch of the open/close button, allowing the drawer to glide forward about 10½ inches from the front panel. A cutout in the center of the drawer and a surrounding pattern of concentric rings simplifies loading or removing a disc. A second touch on the button causes the drawer to close.

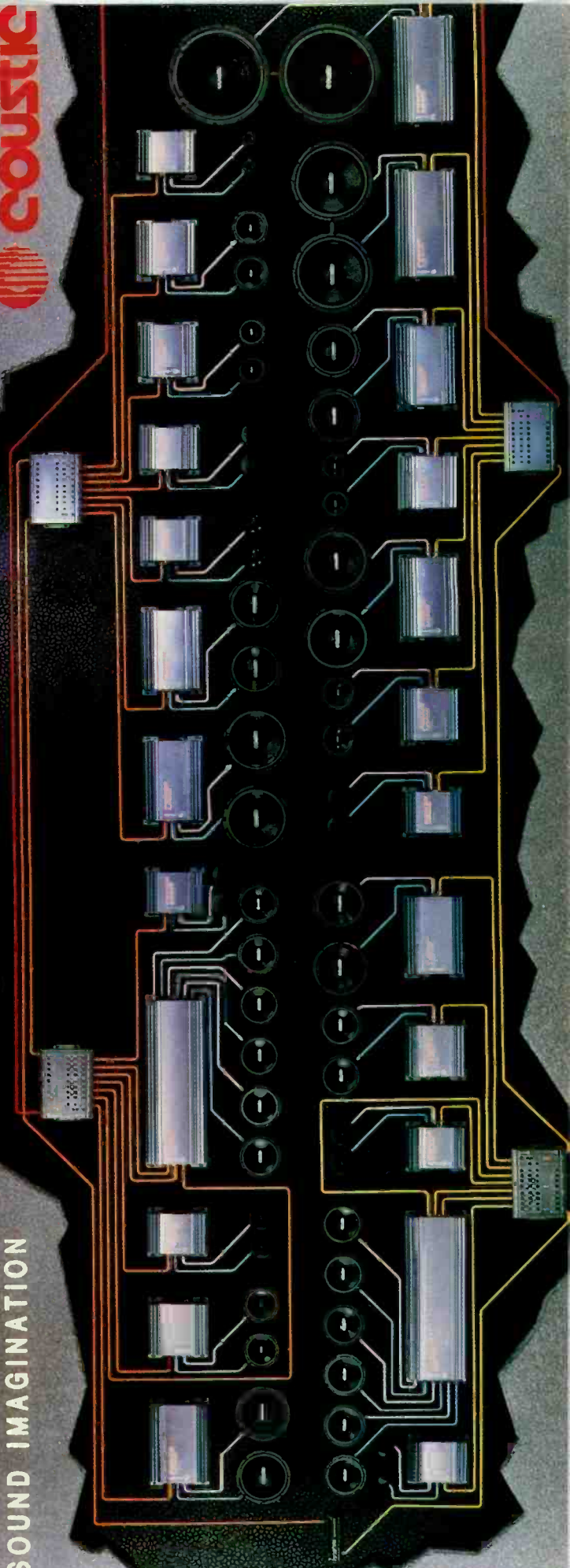
The display window below the drawer presents complete information on the status of the player and disc. In addition to the chapter or track number, the frame number or time, index number (if any), and a music calendar showing the numbers of CD tracks remaining to be played, there are indications of the status of the repeat and



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SOUND IMAGINATION



## FEATURES

- Plays five types of optical discs: 12- and 8-inch laserdiscs, 5-inch CD's and CD-V's, and 3-inch CD's
- Automatic side change for laserdiscs
- Digital time-base correction and Y/C separation for better picture
- Dual-magnet disc clamp centers both sides of laserdisc
- High-torque brushless direct-drive motor for reduced disc vibration and quick start-up
- 1-bit MASH D/A converters for improved low-level linearity
- Jog and shuttle controls for rapid, accurate disc search
- Digital field memory for noiseless still-frame, slow motion, and search
- Programmed or random playback of all types of laserdiscs and CD's
- Repeat of disc, side, chapter/track, user-selected portion, or program
- Still or stroboscopic picture with or without sound
- Direct access to numbered tracks or chapters
- Automatic power shutoff after 30 minutes of nonuse
- Remote control duplicates all front-panel control functions
- On-screen display of audio levels as well as video status
- Front-panel headphone jack with volume control
- Two sets of audio and composite-video outputs plus S-video output

## HIRSCH-HOUCK LAB MEASUREMENTS

**Maximum output level:** 2.05 volts

**Distortion (THD + N) at 1,000 Hz:**  
0.01% from 20 to 20,000 Hz at 0 dB

**Signal-to-noise ratio (A-weighted):**  
98.6 dB

**Channel separation:** 111 dB at 100 Hz, 108 dB at 1,000 Hz, 79 dB at 20,000 Hz

**Frequency response:** +0.15, -0 dB from 11 to 20,000 Hz

**Maximum interchannel phase shift (from 20 to 20,000 Hz):** 1.3 degrees at 20,000 Hz

**Low-level linearity error:** less than 0.4 dB down to -90 dB, +1.86 dB at -100 dB

**Cueing time:** less than 2 seconds

**Impact resistance:** top, B; sides, A

**Defect tracking:** tracked 750-micrometer defects on Pierre Verany #2 test disc

## VIDEO MEASUREMENTS

**Video bandwidth:** -2¼ dB at 2.0 MHz, -6½ dB at 4.1 MHz

**Chroma differential gain:** 18%

**Chroma differential phase:** ±2°

**Chroma level error:** -1½ to -2¼ dB

**Chroma phase error:** +7°

*The Panasonic LX-1000's video frequency response, down just 6½ dB at 4.1 MHz (the upper limit for the video response of NTSC television broadcasts is 4.2 MHz), indicates a horizontal luminance resolution in the vicinity of 330 lines. That figure may not seem very exciting, but in fact it represents extremely good performance, comparable to that of most other laserdisc players and better than all but a handful of VCR's. Gray-scale (luminance) linearity was almost as good as it is possible to measure with the standard test disc. With a properly adjusted monitor, you can expect this player to provide black blacks, white whites, and uniform shades of gray throughout the luminance range.*

*The color counterparts of gray-scale linearity are chroma differential gain and phase. They indicate how color saturation and hue, respectively, shift with changes in scene brightness.*

*Ideally, both would be zero. The LX-1000's gain was well within normal bounds and uniformly distributed across the brightness range, so there were no abrupt shifts in color saturation over gradual brightness changes. Its chroma differential phase was as low as can be measured.*

*Whereas chroma differential gain and phase tell how colors change with brightness, chroma level and phase accuracy indicate how close to perfect the colors are on an absolute basis. In the LX-1000, the phase (hue) was off by 7 degrees—a tad more than usual, but constant for all colors. A slight adjustment to a monitor's tint control should set matters straight, if you even notice the error. (Differences in color-temperature adjustment among various TV sets are likely to cause much more apparent hue differences than the LX-1000's relatively small offset.) Color level (saturation) was closer than usual to standard, off by an amount that the automatic chroma-level circuitry in monitors and TV sets will readily correct. In short, there's not much to fault here.*

—Edward J. Foster, Diversified Science Laboratories

programming functions, whether the audio is digital or analog, whether CX noise reduction (for analog laserdisc soundtracks) is in use, and whether a CAV or CLV laserdisc is loaded.

Pressing a small button to the right of the window causes the lower portion of the panel to swing down, revealing a number of additional controls, including numerical keys for direct access to any track or chapter, programming the track sequence, and selecting a repeat mode (program, complete side, or selected portion of a side). Other keys select random play of CD tracks, control skipping in either direction, and select the side for a videodisc.

The remote control furnished with the LX-1000 duplicates all of the front-panel controls and provides a number of others, grouped according to their application to video or audio discs. Much of the display information and other operating data can also be viewed on a TV screen, simplifying operation from the remote control.

The Panasonic LX-1000, finished in black, measures 17 inches wide, 16⅞ inches deep, and 5⅞ inches high. It weighs 25½ pounds. Price: \$1,400. Panasonic, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

## Lab Tests

Although the Hirsch-Houck Labs bench tests of the Panasonic LX-1000 dealt only with its CD-playing functions [see the box at left for the results of video tests by Diversified Science Laboratories], we also used it with a variety of videodiscs, both demos and motion-picture releases, in conjunction with an A/V receiver and a 25-inch video monitor.

The audio output from a 0-dB, 1,000-Hz CD test track was 2.05 volts. Its frequency response was flat within +0.15, -0 dB from 11 to 20,000 Hz, and the channel balance was off just 0.01 dB. Separation was 110 to 113 dB at 1,000 Hz and 79 dB at 20,000 Hz. Maximum interchannel phase shift was 1.3 degrees at 20,000 Hz.

As we have come to expect from CD players using today's 1-bit D/A converters, the LX-1000 had excellent linearity at low recorded levels. Typical errors were a small fraction of a decibel from -60 to -90 dB, with the largest error (about 2 dB) occurring at -100 dB. Total harmonic distortion plus noise (THD + N) at 0 dB was 0.01



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percent from 20 to 20,000 Hz. Wide-band noise (A-weighted) was -98.6 dB, and quantization noise was -82 dB. The frequency (speed) error was -0.0035 percent. Slew time from Track 1 to Track 15 of the Philips TS4 test disc was just under 2 seconds, slightly faster than average. The player's resistance to impact was good with CD's, excellent with laserdiscs.

The LX-1000's error-correction system was good, though not the equal of several CD-only players we have tested in recent months. It tracked 750-micrometer errors on the Pierre Verany #2 test disc successfully but exhibited brief dropout interruptions at the 1,000-micrometer level.

### Comments

In virtually every respect that we could hear or measure, the Panasonic LX-1000's performance as a CD player was equal to that of any of today's CD-only players. It has enough operating flexibility to suit most people, and—like most CD players—its sound is as good as the recordings allow it to be.

The remote control is surprisingly easy to use considering its versatility. Although it has a healthy complement of buttons (forty-nine plus the jog/shuttle knob), they are grouped logically by function. Many of them (the basic transport controls, track/chapter selectors, repeat functions, and so on) are common to all types of laser-read discs, and when there are reasonably analogous operations the same button will usually perform them. The buttons for functions unique to one type of disc have no effect when you are playing a different type.

Judged subjectively, the video performance of the LX-1000 was as good as its audio. The various control features worked as effectively on videodiscs as on CD's. The automatic side change was a considerable convenience, working smoothly and relatively quietly.

The instruction manual (fifty-one pages long) is profusely illustrated with line drawings that show the exact procedures required for each function with each type of disc. The LX-1000, despite its simple appearance, is a very complex device, but it is hard to imagine how it could have been made any simpler to use. A very impressive achievement.

Circle 142 on reader service card



## KLIPSCH KG<sup>3</sup> SPEAKER SYSTEM

*Julian Hirsch, Hirsch-Houck Laboratories*

**T**HE Klipsch kg<sup>3</sup> is a moderate-price two-way system that combines extended bass response and high sensitivity in a compact and attractive package. It is also the smallest and least expensive true horn-loaded system offered by Klipsch.

The kg<sup>3</sup>'s single 8-inch woofer has a polystyrene cone, a 20-ounce magnet, and a rubber surround. The speaker's low-frequency output is augmented by a 10-inch passive radiator mounted on the front panel below the woofer. The passive radiator contributes an effective output from its rated 36-Hz cutoff frequency up to about 100 Hz. In previous systems in the kg line the passive radiators were located in the rear, but Klipsch engineers found that front-mounting produced better coupling with the output of the kg<sup>3</sup>'s driven woofer.

At 1,800 Hz there is a crossover to a horn-loaded, ferrofluid-cooled dome tweeter, with an 18-dB-per-octave slope to the tweeter and a 12-dB-per-octave slope to the woofer. The wood cabinet is available finished in oiled walnut or oak veneer or in black lac-

quer. The cabinet measures 24¼ inches high, 13¾ inches wide, and 11¼ inches deep, including the removable black cloth grille, and each speaker weighs 31½ pounds.

The rated sensitivity of the Klipsch kg<sup>3</sup> is 93 dB sound-pressure level (SPL) at 1 meter with a 1-watt input. Its nominal impedance is 8 ohms, with a 4.4-ohm minimum at 165 Hz. Rated power-handling capacity is 65 watts continuous and 325 watts peak. The system's frequency response is given as 36 to 20,000 Hz ± 3 dB. Price: \$530 a pair. Klipsch, Dept. SR, P.O. Box 688, Hope, AR 71801.

### Lab Tests

The averaged room response of the left and right speakers was within ±1.5 dB from 500 to 20,000 Hz. A close-miked measurement of the woofer response, including the output of the passive radiator, was flat within 1.5 dB overall from 50 to 250 Hz, falling off to -5 dB at 35 Hz. The effective acoustic crossover between the driven and passive cones was at 55 Hz. The upper end of the woofer's range sloped down slightly, but after we removed

some obvious room-interaction effects, the woofer curve overlapped the room curve for more than two octaves.

The resulting composite response curve was very smooth. The lower end of the woofer's output averaged about 2.5 dB above the midrange plateau level from 500 to 1,800 Hz. The tweeter's response was very flat though about 2.5 dB below the midrange level

*The Klipsch kg<sup>3</sup> delivered a clean, deep bass that seemed almost incongruous for a speaker of its compact dimensions. The output was truly usable at 35 Hz and below.*

between 2,000 and 11,000 Hz, and it returned to the midrange level between 13,000 and 20,000 Hz. The overall response was flatter and smoother than that of most other loudspeakers we have tested, with a variation of only  $\pm 3.5$  dB from 32 to 20,000 Hz and a notable absence of significant irregularities (peaks or dips) through most of that range.

The speaker's minimum impedance was 4.1 ohms at 150 Hz, with the two bass-resonance peaks being 44 ohms at 24 Hz and 35 ohms at 58 Hz. The impedance rose to 31 ohms at 2,000 Hz, and overall it averaged about 8 ohms.

The system's sensitivity was even higher than rated, with a 96-dB SPL at 1 meter from an input of 2.83 volts of pink noise. Our distortion measurements were made with an input equivalent to a 90-dB SPL, or 1.4 volts. The total harmonic distortion plus noise (THD + N) of the driven cone was between 0.4 and 0.8 percent from 100 to 1,000 Hz, increasing to 1 percent at 80 Hz, 2 percent at 43 Hz, and a maximum of 8 percent at 30 Hz. Most of the output at the lower frequencies, however, came from the passive cone, whose distortion was 1 percent at 85 Hz, a minimum of 0.8 percent at 65 Hz, and only 4 percent at 30 Hz.

In the horizontal plane, the output of the tweeter measured 45 degrees off-axis was some 6 to 10 dB lower than the on-axis response over most of the

range above 2,000 Hz. There was also a sharp dip at 10,000 Hz (off-axis) that was apparently caused by diffraction or other interference.

The phase linearity of the system was very good, as shown by its group-delay variation of less than 0.2 millisecond from 2,000 to 19,000 Hz. The upper limit was associated with a sharp resonance that produced a very narrow response dip, but the effect was completely inaudible.

The short-term power-handling ability of the kg<sup>3</sup> was excellent, especially in view of its high sensitivity. At 100 Hz (into its 5-ohm impedance), both the active and passive woofer cones "bottomed" against their limits with a single-cycle input of 315 watts. The equivalent acoustic output from a speaker system of average sensitivity would require an input of well over 1,000 watts. At 1,000 and 10,000 Hz, the amplifier clipped before the speaker did, at respective inputs of 650 and 860 watts.

### Comments

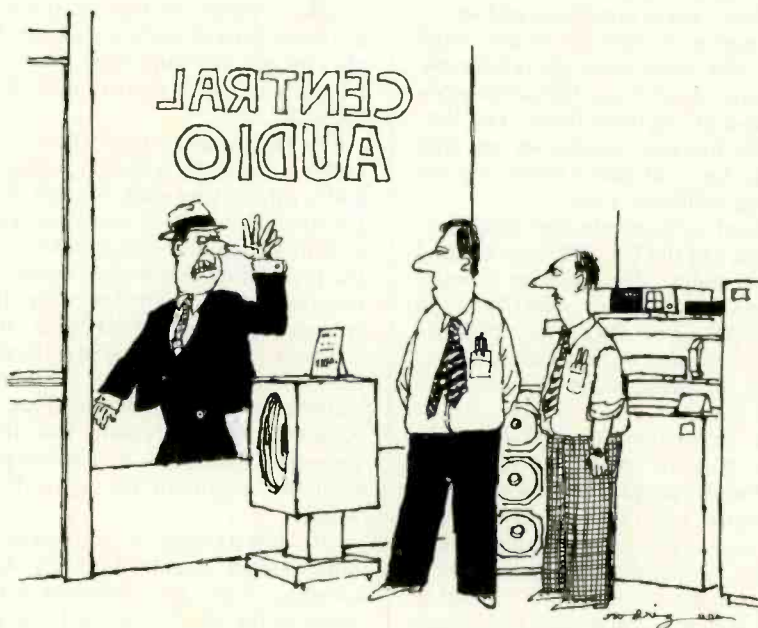
The Klipsch kg<sup>3</sup> delivered a clean, deep bass that seemed almost incongruous for a speaker of its compact dimensions. The output was truly usable at 35 Hz and below, giving the

speaker some of the sonic properties of a much larger one. We tried placing the speakers on stands about 8 inches high a couple of feet in front of a wall as well as on the floor close to the wall. The floor placement gave the low bass even more authority, although the general difference in sound between the two locations was minor.

The overall frequency balance of the kg<sup>3</sup> was excellent, with no audible (or measurable) evidence of peaks or holes in any part of the spectrum. The absence of the upper-bass emphasis found in many less-expensive speakers contributed to the kg<sup>3</sup>'s audible neutrality and made its deep-bass performance even more striking.

Playing a variety of recordings, the Klipsch kg<sup>3</sup> always sounded like a much larger and more expensive speaker than it is. Although there are a number of small speakers that produce a balanced, clean sound, their limited deep-bass output almost always betrays their true size and cost/performance compromises. Rarely have we heard a speaker of this size that could compete so effectively with others several times as large. We also appreciated its lack of critical placement requirements. An outstanding value.

*Circle 143 on reader service card*



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## DENON DTR-2000 DIGITAL AUDIO TAPE DECK

*Craig Stark, Hirsch-Houck Laboratories*

**D**ENON'S new DTR-2000 is one of the first consumer-level digital audio tape (DAT) recorders available in the U.S. through normal channels. By incorporating the Serial Copy Management System (SCMS), it enables users to make as many direct, first-generation digital dubs of CD's and other digital program sources as they wish, while limiting the ability to make digital copies of copies. It also features an advanced version of Denon's 20-bit Super-Linear digital-to-analog (D/A) converter, called the Lambda SLC. Priced at \$1,000, the DTR-2000 comes with a full-function remote control and complements its analog connectors with both optical and coaxial digital inputs and outputs.

While a number of manufacturers have recently adopted one form or another of 1-bit D/A conversion, Denon has chosen instead to remain with the eight-times-oversampling, 20-bit Lamb-

da SLC system originally developed for its top CD players. The Lambda enhancement is designed to minimize the zero-crossing distortion that is characteristic of most multibit D/A converters. Nonlinearity is reduced still further by very careful factory adjustment of the converter's most-significant-bit (MSB) registers. At the other end of the process, a high-speed analog-to-digital (A/D) converter is used to quantize analog input signals.

Apart from the power switch and the buttons that control the tape transport, the front panel of the DTR-2000 contains only one visible control, which is used to set the recording level for taping from an analog source. (Digital-to-digital recording does not require a recording-level control, since the signal is just a stream of pulses representing binary numbers.) All the other pushbuttons, switches, and controls are neatly concealed behind a flip-down front panel.

Despite their diminutive size, DAT cassettes can hold up to 2 hours of music at the normal 48- and 44.1-kHz sampling rates, or 4 hours at the lower-fidelity 32-kHz sampling rate. Cassettes are inserted into the deck through a motorized tray like those used in most CD players. The transport mechanism inside the deck is similar to that of a miniature VCR and uses the same helical-scan principle. The high tape-to-head speed needed for multi-megahertz frequency response (in digital terms, the system's throughput is 2.77 megabits per second) is achieved with a pair of heads mounted in a rapidly rotating drum set at an angle to the longitudinal direction of the tape.

Although the DTR-2000's loading design precludes watching the tape as it creeps from spool to spool, the deck's fluorescent counter provides a far more accurate way to tell where you are on the tape. In addition to displaying the program selection number, the counter can be switched to provide any of four different digital readouts: elapsed time from the start of the tape, elapsed time in the current selection, remaining time to the end of the tape, and conventional (nontimed) counter units, which can be reset to zero at any time.

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

# MAGNATUDE.



15 mg. "tar", 1.0 mg. nicotine, av. per cigarette by FTC method.

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## TEST REPORTS

Signal levels are shown on a twenty-two-segment-per-channel fluorescent peak-reading display, calibrated from -60 to 0 dB with a single OVER indicator. When using a DAT deck, you have to avoid the old analog habit of squeezing out a few extra decibels of "signal-to-hiss" ratio by letting the deck's indicators "run into the red." Once all 16 bits of the digital signal are 1's, no larger number (that is, greater signal level) can be processed. The DTR-2000's built-in analog limiter prevents true digital overload, but such circuits inevitably produce some distortion of their own. You should be careful to keep the recording level down to a point where the OVER indicator lights only very occasionally if at all (preferably never).

Program selections up to No. 99 can be found by pressing the appropriate numbered buttons on either the deck or its remote control. The tape automatically fast-winds (at 250 times normal playing speed) in either direction to the start of that program and begins play from there. The repeat button will rewind and replay the entire tape as many as sixteen times without further attention, but if you wish to hear a specific selection again you must manually punch in its number and hit the play button each time.

In normal use a program number's START ID code is automatically written into the tape's subcode fields—as is an END ID code after the last recorded selection. The DTR-2000 also has a MANUAL MODE override that lets you enter or erase START, SKIP SELECTION, and END subcodes for yourself. To facilitate the exact placement of these inaudible electronic markers, the DTR-2000 provides not only a conven-

tional cue-and-review feature but also a pair of FINECUE buttons that inch the tape back and forth at half the normal speed. After manually modifying the subcodes, pressing RENUMBER runs through the tape, renumbers your selections in order, and rewinds the tape again.

To create smooth segues between selections, the DTR-2000 has a digitally controlled fade-in/fade-out facility. The front-panel headphone jack has a level control, and there is a channel-balance control for analog recordings. A three-position switch selects among analog, optical digital, and coaxial digital inputs. The deck provides for automatic activation by an external timer.

The Denon DTR-2000 measures 17<sup>1</sup>/<sub>16</sub> inches wide, 12<sup>1</sup>/<sub>16</sub> inches deep, and 4<sup>3</sup>/<sub>8</sub> inches high, and it weighs a little less than 16 pounds. Price: \$1,000. Denon, Dept. SR, 222 New Rd., Parsippany, NJ 07054.

### Lab Tests

We measured the performance of the Denon DTR-2000 using both Sony and Japan Audio Society (JAS) calibrated tapes, the CBS CD-1 test disc, and our Audio Precision System One test equipment. Whether it was playing back a calibrated tape or going through either the analog or the digital input/output chain, the deck's frequency response between 20 and 20,000 Hz was so flat that it would be pointless to graph it. In the worst-case condition (using the analog input and output circuitry), one channel was down by 0.31 dB at 20,000 Hz; most deviations throughout the audible spectrum were within a few hundredths of a decibel.

Playback signal-to-noise ratio (S/N),

measured against a totally quiet input track, was in excess of 100 dB even without weighting, which certainly confirms the very low noise content of the DTR-2000's audio output. On the other hand, since a digital silent ("infinity zero") track does not exercise the D/A converter, the A-weighted dynamic range and the unweighted quantization-noise figures, which were within a few decibels of the theoretical 98.08-dB limit for a 16-bit system, represent more realistic—but still excellent—performance measurements.

Distortion was approximately 0.003 percent for both playback and recording through the digital inputs. Through the analog inputs, the total harmonic distortion plus noise (THD + N) was 0.0015 percent (the A/D converter adds some slight distortion of its own), but a more accurate picture can be gained by looking at the accompanying graph A, where it can be seen that the "knee" of the distortion curve is actually reached at a recording level of -1 dB. Above this point the analog limiter kicks in. Even with this, however, at 0 dB the distortion is an order of magnitude lower than is obtainable when recording on conventional analog cassettes.

Channel separation at 1,000 and 10,000 Hz was more than respectably high on an overall record-playback basis, remaining more than 56 dB at 10,000 Hz. In playback alone, where the analog input circuitry was not active, it was better than 80 dB at the higher frequency. The A-weighted S/N's of 87 and 85 dB through the analog inputs, while very good, were not outstanding. A good idea of the deck's relative performance recording through the analog and the digital inputs can be gained by comparing the sets of traces in graph B. The overall linearity of the A/D and D/A converters was excellent down to -50 dB, and the error did not exceed 1 dB until the level dropped below -90 dB (see graph C).

There was, of course, no wow-and-flutter to measure in the DTR-2000, and its input and output levels were entirely normal. We detected a minuscule speed error (0.02 percent) on the AP's frequency counter, but it could not conceivably be audible. Fast-winding speeds were fast indeed. The deck ran through a 120-minute tape in 39 seconds in normal fast wind and in

### FEATURES

- Optical and coaxial digital inputs and outputs as well as analog inputs and outputs
- Sigma/Delta A/D converters
- Lambda SLC 20-bit D/A converters with eight-times oversampling
- Twenty-two-segment-per-channel peak-level display with OVER indicator
- Digital readout of elapsed time from start of tape, remaining time on tape, elapsed time in current selection, or linear tape counter
- Direct access to selections up to No. 99
- Editable Start, Skip, and End ID subcode markers with fine-cue control and renumbering facility
- Full-function remote control
- Two fast-winding modes (250 and 400 times normal speed) plus cue-and-review
- Adjustable digital fader
- Supports standard 48- and 44.1-kHz sampling rates and half-speed (32-kHz) mode
- Three-step display-brightness control
- Can be activated by external timer

*Limited  
Edition.*

# Unlimited



## Tenth Anniversary Amplifier

Ten years ago, Adcom produced its first stereo amplifier. Between those early days and now, more and more audiophiles have come to recognize Adcom's leadership in providing both high performance and exceptional value. And the critics have agreed, consistently rating Adcom components superior to those units costing two and three times as much.

To commemorate these ten years of achievement, Adcom will produce a limited number of its new model GFA-585, a 250 watt-

per-channel\* stereo power amplifier. Designed for a select number of music lovers, this innovative component contains the accumulated benefits of Adcom's advanced technology which has evolved over the past decade. Its price-to-performance ratio is so remarkable, it can only be offered on a limited production basis. A potential "collectible" for those with an eye to the future.

## Think Of It As Two GFA-565s On One Chassis

Recently, Adcom set new objectives for

# Performance.



amplifier performance with the introduction of the GFA-565 300 watt-per-channel\* mono amplifier. Designed without compromise for the perfectionist, the GFA-565 quickly became a reference standard by which other amplifiers are judged. The new GFA-585 is basically a stereo version of the phenomenal GFA-565, with a few mechanical differences, yet incorporating all of the critical circuits designed for the GFA-565. The GFA-585 is the right product for those who want even more power than the benchmark GFA-555 II, but don't have the space for a pair of GFA-565s... the GFA-585 will deliver 250 watts per channel\*

into 8 ohms at any frequency between 20 Hz and 20 kHz at less than 0.02% THD. At 4 ohms, it will deliver a formidable 400 watts per channel.\*

*(over, please)*

*\* Measured in accordance with FTC requirements.*

**ADCOM**®  
details you can hear

# You can hear the Adcom advantage.

## The Adcom Advantage of High-Current Output Stages

Many of today's high performance loudspeakers present particularly difficult loads to an amplifier's output stage. In order to take full advantage of these loudspeakers as well as the breakthroughs in software technology (CDs, DAT, etc.) an amplifier must be capable of delivering large amounts of undistorted power continuously into these complex loads.

The GFA-585 features two massive output stages, each capable of delivering extremely high current into low-impedance reactive loads. No protection circuitry or current limiting devices are used which could restrict the delivery of full power. Instead, protection against short-term overloads, short circuits or long-term, excessive output is achieved by using noninterfering power supply fuses and thermal circuit breakers.

## The Adcom Advantage of a Well-Regulated, High-Current Power Supply

In order for an amplifier's output stage to deliver its full potential of undistorted output, it must be provided with virtually unlimited, electrically pure power. This power must be available instantaneously

and, of course, continuously, not just for milliseconds.

The massive power supply of the GFA-585 has an extraordinary ability to deliver enormous amounts of power. Featuring 72,000 microfarads of filter capacitance and a huge 1.25 kVA potted transformer, this no-compromise power supply eliminates all the audible limitations of lesser supplies. Hum, vibration and noise have been reduced to an unnoticeable minimum.

## The Adcom Advantage of Value

The GFA-585 is Adcom's contribution to the "state-of-the-art" in high-performance audio. Its capabilities are virtually unlimited. You should not hesitate to compare it to the world's best and most expensive amplifiers on a pure performance basis. Then compare value. You'll soon hear why Adcom's family of components have gained a reputation for offering more sound for less money.

If you are among those who want the best sound possible, and recognize exceptional value, ask to hear this remarkable, limited-edition stereo amplifier at your authorized Adcom dealer. But do not delay. There's a definite limit to the number which will be made.

## Specifications

### **Power Rating: (To FTC Requirements)**

250 watts continuous average power into 8 ohms at any frequency between 20 Hz and 20 kHz with both channels driven at less than 0.02% THD.  
400 watts continuous average power into 4 ohms at any frequency between 20 Hz and 20 kHz with both channels driven at less than 0.02% THD.\*

### **IM Distortion (SMPTE):**

1 watt to 250 watts into 8 ohms: < 0.005%  
1 watt to 400 watts into 4 ohms: < 0.005%

### **THD + Noise at 250 watts into 8 ohms:**

20Hz: 0.002%; 1kHz: 0.002%; 10 kHz: 0.004%;  
20 kHz: 0.010%

### **Frequency Response @ 1 watt 8 ohms:**

10 Hz to 20 kHz: +0, -0.3 dB

### **Power Bandwidth (-3 dB): 0.7 Hz to 80 kHz**

### **Dynamic Headroom into 4 ohms: 2.1 dB**

### **Signal-to-Noise Ratio, "A" Weighted:**

250 watts into 8 ohms: >110 dB

### **Gain: 27 dB**

### **Input Impedance: 50,000 ohms**

### **Input Sensitivity: 250 watts into 8 ohms: 2V rms**

1 watt into 8 ohms: 130 mV rms

### **Damping Factor: 20Hz to 20 kHz: >600**

Rise Time: 5 kHz, 120 V peak-to-peak square wave, 20% to 80%: 2.9 us

### **Semiconductor Complement: 72 transistors, 11 zener diodes, 31 diodes, 2 ICs, 2 diode bridges**

### **Power Consumption (Continuous, Both Channels Driven):**

Quiescent: 90 VA;  
Maximum: 1800 VA

250 watts into 8 ohms: 750 VA;  
400 watts into 4 ohms: 1300 VA

\* With fan option installed.

## Optional Accessories

### **RM-8 Rack-mount adaptor**

### **Fan Option: Continuously variable cooling fan**

### **Balanced Line Output**

## General

Power: 120 VAC / 50-60 Hz (available in 220 V or 240 V on special order)

### **Chassis Dimensions:**

8" (203mm) x 17" (432mm) x 12 3/16" (310mm)

Maximum Dimensions: 8 3/8" (213mm) x 17" (432mm) x 12 3/16" (310mm)

Weight: 45 lbs. (20.5 kg)

Weight, Packed: 49 lbs. (22.5 kg)



The Adcom GFP-565 Direct Gain Preamp is the perfect companion to the GFA-585 Power Amplifier. You may also wish to consider the GTP-500 II Preamp/Tuner, the GFP-555 II Preamp or the GFB-800 Music Control Center for use with the GFA-585.

# ADCOM®

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Distributed in Canada by PRO ACOUSTICS INC.  
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## LABORATORY MEASUREMENTS

**Fast-forward/rewind time (C-120):**  
normal, 39 seconds; high speed, 27 seconds  
**Speed error (JAS and Sony tapes):** 0.02%  
**Wow and flutter:** not measurable  
**Line input for indicated 0 dB:** 0.56 volt  
**Line output at indicated 0 dB:** 2.11 volts

**Playback performance (Sony TY-7551 test tape)**

**Frequency response (dB, left/right):**

20 Hz	+0.04/0.00
100 Hz	+0.04/0.00
1,000 Hz*	0.00/0.00
10,000 Hz	+0.05/-0.01
20,000 Hz	-0.03/-0.15

\*reference level

**Signal-to-noise ratios (dB, left/right):**

unweighted	101.2/100.2
A-weighted	106.8/105.7
CCIR/ARM	104.5/103.4

**Dynamic range (dB, A-weighted):**

left, 93.9; right, 98.3

**Quantization noise (dB, unweighted):**

left, 91.4; right, 92.7

**Total harmonic distortion at 1,000 Hz:**

left, 0.0038%; right, 0.0033%

**Channel separation (dB, left/right):**

1,000 Hz	95.7/97.5
10,000 Hz	81.3/85.7

**Record-playback performance**

**Frequency response (dB, left/right):**

	Digital input	Analog inputs
20 Hz	0.00/0.00	+0.06/+0.08
100 Hz	0.00/0.00	0.00/0.00
1,000 Hz*	0.00/0.00	0.00/0.00
10,000 Hz	+0.02/-0.01	-0.02/-0.09
20,000 Hz	-0.06/-0.10	-0.13/-0.31

\*reference level

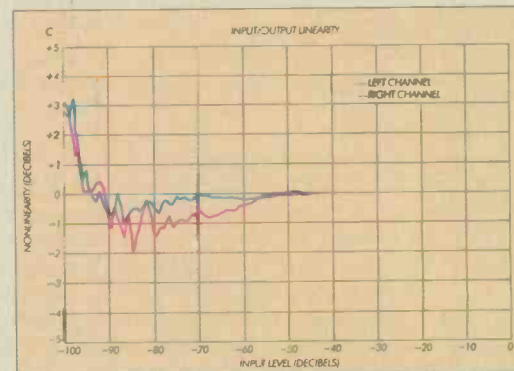
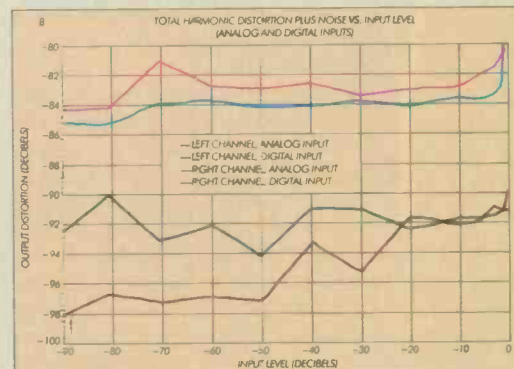
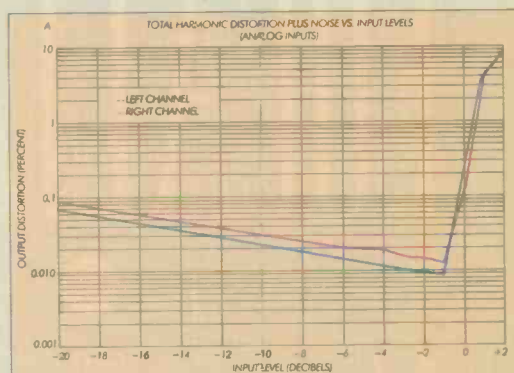
**Signal-to-noise ratios (dB, left/right)**

	Digital input	Analog inputs
unweighted	101.6/100.5	84.1/81.8
A-weighted	103.9/102.0	87.6/85.2
CCIR/ARM	103.8/102.9	84.4/82.2

**Total harmonic distortion at 1,000 Hz**  
(left/right): digital input, 0.0034%/0.0030%;  
analog inputs, 0.015%/0.015%

**Channel separation (dB, left/right):**

1,000 Hz	75.9/77.0
10,000 Hz	56.8/57.5



27 seconds when the button was held down for even faster rewind.

### Comments

We found the human engineering of the DTR-2000 excellent, though we never tried to use it with the fold-down panel closed. Its controls were responsive and quick, and the recording-level knob had a fine feel. The level display was exceptionally readable.

Even after repeated trials, we are uncertain whether we could repeatably

detect any audible differences at all between the input and output signals of the DTR-2000. The frequency response is so accurate, the signal-to-noise ratio so high, and the distortion so low that when we thought we had found some passage on which we heard a difference, even when recording CD's through the analog inputs, a moment later we were doubtful whether it was not our imagination. One very keen-eared listener thought he detected a very slight roughening of some

already "edgy" CD passages, and there may have been the very slightest difference in stereo imaging, but we would not be prepared to swear even to this, despite matching levels between the original and the copy to an accuracy of one-twentieth of a decibel. Suffice it to say, therefore, that we found the Denon DTR-2000 to be a superb recorder and reproducer of music that we can heartily recommend to the most critical of audiophiles.

**Circle 144 on reader service card**

# A GUIDE TO EQUALIZERS

**Y**EARs ago, at an age when I tended to judge the worth of a piece of audio equipment by the number of controls it had, I encountered my first equalizer, and it was love at first sight. All those neatly spaced knobs were a twiddler's dream, and I soon learned that I could alter the character of my system's output in ways I had never imagined. Unfortunately, almost all of the things I did made the sound worse, and I eventually came to the realization that my early experimentation was useful mainly in teaching me what various nonlinearities sounded like.

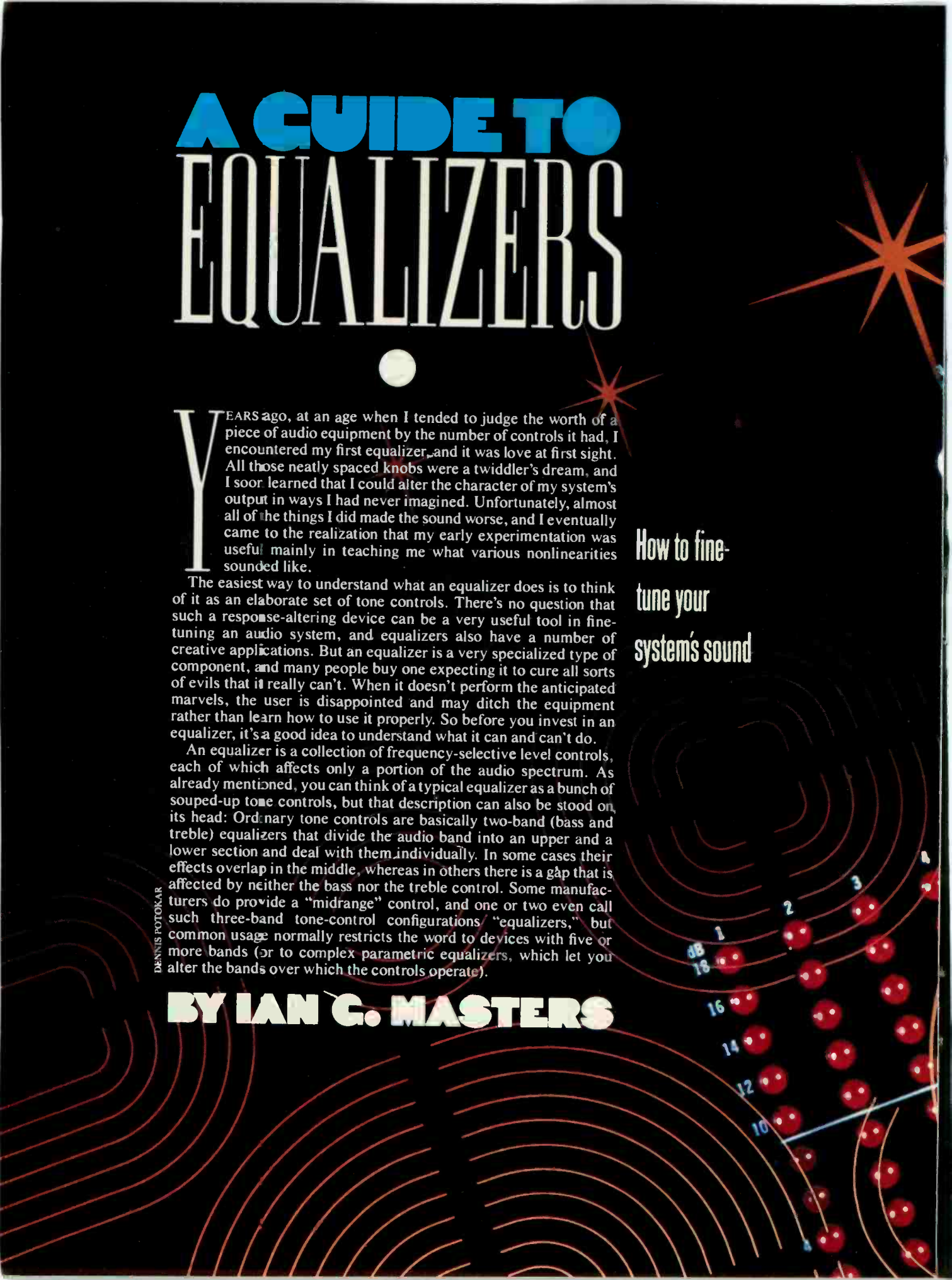
The easiest way to understand what an equalizer does is to think of it as an elaborate set of tone controls. There's no question that such a response-altering device can be a very useful tool in fine-tuning an audio system, and equalizers also have a number of creative applications. But an equalizer is a very specialized type of component, and many people buy one expecting it to cure all sorts of evils that it really can't. When it doesn't perform the anticipated marvels, the user is disappointed and may ditch the equipment rather than learn how to use it properly. So before you invest in an equalizer, it's a good idea to understand what it can and can't do.

An equalizer is a collection of frequency-selective level controls, each of which affects only a portion of the audio spectrum. As already mentioned, you can think of a typical equalizer as a bunch of souped-up tone controls, but that description can also be stood on its head: Ordinary tone controls are basically two-band (bass and treble) equalizers that divide the audio band into an upper and a lower section and deal with them individually. In some cases their effects overlap in the middle, whereas in others there is a gap that is affected by neither the bass nor the treble control. Some manufacturers do provide a "midrange" control, and one or two even call such three-band tone-control configurations "equalizers," but common usage normally restricts the word to devices with five or more bands (or to complex parametric equalizers, which let you alter the bands over which the controls operate).

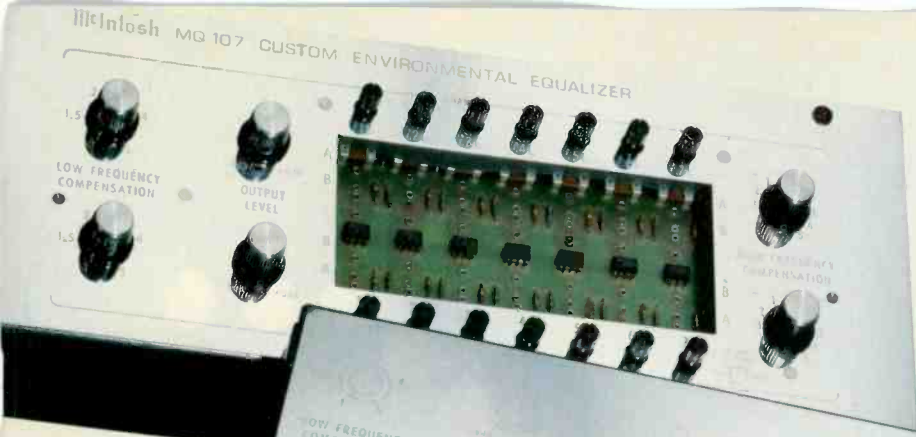
**BY IAN G. MASTERS**

How to fine-tune your system's sound

DENNIS FOTOKAR







The McIntosh MQ 107 (front and back views left and below) is more complicated to set up than most other equalizers, but it offers great flexibility. It is designed primarily for set-and-forget room equalization. Price: \$650.



Yamaha's EQ-1100U (right, \$599) comes with an infrared remote control and an electret-condenser microphone that can be used with its built-in pink-noise generator and spectrum analyzer for manual or automatic room equalization.



There is no fundamental limit on the number of bands the audio spectrum can be sliced into. Generally speaking, the more bands, the finer the control that can be exercised. On the other hand, increasing the number of controls tends to make an equalizer both more costly and more difficult to use. Five-band equalizers are somewhat more flexible than ordinary tone controls and are still relatively easy to operate, but this configuration is most likely to show up built into another type of component, such as a receiver. Separate equalizers usually provide at least seven bands, and at this level an equalizer can begin to be considered a serious device.

For home audio, perhaps the most common variety is the octave-band equalizer, which splits the audio range into ten separate bands, each roughly an octave wide. (An octave is defined by a doubling of frequency: For example, the range from 50 to 100 Hz is an octave wide, as are the ranges between 100 and 200 Hz, 200 and 400 Hz, and so on.) Some equalizers have twelve bands, but these are usually called octave equalizers anyway.

Professional equalizers often split the spectrum into bands that cover one-third of an octave, providing thirty to thirty-six separate controls. Many consumer models have a single slider for each frequency band that controls both stereo channels, where-

as others have separate controls for independent equalization of left and right channels. The latter tend to be bigger, costlier, and clumsier to use for some purposes, but there are applications in which this degree of control is necessary.



OR every one of its divisions of the audio spectrum, an equalizer contains a pair of bandpass filters (one for each channel) that blocks all signals outside a certain range of frequencies. Signals that make it through the filters are amplified and fed to the corresponding level controls (operated from the front panel), which can cut or boost the signals in their bands by as much as 12 dB and occasionally more. The outputs of all the level controls for a channel are then combined to make a single signal, which is fed to the equalizer's output and thence to the preamp or power amp.

Very early equalizers, like the one I first played with, had panels full of rotary controls, but these made it difficult to know exactly what you were doing. Now almost all equalizers use vertical sliders, neatly lined up beside one another, and their settings together give a visual depiction of the applied response alteration (but not the overall output response, which is the sum of the input curve plus whatever modifications have been made by the equal-

izer). The ability to read the slider settings as a response curve has lent the name "graphic equalizer" to this type of device.

More sophisticated, but much harder to master, is the parametric equalizer, which is a sort of custom filter that can be tailored in a number of ways to solve complex audio problems. Normally a parametric equalizer provides only one or two adjustment bands per channel, but their characteristics can be altered to an extent impossible with a graphic equalizer. Both the center frequencies and the widths of the bands are controllable, as well as the amount of cut or boost, so it is possible to focus on a specific problem area, make a very precise correction, and leave the rest of the signal alone. Parametrics are normally used to fix a single serious problem, so many of them are designed to be set up and then hidden away; if you want an equalizer just to tinker with the sound, you should probably go with a graphic model.

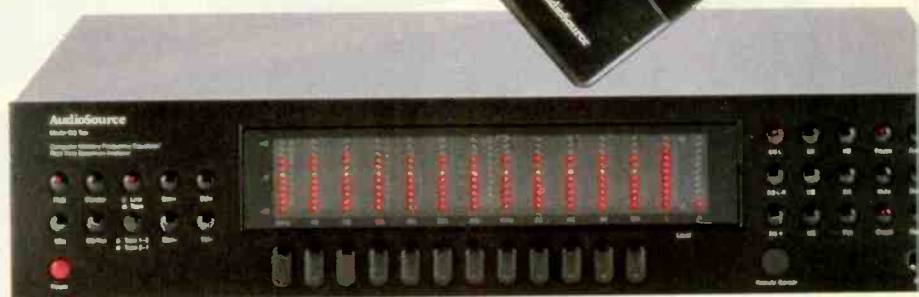
Whatever sort of equalizer you choose, the method of inserting it into the system can affect what it is able to do. With separate components, an equalizer is normally inserted between the preamplifier outputs and the power-amplifier inputs; the same arrangement can be obtained by connecting the equalizer between a receiver or integrated amplifier's preamp-out and



Pioneer's GR-555 graphic EQ has seven bands per channel with a control range of  $\pm 10$  dB. Also included are a spectrum analyzer, a tape loop, and a defeat switch.



AudioSource's \$430 EQ Ten can store as many as four EQ curves for instant recall. It comes with a wireless remote control and provides for automatic room equalization with a built-in spectrum analyzer and supplied microphone.



The Technics SH-GE70 seven-band graphic equalizer (\$200) has twelve pushbutton EQ memories, six of which can be set by the user. Other features include a spectrum analyzer and EQ to tape.



main-amp-in jacks, if any are provided.

A potential drawback to this scheme is that it limits the equalizer to altering the sound being listened to at the moment. If you ever want to record equalized signals, it is better to connect the equalizer in a tape-monitor loop. Almost all equalizers provide replacement tape-monitor connections (so that adding the equalizer doesn't force you to give up a tape deck), and many also include switching to enable routing the equalized signal to an attached tape deck. In other cases, using the tape dubbing provisions on a receiver, amplifier, or preamplifier with two monitor loops can achieve the same goal: The receiver simply thinks the equalizer is a tape deck and "dubs" its output to a real recorder.

New equalizer owners often have an uncontrollable urge to "correct" absolutely everything, with quite variable results. But there are times when the sound can definitely benefit from a little judicious tweaking. Some recordings suffer from the heavy hand of an engineer playing with his own equalizer, and a home or car unit can be just the ticket to undo such sonic abuses. This is particularly true with CD's made from masters that were originally equalized to compensate for some of the perceived limitations of vinyl pressings (principally treble losses). The resulting harshness of

such recordings can often be tamed nicely with an equalizer.

Old or damaged recordings might also benefit from equalizer massage. Equalization might reduce their fidelity somewhat in absolute terms, but it might also make them listenable. Damaged vinyl records, for instance, can often be rendered tolerable by attenuating the top few bands, where most of the surface noise and distortion resides. Any dulling of the sound can be offset to some extent by a bit of boost in the band or two just below those you've attenuated. By the same token, old tape recordings with a lot of hiss sometimes sound better with the top octave or so removed; some music might be lost too, but the overall effect is often much better.



SUCH creative equalization can, and should, be done by ear; if the result sounds better, you've done it right. For such purposes, an equalizer can be quite Spartan yet still very effective. Some models, however, provide extras that can make them more convenient to use under certain circumstances. For example, some equalizers have overall output controls, which enable you to balance the apparent loudness of processed and unprocessed signals. This is unimportant if you intend to set up your equalizer and forget it, but if

you use the equalizer only occasionally, a master level control will prevent abrupt changes in volume when you switch the equalizer into or out of the circuit. Another extra is a built-in real-time spectrum analyzer, which gives an illuminated display of the signal level in each of the equalizer's bands at any given moment. Such analyzers can sometimes help to identify frequencies that have been given too much prominence by the recording engineer, and they can be handy for room equalization; mostly, however, they are just pretty to watch.

Where expectations are often greatest for an equalizer—and where they most often lead to trouble—is as a remedy for ailments in your equipment or room acoustics. There is a popular sentiment, for example, that if your speakers are lacking in bass, you need only add an equalizer to pump up the output at the bottom. That does work within fairly narrow limits, but it should be done only when the problem is relatively small. If the speaker has a major bass deficiency, attacking it with equalization will mean fighting the speaker's inherent limitations. All speakers have poorer sensitivity at very low frequencies than at middle and high ones, but this limitation is much more pronounced in models with very small cabinets or total woof-er area (minispeakers, for example).

Pumping more power into a speaker



Soundcraftsmen's Pro-EQ 44 twenty-one-band graphic equalizer (\$549) uses one-third-octave filters from 40 to 1,000 Hz and two-thirds-octave filters at higher frequencies (up to 16,000 Hz). It has a master level control and can be switched for EQ to tape.



Be fitting a company known for its tape decks, Teac provides two tape-monitor loops with dubbing in either direction and the ability to equalize the signal going to a recorder in its ten-band EQA-22 (\$170), which also includes a spectrum analyzer.



to compensate for poor bass response may overdrive the amplifier or the speaker, causing gross distortion, or possibly even damage the speaker. The same is true at high frequencies, although the effects may not be as severe because the power required is less in the upper parts of the spectrum. In short, if the problem is a big one, the solution is not electronic; only better speakers will yield better sound.

Equalizers tend to fare better when they are called on to attenuate rather than boost levels in certain bands, so they are usually quite good at reducing tubby lows or strident highs. How effective an equalizer is at controlling any particular coloration depends to some extent on how neatly the underlying response aberration fits the equalizer's design—the shape, spacing, and placement of its bands. Usually the best you can expect is an approximate correction. In any case, the watchword should be moderation; almost anything you can do with an equalizer will sound better if you don't do too much of it.

The principle of moderation is especially apt when it comes to room equalization, in which the goal is to correct, or at least minimize, acoustically induced response anomalies. As it was once put to me, a room is a "mechanical equalizer," so it's not unreasonable to think that some of its effects might be undone electronically. Indeed, that's what multiband equalizers were invented for, and they are used widely in professional applications for such fine tuning.

Equalizers can indeed work won-

ders in some circumstances, but they are not a panacea. For one thing, the effects of a room on sound radiated into it are different for every speaker and listener position, so perfect equalization can be achieved for only one spot; moving your head even a few inches either way will change at least the high-frequency response at your ears. Such a limitation may well be acceptable in, say, a recording studio, where what the engineer seated at the console hears is of paramount importance. At home, it may be preferable to work at getting the low frequencies ironed out (most of the problems tend to be there anyway) and to settle for a reasonable approximation of the presumed ideal at high frequencies.

You can fiddle with the controls until you think the system sounds right, but you'll probably find this method rather tedious and uncertain. Professionals typically begin by making measurements with pink noise, a calibrated microphone, and a real-time analyzer to see what the room is doing to the sound. They then adjust the equalizer to obtain the desired response. Some consumer equalizers provide tools for you to do the same thing—a built-in analyzer, a microphone input, and often a microphone and a switchable pink-noise generator as well (if these are not supplied, you can always buy a separate microphone and a test CD with pink noise on it).

Although these instruments may help you zero in on the proper equalization curve for your room, you will almost certainly wind up tweaking it by ear. There are several reasons. For

one thing, microphones don't "hear" exactly the same way our ears do. Also, getting a room-response curve really flat at the top end with conventional speakers typically puts a ferocious high-frequency peak in their direct on-axis output, making the sound much too bright. (The usual recommendation is to roll off the treble response somewhat in compensation, and some equalizers even provide a switch for that purpose.)

This dilemma reflects a fundamental limitation of conventional equalizers, which is that they do not directly counteract the unwanted effects of room acoustics. The integrated response of the output from a loudspeaker with a flat frequency response and the reflections of that output within the room will not be flat. An equalizer attempts to correct the overall response by introducing compensatory nonlinearities into the output from the loudspeaker; in order to make the total response flatter, the direct, first-arrival response of the speaker is made more ragged.

All these factors together just about guarantee that you won't want to follow the analyzer slavishly. You may, in fact, find that you do better just moving your furniture and speakers around and maybe adding some strategically placed sound absorption to floor and walls.

Used properly, equalizers have a well-earned place in audio. Misused, as they often are, they can be an expensive way to achieve worse sound. It's worth taking the trouble to use such a valuable tool correctly. □

# Evgeny Kissin

ONE of the most famous of musical anecdotes tells how Mischa Elman, attending the Carnegie Hall debut of the sixteen-year-old Jascha Heifetz, whispered to Leopold Godowsky, "It's warm in here, isn't it?" And Godowsky replied, "Not for pianists."

Nowadays the musical world has suddenly become very warm for pianists, too. The reason is Evgeny Kissin, a nineteen-year-old phenomenon from the Soviet Union. Through a sequence of recordings, concert appearances abroad, and, yes, a triumphant Carnegie Hall debut, he has convinced a multitude of listeners that a new Horowitz, Rubinstein, or combination of

*by Herbert Kupferberg*



both has arrived already full blown.

Talking with Evgeny Kissin is a striking contrast to listening to him play. In place of the master of the big, sweeping Romantic concerto, one encounters a tall, slender, shy, and rather studious-seeming young man who thinks out his replies to questions and occasionally drums his long fingers on a nonexistent keyboard as he talks.

**K**ISSIN learned English at school in Moscow, and he speaks it clearly and grammatically. But halfway into a sentence he turns to an interpreter and asks his help while finishing it in Russian. Seated in his Upper West Side hotel suite in New York a few days after his first recitals at both Carnegie Hall and Chicago's Orchestra Hall, he seemed to have survived in reasonable shape the inevitable round of parties, receptions, interviews, and photo sessions that follow a debut as sensational as his.

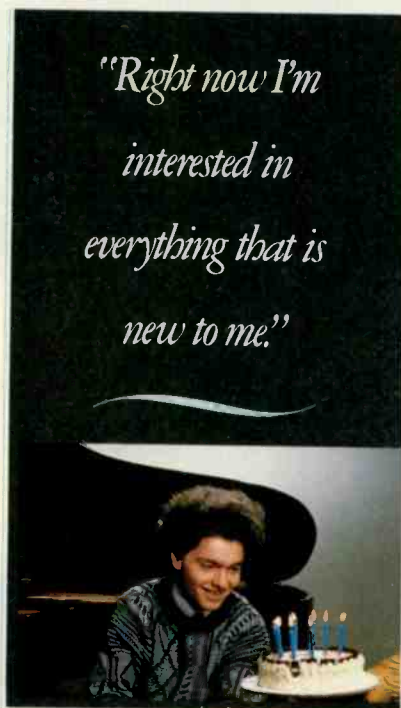
"I suppose this is just a part of musical life that I can't do anything about," he said. "I wouldn't say that I enjoy it all, but I also wouldn't say that I'd rather just play a concert and go home. On the one hand, I'm incredibly elated with what has happened—I love it. On the other, I do feel tired. I hope these concerts will be a beginning for me in the United States, and I can continue from there."

There seems no doubt that Kissin, who so far has been limiting himself to some twenty-five or thirty concert appearances a year, can have as brilliant a career as he chooses both in this country and elsewhere. His recordings, which he has been making since his mid-teens, have been mounting up. Deutsche Grammophon has released a live recording of the Tchaikovsky Piano Concerto No. 1 with the late Herbert von Karajan and the Berlin Philharmonic, and Sony Classical has put out "Kissin in Tokyo," recorded live at his Japanese debut in December 1987.

But most of the Kissin recordings to date have been issued by RCA Red Seal, notably a two-CD set entitled "Kissin at Carnegie Hall," which captures the excitement as well as the music (including four encores) of his first U.S. recital, and another double album, "Kissin: A Musical Portrait," which offers the Haydn D Major Concerto and the Mozart K. 414 along with the more predictable Rachmaninoff No. 2, Prokofiev No. 3, and Shostakovich No. 1. Several of these concerto recordings have also been released by RCA individually.

As meteoric as it seems, Kissin's

success actually is the result of a long and rather unorthodox course of preparation. He was born in Moscow on October 10, 1971, his father an engineer and his mother a piano teacher of young children. His elder sister, Alla, is also a pianist, mainly an accompanist. Evgeny began demonstrating interest in the family piano at the age of two, and at six he was entered by his mother in the Gnessin School of Music for Gifted Children, where his teacher was Anna Pavlovna Kantor. She is the only teacher he has ever had, and both she and his mother had the pleasure of watching from a box when he made his Carnegie Hall debut last September.



*"Right now I'm  
interested in  
everything that is  
new to me."*

Asked whether he didn't regard it as strange to have relied on one teacher throughout, Kissin pondered a moment and said: "There's a Russian saying—I'm not sure whether it's translatable: 'If it works, why change it?'" He seemed pleased to learn that there is an equivalent American saying—perhaps equally untranslatable: "If it ain't broke, don't fix it."

Kissin's schooling also has been unorthodox, for he received his entire musical training at the Gnessin School, a respected institution but hardly as formidable as the Moscow Conservatory. "I wanted to stay with my teacher," he explained. In any case, he has been able to develop a distinctively fluid, poetic, lyrical approach to piano playing in addition to the purely technical brilliance and power that is the hallmark of many

products of the Moscow Conservatory.

The first mentions of Kissin appeared on the music grapevine when, at the age of twelve, he played the two Chopin concertos with the Moscow State Philharmonic. Perhaps because of the attention he received early, he has never gone the competition route. "I used to attend the Tchaikovsky Competition, just to listen," he said. "People asked me: 'How come you're not in it?' I remember a young girl once came over to me and asked, 'Why don't you play?' I said, 'Why do I have to play?' So she went away. It finally became such a nuisance that I stopped going to the competitions."

Kissin is well aware that he's been fortunate in launching his career during the *glasnost* era. When it was suggested to him that twenty years ago he might not have had the freedom to develop and travel as he has, he said, "Twenty years ago? Even ten years ago I might not have been able to come here. I'm happy about some of the changes at home. Before, it was dark and hopeless. Now things are beginning to move, although the direction is not always clear.

"It's hard to generalize about the younger generation today. A few years ago there was an interesting Russian film called *Is It Easy to Be Young?*—a good question. Certain people are crazy about rock groups, even about heavy metal. But most of my friends have different musical interests.

"Right now in Russia there is a discrepancy in the mentality of the young. Lots of people thirteen and fourteen have sexual relationships. But some of these young people have an interest in religion. I wonder how it's possible to reconcile the two—to go to church and still act grossly. You know, Jesus said that not everyone who says 'Lord, Lord' will enter the kingdom of heaven."

Kissin himself is Jewish, and although nobody in his family as far back as his grandparents has been religious, he says he feels an affinity for his ancestry. He is currently interested in all religions, however, and one of three books that lay on a nearby table as he spoke was a volume by Nicholas Berdyaev, a Russian Orthodox theologian and philosopher. (The other two were a Russian-English dictionary and *Baedecker's New York*.)

"Right now I am interested in everything that is new to me," he said. "So I have lots of interests, but playing the piano is the only thing I have time for at the moment."

Kissin practices regularly, though





Evgeny Kissin made his American recital debut at Carnegie Hall (left) on September 30, 1990. Two days later he celebrated his nineteenth birthday (opposite page) at a party thrown by BMG at its New York offices.

his schedule varies. "If the day is empty I will practice five or six hours," he said. "On a full day, maybe two or three. By myself I play a lot of Bach's music. When I am looking for something to compare a composer to I always turn to Bach."

Kissin's musical interests are considerably broader than the great Romantic piano concertos with which he has made much of his initial impact. Both his orchestral concerts and recordings so far have emphasized Russian composers, from Tchaikovsky to Shostakovich, though his solo recitals have included other composers, among them Schumann, Liszt, and Chopin. For his first American appearance with orchestra he played the Chopin E Minor Concerto with Zubin Mehta and the New York Philharmonic at Avery Fisher Hall.

Altogether, Kissin says, he has some fifteen or twenty concertos "in his fingers," including the Beethoven Nos. 3, 4, and 5 and five by Mozart. He recently recorded the Mozart Concerto No. 20, in D Minor, K. 466, but declined to approve it for release. Asked why, he replied almost belligerently, "Why not? I didn't like it."

Presumably some of this wider repertory will soon emerge at his concerts. Since 1991 marks the two hundredth anniversary of Mozart's death and the one hundredth of Prokofiev's birth, Kissin expects to include more music by both composers on his programs. "I like to play what I haven't played be-

fore," is the way he summed up his musical outlook, adding that he wanted to undertake works by both Impressionist and contemporary composers.

WHEN he was younger (!), Kissin did a good deal of composing himself, but he has put that aside. On his trip to Japan, however, he saw in a local music magazine called *Chopin* several Japanese folk tunes, and he decided to present these, with his own embellishments, as encores at his Tokyo recital. They make a delightful conclusion to his "Kissin in Tokyo" CD, especially a jaunty number called *Usagi*, or *Rabbit*. He seemed interested in a suggestion that he prepare similar American encores, perhaps for his next visit to this country, expected to be next summer. He remarked that he already plays Scott Joplin rags and George Gershwin songs, but only for himself and friends.

Kissin enjoyed his stay in New York, turning it into a modest gastronomic tour with visits to Mexican, Chinese, and Japanese restaurants. He was also pleased with the warm responsiveness of audiences both in New York and Chicago. Audience reactions, he thinks, can reflect a national temperament. "In Germany and Switzerland, they stamp their feet," he said. "In Japan they start and stop applauding like one person, and before the concert it is absolutely quiet, like a vacuum. In Israel before the concert starts the people socialize and visit

with one another. And I think a Russian audience can be the most enthusiastic in the world."

Obviously Kissin is aware of the comparisons that have been made between himself and such past masters as Horowitz and Rubinstein, both of whom he has heard on records. But he believes his playing has no relationship to theirs, though he acknowledges they may have influenced him. "I am not trying to imitate anybody," he said. When I asked him which of his own records he thought collectors should acquire, he shot me an impish glance and said, "Before they buy mine, they should buy the records of all the great ones playing their own music—Rachmaninoff, Prokofiev, Shostakovich—there are plenty."

For young people studying the piano today and hoping for a career, Evgeny Kissin offered three words of advice: "Love the music." He recalled that when he was twelve or thirteen years old he drew up a kind of youthful last will and testament in which he gave elaborate directions for his funeral including a tombstone inscribed: "Here Lies a Humble Servant of Music." Asked whether the instructions still held good, he replied with a smile, "Right now I'm not thinking of being buried." □

Herbert Kupferberg, a senior editor of *Parade*, is the author of *Amadeus: A Mozart Mosaic (McGraw-Hill)* and *The Book of Classical Music Lists (Penguin)*.

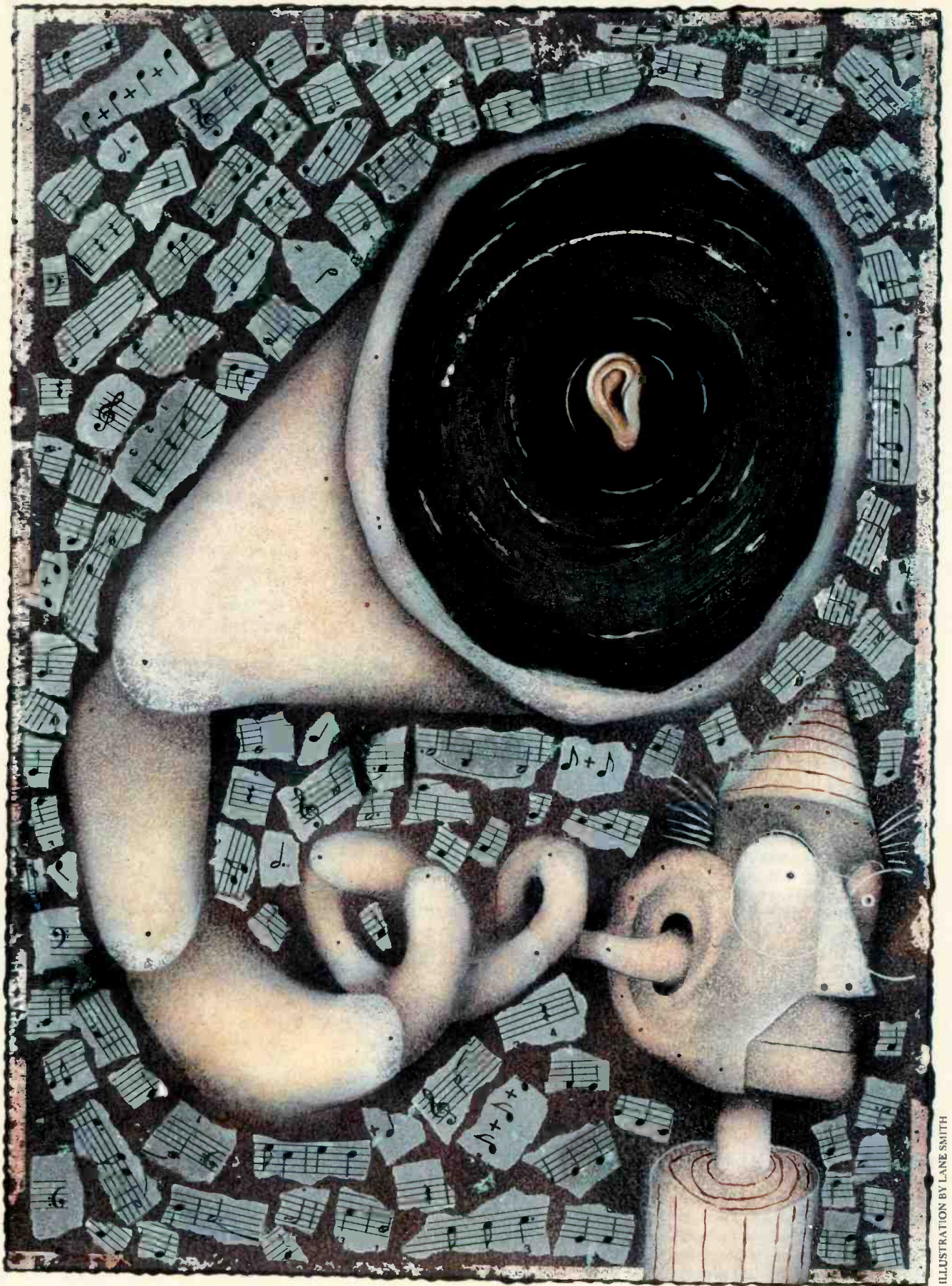


ILLUSTRATION BY LANE SMITH



# LISTENING

CHOOSING loudspeakers is the most difficult part of buying or upgrading an audio system. The speakers affect the sound of a system more strongly than any other component, and their performance depends greatly on the listening room and their placement in it. And even for a given room there isn't one "best" loudspeaker; your tastes in both music and sound will—and should—make your final buying decision a very personal one.

Just because personal preference is important, though, doesn't mean that you should simply buy the first speaker that sounds good in the store. Here are some general principles and specific stratagems, the product of years of listening in the lab, in stores, and at trade shows, to help you zero in on the speakers that best fit your taste, style, and budget.

**TAKE YOUR TIME.** This is the cardinal rule. If you just go to a store intending to come out with new speakers in half an hour, you make it easy for a salesman to steer you wherever he likes. Go to stores where the salespeople have time and patience, because if you follow my advice they're going to need both to deal with you. In

exchange, you shouldn't expect the deepest of discounts at a store that caters to customers like you.

#### GET SEVEN-DAY RETURN PRIVILEGES.

Your room at home will almost certainly be so different from the store's listening room that even the most thorough and expert listening test in the store can only roughly predict how a particular pair of speakers will sound in your system. Buy speakers from a store that will let you return them (in good condition) for a full refund after a home trial of at least a week.

If a speaker disappoints you, help yourself *and* the store by remembering what went wrong at home. If the bass was weak, pick a speaker with an extra-fat low end for your next try. If the treble was harsh in your room, a speaker that sounds slightly too mellow in the store is a good bet.

**LISTEN TO MANY RECORDINGS.** The sound of any recording depends heavily on the monitoring system the engineer employed to judge microphone choice and placement. Using only a single recording to help choose

## STRATEGIES FOR CHOOSING SPEAKERS

by E. BRAD MEYER

your new speakers will prejudice your selection in the direction of the particular monitoring system used in making it. So listen to many recordings, and look for speakers that sound acceptable with all of them. (I'll give you my personal choices for listening material later on.)

**TAKE YOUR OWN MUSIC.** Back in the Sixties, a speaker company put out a sampler record that successfully sold thousands of one particular model in its line. The speaker in question had a prominent treble peak, but the record had been made with a dip at that frequency, so it sounded right on the target speaker and strangely lifeless on

speakers—and from various other places around the room. If the tonal quality changes for the worse as you move off center, beware: You won't hear much off-axis sound in most demo rooms because their walls are relatively absorptive, but at home it will likely be a problem.

**USE PROPER COMPARISON TECHNIQUES.** Most of the time you will be comparing two sets of speakers. It is very important that these be played with equal loudness, since the louder speaker will do better in such a comparison than it would with matched levels, giving it an unfair advantage. Normal differences in response be-

Listen to many recordings,  
and look for speakers that sound  
acceptable with all of them.

most others. Even in the absence of such obvious trickery, a salesperson can choose, wittingly or not, recordings that favor speakers with certain sonic characteristics. So take your own music, and rely primarily on it rather than the store's demo material. I use CD's for this purpose because their sound is so consistent from player to player. But if you're a die-hard LP fan, use black vinyl for listening tests, as its typically warmer frequency balance (and the altered stereo image it tends to produce) will influence your choice.

**INSIST ON COMPARABLE PLACEMENT.** However little a store's demonstration room may resemble your listening room, you should try to put the speakers you are auditioning in positions similar to the ones they will occupy in your home. If they're on a shelf and you'll be using them on floor stands, ask the salesperson to move them. Then listen both from the "sweet spot"—centered between the

tween speakers make it impossible to match levels perfectly for all recordings, so for each selection have the salesperson adjust the level of one system until the two sound equally loud.

Left to his own devices, the salesman will wind up holding the speaker switch. Take control of it yourself, and try to avoid comparing apples and oranges: Don't switch in the middle of a musical phrase, but look for a repeated passage and play all of it through each speaker in turn. Better still, find a CD player with a phrase-repeat feature and use it to listen to exactly the same musical fragment on both systems. Return to this tactic to verify your impressions whenever one system begins to sound distinctly better than the other.

**USE VOICE TO JUDGE THE MIDRANGE.**

The balance of frequencies between about 150 and 3,000 Hz is the most important single characteristic of any speaker, so I always begin by checking

this range, using the tenor solo in Track 1 of the Christopher Hogwood CD of highlights from Handel's *Messiah*, L'Oiseau-Lyre 400 086-2. (If you listen mostly to rock, pick a typical male vocal from a group you like for this test.) Tenor Paul Elliott's voice should be clear and brilliant but not piercing or thin; if it sounds harsh in the loud passages (at 1:40 or 2:30, for example), you're probably hearing a coloration that will bother you consistently at home.

The tenor voice should appear to come from a point midway between the speakers, assuming you have positioned yourself carefully at the same distance and angle from both. (This is also true of virtually all pop and rock vocals, which are recorded and mixed in mono.) If the soloist's location seems uncertain, or if the vowels in his voice seem to come from one place and the consonants (especially S, F, and T) from somewhere else, the responses of the two speakers in the pair probably don't match well, and stereo imaging will suffer.

Other things to listen for with the Hogwood CD: In Track 4, the baritone on the right should be clearly distinguishable in both location and tonal quality from the tenors just to the right of center, the boy sopranos on the left should sound slightly too bright in the upper treble (a coloration from the recording microphone), and there should be plenty of room reverberation without any muddiness.

For the upper midrange and "presence" range (500 to 3,000 Hz), a female vocal is the perfect test. I use two selections. First is *Amanda* from Sheffield's "Crème de la Crème" disc (CD-CRM). Amanda McBroom's voice is slightly bright in this recording, like the percussion tracks, but it should not sound harsh or thin, and it should remain centered between the speakers. My second selection is *Bird on a Wire*, from Jennifer Warnes's "Famous Blue Raincoat" (Cypress 611 111-2). This disc can also help you to identify one kind of high-frequency coloration to avoid in speakers: The vocal on Track 6, *Ain't No Cure for Love*, was recorded by a different team of engineers from the others and has an unpleasant-sounding peak at around 6,000 Hz. If you hear this effect consistently, rather than on just the one track, the speaker has a problem. (The repeated-octave bass figures in this track are useful, too; all three notes should have equal weight on a speaker with good deep bass.)

**CHECK FOR MIDBASS BOOM.** Resonances in the range between 80 and 150 Hz sound boomy and can become very annoying after a while. Midbass boom can give a deceptive initial impression of good deep-bass response, but it actually tends to make it harder to hear the system's low bass. The most stringent test I have found for this region of the spectrum is "The World of the Harp" with Susann McDonald (Delos D/CD 3005). Rare is the speaker that will reproduce the large harp in Track 10 of this disc with complete clarity. Another good test is *Train in the Distance*, Track 7 of Paul Simon's "Hearts and Bones" (Warner Brothers 23942-2). Clear, warm-sounding background vocals with no trace of one-note quality are a sign of freedom from cabinet or woofer resonances. But beware: The low end of the spectrum is most susceptible to room effects. Consequently, the most important place to perform this test and the following one is in your home.

**TEST FOR DYNAMICS AND BASS POWER.** My old standby for low-end testing is the excerpt from Stravinsky's *Rite of Spring* on Track 5 of the Telarc Sampler, Volume II (CD-80102). It's okay for the brass to sound slightly nasty in this selection; what you're really listening for is the weight and impact of the bass drum. A system with good power handling and bass below 40 Hz will reproduce this excerpt with palpable impact and no sign of strain. But be careful: Many power amplifiers, especially those found in small or medium-size receivers, will distort audibly if you get careless with the volume control, so if you hear crackling sounds, they may not be the speaker's fault. When you're comparing speakers, use the CD player's phrase-repeat feature to single out the section from 1:43 to 2:17 and listen to the entire passage on each system in turn, switching while the player is returning to the starting point of the passage between repeats.

**CHECK THE STEREO IMAGING.** The apparent breadth, depth, and clarity of the stereo image produced by a pair of speakers are qualities on which audiophiles often lavish considerable time and money. If the speakers are carefully placed, you can keep track of their imaging as you conduct the previous tests. The Hogwood *Messiah* and Track 2 of the Jennifer Warnes record-

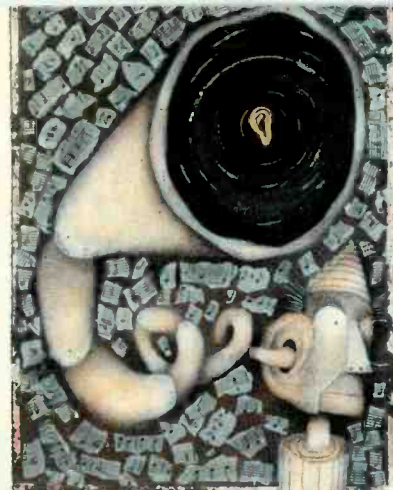
ing are especially revealing of the fine points of placement and depth in the stereo image.

If you plan to entertain friends with your system, you will want it to present a decent image to listeners who are sitting away from the center line between the speakers. Give the speakers a walk-around test, noting whether the musicians seem to remain arrayed between and behind the speakers as you move about the room or, instead, tend to bunch up in the nearer speaker as you move off center.

If, on the other hand, your goal is to create the best image for yourself in the best listening spot, center yourself precisely between the speakers (meaning that your distance from each one is the same within an inch or so) and check out Track 4 of the Talking Heads CD "True Stories" (Sire 25512-2). There is a percussion track that circles right to left behind the speakers and then, on a good system, from left to right out in front, seeming to pass right through the center of your head. Successful reproduction of this effect (and of the little flute figure at 2:32 that seems to come from 90 degrees to your right) is a sign of the good symmetry and careful placement of speakers and listener that are necessary for really precise imaging.

**ADAPT THESE PROCEDURES TO YOUR NEEDS.** Although I've suggested specific program material for listening tests, there is nothing magical about my selections; I just know from experience that they work well as speaker-evaluation tools. In time you will be able to choose from among your favorite recordings those that work best to supplement (or replace) the music I have suggested. Whatever music you choose, use a wide variety of sonic textures, and look for a speaker that highlights the differences. The more strongly a speaker's character comes through on all recordings, the worse its colorations. Conversely, the systems that change the most as you try different selections will be easiest to live with. Careful, systematic listening is your best defense against unpleasant surprises—and your best hope for finding speakers that will please you for a long time to come. □

*E. Brad Meyer, president of Point One Audio in Lincoln, Massachusetts, is an audio consultant, writer, and recording engineer and producer.*



## FOR THE TECHNICALLY INCLINED

If you're interested in the fine details of speaker performance, there is a test CD that can provide a lot of information without sound-measuring instruments: "Compact Test: Démonstrations et Essais" on the Pierre Verany label (PV-784031). Track 20 contains a series of tones, each of which varies randomly over a range of one-third of an octave around center frequencies from 16 to 20,000 Hz. These "warble tones" can quickly and easily reveal just how low a system goes and how much bass distortion it produces. The lowest three bands should be felt, not heard; any audible components are distortion in the amplifier or woofer. This test will also mercilessly reveal any rattles and buzzes in the speakers (or anything else that's not bolted down).

Finally, Track 18 contains pink noise, a constant waterfall sound with an even distribution of all frequencies and equal energy in every octave. With a little practice you can use pink noise to quickly find the most serious colorations in any system. Listen to 30 seconds of this signal at a moderately loud level on the best systems you can find, either in stores or at friends' houses, and you will slowly accumulate an approximate mental image of how it should sound.

A word of caution about warble tones and pink noise, though: Either of these signals will tend to empty a room very rapidly. If you want to stay friendly with a store, don't try these tests with other customers around.



# SYSTEMS

*Long Island accommodations*



*by Rebecca Day*

**S**USAN DARNEL wasn't keen on the idea of having 29 cubic feet of loudspeaker in her 14 x 32-foot living room. "I almost ended up in the emergency room," said the Long Island nurse, recalling the time her husband, Dave, first brought home the pair of custom-made three-way speakers, each with an 18-inch woofer and hand-wound Solen crossovers on top. "But when I heard them, I changed my mind."

*Her abrupt change of heart was not really surprising;*



the Darnels take their music very seriously. When they couldn't find just the right speakers, they went to their friend Andy Nittoli, an audio engineer who built a pair of transmission-line speakers using 18-inch JBL paper-cone woofers, Danish-made 3-inch midranges and 3/4-inch dome tweeters, and the Solen crossover coils. Dave liked the colorful crossovers so much that he had Andy put them under Plexiglas on top of the speaker cabinets.

Susan was also accommodating when it came to their turntable "stage." Dave was concerned about feedback and vibration through the floor, so he built a birch platform and suspended it from the wall above six concrete blocks isolated in Styrofoam that sit in front of the wall without touching it. The setup acts as "a light-spring/heavy-spring junction," he explained, transmitting most of the feedback energy back into the room instead of up the wall to the turntable. To make the stage more aesthetically appealing, Susan painted the birch with a faux-marble finish. She wouldn't tolerate visible speaker

cable, however, so Dave ran 10-gauge contractor's wire through to the basement. He chose 10-gauge to accommodate the long runs, but he passed on designer brands because "in the audio band, all that matters is a sturdy connection and low resistance."

The Darnels' components befit serious audiophiles; a Nakamichi OMS-7 CD player, a McIntosh Model 7270 power amplifier, a McIntosh C504 preamplifier, a Nakamichi Model 504 cassette deck, and a Technics SP-15 turntable with a Shure V-15 Type V MR cartridge, a KLH (Burwen) Model 1201A dynamic noise filter (for hiss), and an SAE Model 5000 impulse-noise suppressor (for pops and clicks).

The Darnels spend most of their free time in their living room—whether absorbed in Pink Floyd's "Dark Side of the Moon" or swinging around the floor to the music of Glenn Miller. Susan can live with the cement blocks in her living room in return for being able to throw big-band parties. "We do a lot of jumping around," she explained. □



PHOTOS BY ROBERT LEVIN

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# TV SOUND

COMBINING high-quality video with high-quality audio was *the* hot concept of the Eighties in home entertainment. It brought us big-screen stereo television sets, hi-fi VCR's, laser videodiscs with digital soundtracks, Dolby Surround, and other innovations that created an entirely new level of sophistication among buyers and users of audio/video electronic equipment.

But while a no-holds-barred home theater system with Dolby Pro Logic, five speakers and a subwoofer, multiple amplifiers, and a huge projection monitor is truly something to behold and to hear, not all of us can afford such a luxurious setup, even if we have the space for it or the time to install and calibrate it properly. And since most homes today have several TV sets, what becomes of the audio element in those secondary rooms graced by a television alone? The chal-

High-end television sets with hi-fi audio built in

---

by David Simon



The four-channel sound system in the 46-inch Magnavox RL8544 projection TV is made by JBL. Dolby Pro Logic heads the list of features. Price: \$3,095.

Pioneer's PRO-93 50-inch projection TV (\$4,400) offers three listening modes: theater, music, and simulated stereo (for mono programs). Its 10-watt-per-channel amplifier drives a pair of two-way speakers below the screen. There are three AV inputs on the rear panel and one on the front.



The Hughes Sound Retrieval System brings expanded stereo imaging to Sony's 32-inch Trinitron KV-32HSR10 monitor receiver (\$2,300). It has three sets of standard inputs and one S-video input.

lunge of the Nineties, clearly, is to transform that fundamental icon of American life, the TV set, into a high-quality audio source *without* the help of a roomful of auxiliary components and speakers.

For most of the appliance's 50-year history, the typical TV set's sound system consisted of a single 3-inch oval speaker powered by an amplifier boasting an output of perhaps 2 or 3 watts. Adequate, maybe, for reproducing Topo Gigio on the *Ed Sullivan Show*. But—as few of us realized at the time—hardly up to the task set by John Lennon's primal screams in *Twist and Shout* on the same program.

MTV, PBS, A&E, HBO, and Bravo have changed all that. The TV set in the den is as likely to be playing music videos, or opera, at substantial volume as it is to be quietly presenting *The MacNeill/Lehrer News-Hour*. In response to these new demands, many video manufacturers have scrapped their old audio ways in favor of bigger loudspeaker drivers, more powerful amplifiers, advanced "spatial" circuitry, and clever packaging to hold everything together in one good-looking box.

The process has been driven largely by the fact that video sound itself has reached surprisingly high levels of quality. On the broadcast side, the advent of MTS stereo TV has raised production standards for sound enormously. The audio quality of *The Tonight Show*, say, puts many a live-recording CD to shame. Meanwhile, hi-fi videotapes and laserdisc digital soundtracks can deliver superb audio for both cinematic and music programming.

Any integrated TV sound system must overcome two major hurdles, however. First, incorporating speakers of adequate size and quality within the tight confines of table-top—and even console-style—TV's is no mean feat. Second, with stereo TV nearly universal, finding a way to create a realistic stereo image for listeners seated throughout the viewing area becomes an imperative. This task is further complicated by the fact that speakers mounted on either side of the screen are by nature doomed to be too close together for unimpaired stereo

imaging. As a result, several different systems to manipulate stereo presentation and coverage have sprung into being.

Since none of these considerations has a great deal to do with *video* technology, it's no surprise that some of the leading TV makers have entered into partnerships with well-known audio-oriented firms—a move that makes the marriage of audio and video a commercial as well as technological nuptial. Among the first to tie the knot was Zenith, one of the oldest names in American television, and loudspeaker juggernaut Bose. The offspring—first seen and heard in 1986—were Zenith's "Sound by Bose" TV's. These sets are available in a variety of sizes and shapes, and the line has evolved into two distinctly different families.

The original Zenith/Bose concept was to use a single bass driver mounted midway within a serpentine enclosure, called an Acoustic Waveguide. The result was unusually strong and deep bass from an extraordinarily compact package. The current incarnation of the Acoustic Wave design is exemplified by Zenith's ZB2792S System 3, a 27-inch tabletop set (\$1,295). The bass system, powered by a dedicated amplifier, is at the back of the set, and a pair of 2½-inch "twiddler" drivers—combined midrange and tweeter units—are in the lower front corners. At only 23¼ x 26½ x 20 inches, the set is a model of packaging efficiency made possible both by the Acoustic Wave technology and by the limited space required for the twiddlers. The set also incorporates advanced video features such as picture-in-picture (PIP) processing and on-screen menus for operation and adjustment.

**A** MORE recent Zenith/Bose design works along similar lines but replaces the Acoustic Wave bass section with an Acoustimass woofer that's similar in concept and execution to the bass modules of Bose's popular three-piece Acoustimass home hi-fi speakers. The Zenith/Bose Acoustimass TV sets have a low-frequency driver placed between two internal chambers of different volumes, each of which incorporates a rear-facing tube by which it radiates sound into the room. The balance of the system—twin twiddlers and three amplifiers—is similar to the Acoustic Wave design. The Acoustimass system has a wider dynamic

range and more powerful bass than the Acoustic Wave system, but it also takes a bit more space. So it is found in bigger Zenith/Bose models such as the \$3,295 ZB4685T, a 46-inch rear-projection set. All of the Zenith/Bose TV's also incorporate Dolby Surround decoding circuitry that can be used by adding optional surround speakers.

Another interesting union of expertise is that of Toshiba and Carver. Toshiba is known for high-performance video technology. Carver for innovative audio engineering, especially its Sonic Holography circuit, the technological cornerstone of the Toshiba/Carver partnership. The "Sonic Hologram" generator was first introduced by Carver in audio components back in the late Seventies. It's an

precedence whenever the dialogue is foremost.

The highest-tech Toshiba/Carver model is unquestionably the CX3298K (about \$3,200), a futuristic-looking 32-inch direct-view set. In addition to the Super Carver system, the CX3298K includes a stereo speaker array—Sonic Holography optimized—powered by a substantial (for a TV set), 10-watt-per-channel amplifier. A subwoofer, driven by its own 20-watt amplifier, is built into the console's base. A 10-watt surround-amplifier section is also on board. Interestingly, the set's wireless remote control can command the stereo speakers to adjust their aim, toeing them in more or less to fine-tune the hologram effect for a particular listening/viewing position. (The entire TV

More and more video manufacturers are finding ways to put bigger speakers, more powerful amplifiers, and advanced "spatial" circuitry in one good-looking box.

analog processor designed to cancel erroneous directional cues introduced in trying to reproduce a realistic sonic image with only two speakers—a phenomenon sometimes called interaural crosstalk. At its best, Sonic Holography produces a startling illusion that you're hearing a real, three-dimensional sound source instead of just a pair of speakers.

A refined and updated version of Sonic Holography is now found in several Toshiba TV's bearing the Super Carver logo. Super Carver sound combines Sonic Holography with a dipole surround-sound speaker comprising two drivers mounted in opposition, one of which is wired in reversed polarity. According to Toshiba, the dipole surround module can be located either behind the TV itself or toward the back of the room. In either case, it's said to work in conjunction with the Sonic Holography circuits to provide enveloping ambient sound. The system incorporates what Carver calls a Precognition Matrix/Vocal Zoom circuit, which is said to enhance stereo spread while simultaneously improving the intelligibility of dialogue. It works by varying the balance of stereo-difference to mono signal components, giving the mono information

set also swivels in response to remote commands.) Other features include twin-tuner PIP processing, on-screen menu-based control of both video and audio elements, and high-resolution video reproduction.

A fascinating and complex effort at integrated TV sound comes from Sony and a somewhat unexpected partner—Hughes Aircraft. Hughes developed an audio circuit called the Sound Retrieval System (SRS). At root, SRS is a rather complex method of processing that aims to restore lost spatial cues to stereo playback, greatly enhancing the stereo image in terms of width, depth, and even height. It is said to work by correcting for errors introduced by standard stereo recording techniques in three major areas of aural location: in the lower frequencies, relative left-right phase; in the midrange, relative intensity; and at high frequencies, relative delay. SRS processing also includes extensive frequency-response shaping of both the difference (L - R and R - L) and mono (L + R) components of a stereo signal. The goal is to re-create the real-world response-shaping effects of both the inner and outer parts of the human ear, which affect the way we localize sounds.

The result is a system that can make

Toshiba's 32-inch Super Carver CX3298K (\$3,200) has 10 watts per channel, Sonic Holography, and a subwoofer.



closely spaced speakers produce a stereo sound field that appears to be much wider—a natural for television, where built-in speakers can't help being inadequately separated. The effect is said to be quite dramatic regardless of the listener/viewer location, which means that a large seating area is open to optimum performance. Sony offers the SRS system on a bewildering variety of models, ranging from 27-inch standard Trinitrons to its Videoscope line of rear-projection TV's, including the 53-inch KPR-53EX20 (\$3,600).

Among Sony's latest models is the KV-32XBR50 (\$2,700), the newest member of the firm's high-end XBR line. This 32-inch direct-view set features a new version of SRS that's said to work effectively on mono programs as well as stereo ones. The KV-32XBR50 also incorporates side-mounted swing-out or detachable stereo speakers driven by a 5-watt-per-channel amplifier and a single top-mounted 4-inch woofer powered by its own 20-watt amp. The side speakers cover the range from 180 to 20,000 Hz, the woofer from 180 down to 70 Hz. The set has plenty of unusual video features,

too, led by a "fuzzy-logic" picture-control system. Better yet, it comes with *two* remote controllers: a full-featured, zillion-button programmable unit and a slick, simple, credit-card-size mini-remote that operates the basic functions only. (Which one do *you* think most families will use?)

It is hardly surprising to find the JBL name somewhere in the integrated-television-sound arena. Among the oldest names in loudspeakers, JBL is collaborating with Magnavox to produce TV sets with the highest power and most drivers available.

A case in point is the 100-watt JBL audio system found in Magnavox's premier rear-projection set, the 52-inch RL8568 (\$3,995). This behemoth incorporates a six-speaker triamplified sound system: 1-inch titanium-dome tweeters and 4-inch acoustic-suspension midrange drivers are biamplified with 20 watts per driver, per channel; dual 8-inch long-throw woofers are driven by their own 20-watt-per-channel amp; and a two-channel, 10-watt-per-channel amp is

built in for the supplied outboard 6½-inch full-range surround speakers. Claimed system response is an impressive 39 to 27,000 Hz.

The Magnavox/JBL system incorporates cleverly implemented Dolby Pro Logic surround circuitry. On its own, the system uses its on-board speakers for the left and right front channels and a "phantom" center channel. But when the set is patched into an existing hi-fi system with component speakers, these become the left/right front pair while the built-ins are used for a discrete center channel. Smart. The same 100-watt JBL sound system is also found in a 46-inch Magnavox projection set, and "junior," 50-watt, six-speaker and four-speaker versions are available in a multitude of Magnavox/JBL sets.

**N**OT all TV sound refinements have been the result of cooperative efforts. Pioneer, for one, has chosen to go it alone in its latest flagship models, the video wing of the firm's Elite line of no-compromise products. The new \$4,400 Elite PRO-93 is a 50-inch TV; the 46-inch PRO-73 is \$4,100. Both feature Pioneer's Dynamic Sound Expansion (DSE) system, yet another audio processor that is said to extend the width of the stereo image while enhancing its detail and depth. Pioneer's DSE circuitry performs multistage phase shifting on multiple audio bands, processing these dynamically according to program content. The resulting sound is available in three distinct modes: Theater, Music, and Simulated Stereo (for enhancement of mono sources). The Elite monitors' audio delivery system includes front-facing two-way loudspeakers powered by a 10-watt-per-channel amplifier.

Clearly, TV sound reproduction has come a great distance in the past decade or so. Although none of the systems we've described is likely to take the place—for pure music listening—of a well-planned, dedicated hi-fi system, it's interesting to note that many of the sets do provide inputs for outboard audio components. In theory, you could simply buy one of these TV's, add a CD player or tuner, and be done with it. Right now, this approach would be unlikely to satisfy serious music lovers or hi-fi fans. But at the dizzying pace that integrated television sound is evolving, the day may not be so far off when many people will consider doing exactly that. □



Zenith's 27-inch ZB2741T (\$1,400) features a Bose Acoustic Wave sound system, digital audio processing, and Dolby Surround outputs.

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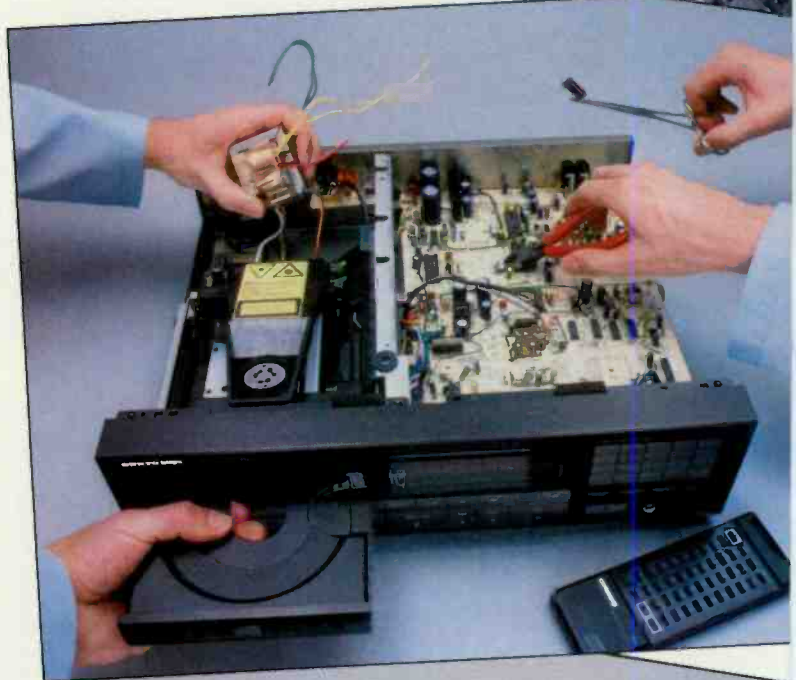
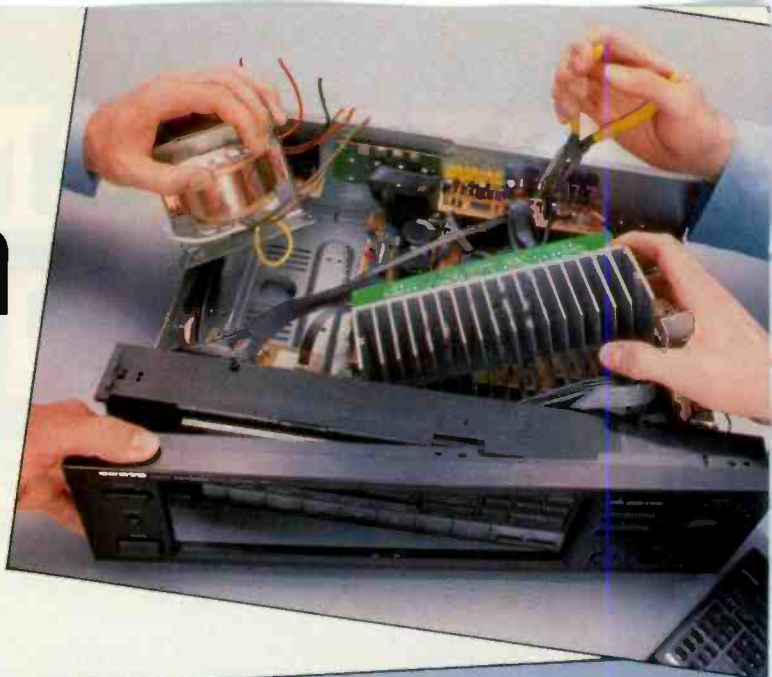
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*Stereo Review's critics choose the outstanding current releases*

## GEORGE MICHAEL: "LISTEN WITHOUT PREJUDICE"

It's hard to listen to "Listen Without Prejudice," George Michael's second solo album, without recalling his first, "Faith," a fourteen-million-selling phenomenon, if only because he's so obsessed with it: "Well, it filled my pockets," he sings on the new album's final track, "and emptied out my soul . . . Don't people change? . . . Is it too late to try again? Here I am."

Here he is, indeed, with an album that sounds as if it were written and performed by a man who experienced a serious brush with death and now plans to spend his life proselytizing against the evil ways of Satan, mass-media fame, fortune, and those scandalous beefcake pin-ups.

There is something too pat and disingenuous about Michael's appeal to swallow it whole. Consider the penitent *Freedom 90*, which alludes to his "youth" of three years ago: "I guess it was enough for me/To win the race? A prettier face! Brand-new clothes and a big fat place/On your rock and roll TV." Guess what the song is wheeled out on—the very sort of dance beat Michael now says he wants to move beyond in his quest for liberation from the celebrity circuit.

Still, Michael makes music here that cannot be ignored. It is tuneful, inventive, and rebellious, unwilling to play it safe even when it sounds most conformist, as in *Heal the Pain*, which recalls an early Beatles sound. Michael would argue that that's the point. He wants it known that he plans to stick around a while—twenty or thirty years at least. In preparation, he's gone back and listened to the genre's bed-rock music, to Sixties-vintage Beatles, Stones, even the Brazilian Astrud Gilberto. His new music is pared down, pre-synthesizer, a quiet mix of tame guitar, keyboards, soft percussion, and bass. He wants things simple again, cleansed. Without prejudice.

As proof that he intends to bury his personal past, Michael offers up *They Won't Go When I Go*, the only nonoriginal song in the album (Stevie Wonder wrote it in 1974), a song with the lines "unclean minds mislead the pure" and "people sinning just for fun." A big, funereal song, presented by stark voice and piano alone, it is also the most impassioned performance on the record. Michael overdubs himself in a wailing chorus that suggests something out of Greek mythology. It's a risky piece, full of brooding pathos. This is the man who sang *I Want Your Sex* in the age of AIDS. But the boy in him thinks he's going to hell, and he's scared. Responsibility comes on the wings of fear. And disgust.

ing further from heaven/And closer to the deep blue sea."

Blue is the dominant color here, and when Michael deviates from his theme of returning to simple values and the importance of human dignity, he swims a dark blue sea of romantic doom. *Waiting for That Day* and *Cowboys and Angels* bring welcome relief from Michael's current policy statement, but they fail to jibe with the rest of the album, either in strength of stand or musical tone.

Michael wants respect, and, those few slips aside, he's liable to get it. Even if his record is just so much talk, well, so be it. If "Listen Without Prejudice" gets just one hot number off the dance floor and back inside his head,



George Michael: making things simple again

In as many ways as he can say it without seeming redundant, then, Michael wants to get right. In *Praying for Time*, where his voice is strangely, electronically altered, he laments the Days of Greed and "the beggars and the choosers." Wake up, world, he wants to say. Stop going to war, he urges in *Mothers Pride*. And in *Something to Save*, he warns, "We're mov-

how can Michael have failed? Personal growth, it seems, may sometimes mirror a generation's. *Alanna Nash*

**GEORGE MICHAEL:** *Listen Without Prejudice*. George Michael (vocals, guitar, keyboards, bass, percussion); vocal and instrumental accompaniment. *Praying for Time; Freedom 90; They Won't Go When I Go; Something to Save; Cowboys*

## BEST RECORDINGS OF THE MONTH

and Angels; Waiting for That Day; Mothers Pride; Heal the Pain; Soul Free; Waiting (Reprise). COLUMBIA © CT 46898, © CK 46898 (48 min).

### EMANUEL AX'S GLORIOUS BRAHMS

**B**RAHMS'S piano sonatas, as their opus numbers indicate (Opp. 1, 2, and 5), are among his very earliest works, all composed by the time he was twenty, and they do not turn up often in the recital room these days. They have not been neglected in recordings, though: Emanuel Ax's new Sony Classical CD of No. 3, in F Minor, joins more than a half-dozen other versions in the CD medium alone, but his is the one that must make listeners wonder why so fascinating a work is not among the most popular items in its category. In his own comprehensive note with the new disc, Ax refers to the sonata as "one of the glories of the pianist's repertoire," and his performance fully supports that encomium; it is one of the glories of the Brahm discography.

This five-movement sonata is a dramatic work that frequently fails to come to life in convincing terms. Some pianists have dealt with it, as with its two admittedly slighter predecessors, as a mere souvenir of the young composer's early development; others have tended to monumentalize it with outsize gestures that kill spontaneity. Ax's enlivening way with this music, like Bruno Leonardo Gelber's on his memorable Connoisseur Society LP, suggests an intuitive response in its natural flow, without a hint of exaggeration or of holding back. His sure feeling for the natural pulse at every point is especially striking in the inner movements. The emotion of the second movement (the one with the epigraph about lovers embracing in the moonlight) is thoroughly convincing because the pace is that of a true classical *andante*, with motion and momentum and not a trace of anything earthbound. The scherzo goes with splendid dancing verve, at once robust and light on its feet, and the ensuing intermezzo is similarly striking in its unselfconscious balance of



*Emanuel Ax: dancing verve*

power and poignancy. But the entire sequence of movements is, as it should be, a grand, sweeping whole, greater than the sum of its wonderful parts, bespeaking the very deepest conviction and projected with the most direct, at times almost heart-stopping impact.

The three intermezzos of Op. 117, representing the other end of Brahms's creative span, fill out the disc. With their mature inwardness, compactness, and economy of gesture, they make a splendid foil for the more overt intensity of the early sonata, and they are brought off every bit as persuasively. The CD's playing time is not overly generous—Sony might have added at least the Op. 4 scherzo—but with music-making on this level no one counts minutes per dollar, and we can hope for the scher-

zo with the two earlier sonatas on another disc from this source. The "high-definition sound" touted in the labeling is indeed exceptional in its beautifully focused realism, and Ax's notes are above the norm, too.

*Richard Freed*

**BRAHMS: Piano Sonata No. 3, in F Minor, Op. 5; Three Intermezzos, Op. 117.** Emanuel Ax (piano). SONY CLASSICAL © SK 45933 (53 min).

### THE COLORFUL ADVENTURES OF COCTEAU TWINS

**C**OCTEAU TWINS makes music that seems to emanate from the far edge of consciousness. The musical temperament of their new album, "Heaven or Las Vegas," is beautiful, flowing, and fragile, like a rainbow on the surface of a bubble. The songs don't "mean" anything in the conventional sense; rather, they appear to float along on an impressionistic slipstream of color, sound, and light. It would devalue "Heaven or Las Vegas" to call it New Age since Cocteau Twins makes active, involving music that isn't just sonic wallpaper with a moody pattern etched onto it. But it does convey a New Age-ish sense of pastoral wonder and amorphous, liquid



*Cocteau Twins: Robin Guthrie, Elizabeth Fraser, Simon Raymonde*

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**Norrington: Berlioz, Symphonie**  
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more. MCA 63600

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ECO, Novalis 63681

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*Billboard* DG 35084

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D Minor; etc. Novalis 01137

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Serenades Opp. 8 & 25; Sonata.  
RCA 34545

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Sir Colin Davis leads the Bavarian  
Radio Orchestra. Novalis 73745

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Rejoice Greatly, more.  
Angel 64214

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Simon Standage, violin. English  
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Sitkovetsky, violin. ECO.  
Novalis 51430

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22 more. Newport 64168

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**phony No. 3 (Eroica)** • London  
Classical Players. Angel 70023

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**No. 2; Haydn Variations** • Berlin  
Phil. DG 25120

**Heifetz: The Decca Masters,**  
Vol. 1 • Humoreske, Melodie in  
E-Flat, many more. RCA 00604

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## BEST RECORDINGS OF THE MONTH

movement, burnished with a melodic grace whose hues are lifted from the pop-music palette.

The songs of Cocteau Twins are so much more about sensation than sense that they do not easily yield to interpretation or comparison with familiar things. "Heaven or Las Vegas" is the music of falling rainbows, curved air, cool heat, forest green and ocean blue, deep reverie, and the pleasantly scrambled thoughts that crowd the mind in the moment before awakening. No less an instrument than the pianistic guitar and meandering bass is the sensually sibilant voice of Elizabeth Fraser, which is as delicate as fine crystal. She chants with the riffling modalism of an Indian snake charmer in *Iceblink Luck* and soars with the icy light of a comet's tail in *Pitch the Baby*. The music simmers with a jazzy spirit and throbs with an underlying rhythmic propulsion that anchors the songs ever so subtly.

"Heaven or Las Vegas" is a singular musical adventure made all the more potent by its freshly minted stamp. Those stuck in the warping confines of the mainstream would do well to stop, look, and listen to Cocteau Twins for a glimpse at what popular music may well sound like in a more fully evolved future.

Parke Puterbaugh

**COCTEAU TWINS:** *Heaven or Las Vegas*. Cocteau Twins (vocals and instrumentals). *Cherry-Colored Funk*; *Pitch the Baby*; *Iceblink Luck*; *Fifty-fifty Clown*; *Heaven or Las Vegas*; *I Wear Your Ring*; *Fotzopolitic*; *Wolf in the Breast*; *Road, River and Rail*; *Frou-Frou*; *Foxes in Midsummer Fire*. CAPITOL © C4-93669, © CDP-93669 (38 min).

### BRITTEN'S "PRINCE OF THE PAGODAS"

**T**HE new Virgin Classics recording of Benjamin Britten's *The Prince of the Pagodas* is a legend come to life. A musical legend, that is, about a nearly forgotten fairy-tale work that turns out to be as good and as fantastic—I use the word advisedly—as its reputation. Imagine *Ma Mère l'Oye*, *Scheherazade*, the *Nutcracker*, and *The Young Person's Guide to the Orchestra* all



Backstage at the 1957 première of Benjamin Britten's ballet *The Prince of the Pagodas*: David Blair (the Prince), Britten, Svetlana Beriosova, and John Cranko

rolled up into one. That'll give you a faint idea.

Britten wrote this score for a John Cranko ballet. It was conceived and commissioned in 1954, planned for 1955, and, after quite a lot of travail, first performed on New Year's Day 1957 at Covent Garden, London. It was not a success—at least as a ballet—but it left behind a legacy of rumors about the extraordinary score, rumors that turn out to be true.

The most famous feature of the music is that it uses (or was influenced by) a Balinese orchestra known as a gamelan. This is not the sort of thing one usually associates with Britten. In fact, the composer was introduced to Balinese music, during his World War II sojourn in the United States, by Colin McPhee, a Canadian composer who lived in Bali for many years and whose own music (due for a revival any minute now) was strongly influenced by gamelan orchestras. In 1956, Britten—in the middle of a world tour and with the ballet twice postponed and still incomplete—got a chance to visit Bali and hear its music live. With this inspiration in his ears, he was able to return home and finish the score.

But Bali is only a part of it. The entire score is an exercise in fantasy and color for which there are few precedents in recent music. In fact, it rivals the most brilliant of the Russian fairy-tale ballets—early Stravinsky per-

haps, or even Tchaikovsky. Britten carries it off without any suggestion that he is pandering or trying to pull off cheap effects or merely doing crowd-pleasing stunts. It is, one might say, intense enjoyment without guilt.

The scenario is an artificial concoction, a compendium of several traditional sources that, as a concept, is weaker than any of the originals. But, silly and superficial as it is, it inspired the score. The conductor Oliver Knussen, a composer of considerable imagination himself and also now artistic director of Britten's Aldeburgh Festival, calls the work "a secret pleasure-palace." Thanks to his excellent efforts, it is not so secret anymore.

The London Sinfonietta, formerly known mostly for performances of avant-garde and other long-faced musicalia, has been widening its scope recently. First *Show Boat*. Now Brittain's—and Britten's—answer to the *Nutcracker*, realized in a brilliant performance and recording of one of the ultimate pieces of musical fantasy. It ought to be put up forthwith on one of our great ballet stages. Awaiting that, we can have the pleasure of this flight of the imagination in its purely musical form.

Eric Salzman

**BRITTEN:** *The Prince of the Pagodas*. London Sinfonietta, Oliver Knussen cond. VIRGIN VCD © 91103-4 two cassettes, © 91103-2 two CD's (119 min).

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

**BEETHOVEN:** *Symphony No. 1, in C Major, Op. 21; Symphony No. 5, in C Minor, Op. 67.* Leipzig Gewandhaus Orchestra, Kurt Masur cond. PHILIPS © 426 782-2 (63 min).

Performance: *Classic poise*  
Recording: *No. 1 cleaner*

The music director designate of the New York Philharmonic, Kurt Masur, leads with his chin, so to speak, in his new Gewandhaus Orchestra Beethoven cycle, but his recording of the Fifth Symphony should elicit a positive response from anyone who wants a big-orchestra reading of this most defiant of Classical symphonies to be endowed with poise and proportion along with drama. The famous opening emerges as quintessentially terse and to the point. Masur steers the course like a master pilot from start to finish. He pays due attention to the *con moto* marking in the slow movement, but the full-orchestra reprises of the main theme carry something of the majesty I associate with Furtwängler in his mid-Thirties Berlin studio recording. Masur follows the lead of Otto Suitner and Roger Norrington in doing the scherzo with a full repeat of the main section and trio, as indicated in the Peter Gülke critical edition for C. F. Peters. Likewise, the exposition repeat is observed in the finale. My only serious beef with the recording is that an overreverberance blurs detail, especially between releases and attacks.

The First Symphony, recorded in January 1989, almost two years later, shows marked improvement sonically, and the performance could hardly be bettered. There are fine dynamic differentiations in the first movement, a nicely flowing slow movement, a virile third, and a swift yet carefully limned finale. *D.H.*

**BRAHMS:** *Piano Sonata No. 3; Three Intermezzos, Op. 117* (see Best of the Month, page 92)

**BRIAN:** *Symphony No. 1 ("Gothic").* Eva Jenisová (soprano); Dagmar Pecková (contralto); Vladimír Doležal (ten-

or); Peter Mikuláš (bass); Slovak Philharmonic Choir; Slovak National Theater Opera Chorus; Slovak Folk Ensemble Chorus; Lucnica Chorus; Bratislava Chamber Choir; Bratislava Children's Choir; Youth Echo Choir; Czechoslovak Radio Symphony Orchestra (Bratislava); Slovak Philharmonic Orchestra, Ondrej Lenard cond. MARCO POLO/HARMONIA MUNDI USA © 8.223280-281 two CD's (111 min).

Performance: *Impassioned*  
Recording: *A remarkable feat!*

British composer Havergal Brian (1876-1972) has achieved over the past two decades something akin to mythic status, if only for his *Gothic* Symphony. He began the work in 1919 and completed it some seven years later when he had reached his fiftieth year. Its dimensions in playing time and performing forces put it in a class with the Berlioz Requiem and the Mahler Eighth Symphony: more than 100 minutes, an orchestra of 130, including organ and seventeen percussionists, and an additional forty players in four separate brass choirs. The vocal forces add up to 400, divided into two double choirs, children's chorus, and four soloists.

Brian, of working-class origin, was largely self-taught. Nevertheless, by World War I he had composed a great deal of choral music as well as orchestral scores that were performed by Beecham and others. Sir Edward Elgar, Richard Strauss, and Sir Donald Tovey had appreciative words for Brian's work, but a series of personal crises brought an end to this initial success, and though the *Gothic* Symphony was published in 1932 in a limited edition, it was not until 1966 that it received its first professional performance (by the BBC). By that time Brian, then in his nineties, had composed twenty-seven symphonies, and he composed five more before his death.

Brian was a lifelong devotee of medieval architecture and High Romantic German literature, and in a very real sense his *Gothic* Symphony represents a kind of testament to those preoccupations. In essence, it is a pair of three-movement symphonies yoked together. Part I evokes mankind's Faustian strivings. Its first movement alternates between turbulent, densely post-Straussian musical discourse (the score was dedicated to Richard Strauss) and more pastoral elements. The middle movement is a somber and powerful processional in 5/4 meter. The third resumes the Faustian struggle and in the last pages launches into a polytonal "witches' sabbath" that makes Berlioz's seem like a genteel picnic.

Part 2 is a vast, 75-minute tripartite setting of the *Te Deum*. The first section gives us the glorification of the Godhead,

the second an awesome vision of God as judge of mankind centered on one line of text, "*Judex crederis esse venturus.*" The last and longest section alternates between petition and glorification, and its concluding pages are the most powerful and poignant in the entire score. As in the last movement of Part 1, Brian let loose just before the near-desolate end a hellish fury comparable to the wildest pages of Varèse.

As a musical experience, the symphony ranges from the near indigestible to episodes of sublime and fascinating beauty. Thrilling as are the titanic climaxes, with the four brass choirs and vocal choruses going full tilt along with the huge orchestra, the parts that stick in my mind are the extended *a cappella*



*Kurt Masur: classic Beethoven*

choral passages, the lovely reflective repetition of the "*Tu Rex gloriae*" toward the end of the first movement of Part 2, and, above all, the extraordinary 6½-minute opening of the "*Judex*," with a vast array of chord clusters in unrelated triads succeeded by amazing polyphonic vocal scoring, in twenty parts, culminating in a striking vocalise for soprano solo. Also memorable are two fine solo vocal episodes, the "*Te ergo quaesumus*" for tenor and the deeply moving "*Dignare Domine*" for bass, which precedes the onslaught of the forces of hell.

It is to the credit of conductor Ondrej Lenard, chorus master Pavol Procházka, and Hong Kong-based Marco Polo Records that this first recording of the *Gothic* was successfully organized in such an unlikely spot as Bratislava, Czechoslovakia, not too many months before the revolutionary events in Eastern Europe took the spotlight, and that it

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## BARBER'S BALLET MUSIC



Conductor Andrew Schenck

**S**AMUEL BARBER'S 1946 ballet *Medea*, originally called *Serpent's Heart* and then *Cave of the Heart*, was, like Aaron Copland's *Appalachian Spring*, commissioned by Martha Graham and scored for a chamber orchestra of strings and winds. A year later Barber made an orchestral suite of seven of the numbers from the ballet, and some time later, in the mid-Fifties, he created yet another orchestral version of the music, now the best known, under the title *Medea's Meditation and Dance of Vengeance*. Andrew Schenck, conducting different orchestras on opposite sides of the world, has recorded the little-known originals of both *Medea* and *Appalachian Spring*, as well as Barber's 1947 orchestral suite, and it all makes fascinating listening.

The original chamber version of *Appalachian Spring*, which the composer himself recorded a number of years ago, may actually be better than the famous orchestral suite. It has more music and more dramatic contrasts, and the chamber scoring is delicious and very apropos. I'm not so sure about the Barber. Although some things emerge with greater profile and clarity in the chamber original, the composer seems to have been thinking in terms of a full orchestra all along, and for the most part the big version is more effective.

Curiously, Schenck treats the two versions (1946 and 1947) quite differently. For example, his tempos differ in the two readings, not only because of the relative density of the scoring but because in the original version he has apparently attempted to be more faithful to the cho-

reographic origins of the music. The orchestral suite is paired with two later Barber works of some note, the Third Essay for Orchestra and the *Fadograph of a Yestern Scene*, but it is the contrast between the two versions of the *Medea* music that holds the most interest in the two releases.

A third new disc by Schenck features *Souvenirs*, Barber's only other ballet score. Orchestrated from some light-hearted four-hand piano music, it is mostly campy fluff (or is that fluffy camp?) and may be better handled on a disc of Barber and Britten works led by José Serebrier. On the other hand, Schenck pairs *Souvenirs* with the suite that Gian Carlo Menotti drew from his ballet *Sebastian*, and this may help revive a catchy and lively piece of work that was once popular but is now almost forgotten. The Schenck disc also has three excerpts from Menotti's most popular work, *Amahl and the Night Visitors*.

Serebrier puts *Souvenirs* with Barber's last work, a pathetic little *Canzonetta* intended for a never-completed oboe concerto. To these he adds Britten's *Young Apollo*, a completely silly, best-forgotten piece for piano and orchestra, in which Peter Evans is the piano soloist, and *Les Illuminations*, one of the great masterpieces of twentieth-century music, which is brilliantly sung (though in bad French) by the soprano Carole Farley. Take your pick. *Eric Salzman*

**BARBER:** *Cave of the Heart (Medea)*, Op. 23. **COPLAND:** *Appalachian Spring*. Atlantic Sinfonietta, Andrew Schenck cond. KOCH INTERNATIONAL CLASSICS © 3-7019-2 H1 (62 min).

**BARBER:** *Medea, Suite, Op. 23; Fadograph of a Yestern Scene, Op. 44; Third Essay, Op. 47*. New Zealand Symphony Orchestra, Andrew Schenck cond. KOCH INTERNATIONAL CLASSICS © 3-7010-2 (47 min).

**BARBER:** *Souvenirs, Ballet Suite, Op. 28*. **MENOTTI:** *Sebastian, Ballet Suite. Amahl and the Night Visitors: Introduction, March, and Shepherd's Dance*. New Zealand Symphony Orchestra, Andrew Schenck cond. KOCH INTERNATIONAL CLASSICS © 3-7005-2 (51 min).

**BARBER:** *Souvenirs, Ballet Suite, Op. 28*. London Symphony, José Serebrier cond. *Canzonetta for Oboe and String Orchestra*. Julia Girdwood (oboe); Scottish Chamber Orchestra, José Serebrier cond. **BRITTEN:** *Les Illuminations, Op. 18; Young Apollo for Piano and Strings, Op. 16*. Carole Farley (soprano); Peter Evans (piano); Scottish Chamber Orchestra, José Serebrier cond. PHOENIX © PHCD 111 (56 min).

came off as well as it did both musically and sonically. Having heard the BBC aircheck of the 1966 performance conducted by Sir Adrian Boult, I have a basis for comparison. If Boult had a somewhat tighter grasp of the orchestra than Lenard, the singing here approaches the superlative. The orchestral forces do give their all in playing of the utmost conviction, and the recording engineers have done a remarkable job with music whose demands in terms of balance must be almost impossible to meet. If you want a unique listening experience and have the playback equipment to handle it, Brian's *Gothic Symphony* comes close to the ultimate within its own stylistic frame of reference. *D.H.*

**BRITTEN:** *The Prince of the Pagodas* (see Best of the Month, page 94)

**DVOŘÁK:** *Symphony No. 5, in F Major, Op. 76; Czech Suite, Op. 39*. Czech Philharmonic Orchestra, Libor Pešek cond. VIRGIN © 90769-4, © 90769-2 (65 min).

Performance: *Spirited*  
Recording: *Bright, spacious*

Opus numbers notwithstanding, the amiable five-movement *Czech Suite* of 1879 was the later of the two works here; the F Major Symphony dates from 1875 and finds Dvořák in transition from gifted tyro to mature symphonist. As might be expected, the Bohemian national element is much to the fore in the suite, and in the symphony echoes of Brahms and Wagner give way to the idiom of the *Slavonic Dances*, in the scherzo especially.

Libor Pešek's performance of the symphony has plenty of spirit and color, particularly in the pastoral *Andante con moto* second movement. The recording invites comparison with the tautly rhythmic interpretation by Mariss Jansons and the Oslo Philharmonic on EMI/Angel, which was released just a bit earlier. Pešek takes a somewhat broader view of the music, especially in the finale, where his more deliberate pacing makes for a telling emphasis in the accenting of the main theme. The sonics are amply spacious and a little brighter than in the Jansons recording. A choice between the two versions could be based on your preferred coupler, the *Czech Suite* here or the *Scherzo capriccioso* and the *Othello* overture on the Jansons disc. *D.H.*

**FOSS:** *Ode for Orchestra; Song of Songs, for Soprano and Orchestra; With Music Strong, for Chorus and Orchestra*. Carolann Page (soprano); Milwaukee Symphony Orchestra and Chorus, Lukas Foss cond. KOSS CLASSICS © KC-1004 (68 min).

Performance: *Splendid*  
Recording: *Very good*

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waukee—in a manner comparable to the young Leonard Bernstein. His compositions range from opera and choral-orchestral works on a grand scale to a host of scores for unusual instrumental combinations, many of which incorporate improvisation and chance elements. But for all the bewildering eclecticism of Foss's musical language, encompassing all the tricks of the contemporary music trade, the music itself is accessible, fascinating, sometimes eloquent, and at times, especially in his collage works quoting from the Baroque masters, exasperating and funny.

The present disc offers a sampling of his work from 1944 to 1988. The Ode for Orchestra was written in 1944, first performed by George Szell and the New York Philharmonic in 1945, and revised in 1958. Intended as a memorial for those who died in World War II, it evokes the famous John Donne line, "... never send to know for whom the bell tolls." As might be expected for an American work of the period, the Ode partakes of the gestural figurations of Copland and Stravinsky, but it has its own genuine power and poignance as well.

Perhaps the most piercingly eloquent music Foss has written, his 1946 Biblical cantata *Song of Songs* was first recorded by Leonard Bernstein and the New York Philharmonic, with Jennie Tourel as the soprano soloist. If the new recording does not wholly supersede that remarkable collaboration, it does have the benefit of state-of-the-art sonics, the composer's conducting, and singing by Carolann Page that comes straight and true from the heart.

*With Music Strong* (1988) presents Foss in a more contemporary guise, with double chorus arrayed left and right. The score combines new material (the choral section) with earlier music originating in the 1978 Brass Quintet he composed for the Canadian Brass. In the choral sections there are echoes of Mussorgsky and Stravinsky, as well as touches of Americana. Unlike the two earlier works on the disc, this one may require a bit of getting used to, but one thing that does come through in the performance is Foss's limitless enthusiasm for music and music-making. The Koss Classics engineering and production team, along with all of the musicians involved, have put their best into this enterprise, and I wish them the same success in their future recordings of twentieth-century American repertoire. *D.H.*

**MENDELSSOHN:** *Symphony No. 3, in A Minor, Op. 56 ("Scottish"); Symphony No. 4, in A Major, Op. 90 ("Italian").* Berlin Philharmonic Orchestra, James Levine cond. DEUTSCHE GRAMMOPHON © 427 670-2 (71 min).

Performance: *Romantic*  
Recording: *Fine*

James Levine's new recording of the Mendelssohn *Scottish* and *Italian* Symphonies with the Berlin Philharmonic

tends toward the robust, but there is a strong overlay of genuine Romantic sensibility. A somberly tragic note is struck in the introduction of the *Scottish*; the pacing is deliberate, the phrasing lovingly molded and intense. The rest of the movement is splendidly vigorous, however, and the scherzo is properly airy and outdoorsy. The tragic note is struck again in the slow movement, and with great sensitivity. The woodwind playing is altogether superb in these middle movements. The virile element returns to the fore in the finale, with marvelous orchestral give-and-take throughout the development, and the concluding procession is festive and noble.

The *Italian* goes equally well, and Levine gives us the all-important exposition repeat with its beguiling transitional material. I regret only the slightly recessed trumpet sound in the climactic moments toward the end. The *con moto* element in the andante is nicely observed: There's no plodding, only a fine sense of line, cunningly nuanced. Notable in the intermezzo-like third movement is the lovely shaping of the melody—a seamless whole with no exaggerated swelling. The finale's saltarello runs its course swiftly without becoming a rat race. Again, the finesse of orchestral execution in the development is a joy to mind and ear alike. The sonic ambience of Berlin's Jesus Christus-Kirche is eminently more satisfactory than that of the Philharmonie (the orchestra's own hall). All told, a highly satisfying production. *D.H.*

**MOZART:** *Keyboard Sonatas.* Anthony Newman (fortepiano). Volume I: *Sonatas in C Major (K. 279), F Major (K. 280), B-flat Major (K. 281), E-flat Major (K. 282), G Major (K. 283), and D Major (K. 284).* NEWPORT CLASSIC © NCD 60121 (77 min). Volume II: *Sonatas in C Major (K. 309), A Minor (K. 310), D Major (K. 311), and C Major (K. 330).* NEWPORT CLASSIC © NCD 60122 (63 min). Volume III: *Sonatas in A Major (K. 331), F Major (K. 332), B-flat Major (K. 333), and C Minor (K. 457).* NEWPORT CLASSIC © NCD 60123 (64 min). Volume IV: *Sonatas in F Major (K. 533/494), C Major (K. 545), B-flat Major (K. 570), and D Major (K. 576).* NEWPORT CLASSIC © NCD 60124 (51 min).

Performance: *Good*  
Recording: *Good*

These four discs are said to constitute the first complete CD coverage of Mozart's keyboard sonatas played on the fortepiano instead of a modern grand. Anthony Newman, playing an instrument made in Vienna by Könicke in 1790 for some of the sonatas and one made in England by Clementi in 1802 for the others, seeks to re-create what the original sources tell us about Mozart's own keyboard style, as different in some respects from the more legato approach that came into favor after his death as his instruments themselves were from those in use today. Newman's playing is hon-



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est and assured, forthright and unfussy; what is missing is an acknowledgement of the respective sonatas' individuality that might keep the listener more happily attentive through a sequence of four to six works on a disc.

While there is no reason anyone should insist on listening to more than one or two sonatas at a sitting, some other performers, at the keyboards of both modern and period instruments, have made that option more appealing with more characterful performances. Newman's crisp articulation and brisk pacing serve the six early sonatas on the first disc especially well, but after that there is little difference in his playing from one work to the next. It is not tasteful understatement that obscures the pathos and drama of the two great minor-key sonatas (K. 310 and 457) but a surface-skimming approach that seems mechanical and bland.

The sound is quite good, and, following the practice introduced by Denon with its very first CD's, Newport Classic has meticulously indexed the structural details of every movement in the eighteen works. The unexpected renumbering of several of the sonatas (evidently, but not entirely, in the interest of strict chronology) is bound to create a bit of confusion that might have been avoided

by omitting the enumeration and relying on the Köchel numbers alone. The documentation in general is neither terribly helpful nor very readable. *R.F.*

**PROKOFIEV:** *Piano Concertos: No. 1, in D-flat Major, Op. 10; No. 4, in B-flat Major, Op. 53; No. 5, in G Major, Op. 55.* Boris Berman (piano); Royal Concertgebouw Orchestra, Neeme Järvi cond. CHANDOS © CHAN 8791 (64 min).

Performance: *Excellent*  
Recording: *First-rate*

The Berman on this disc is not the famous Soviet pianist Lazar Berman, but a younger compatriot, Boris Berman, who emigrated in 1973 and now heads the piano faculty at Yale University. He is to record all the Prokofiev sonatas for Chandos as well as the concertos; from his showing here he appears to be an excellent choice for such an assignment, and it was a clever idea to introduce him in this particular collection of works.

Prokofiev's Second and Third Piano Concertos are among his most popular works and are frequently recorded. The other three are seldom performed, and getting them on CD has generally required buying an integral set of all five. This disc is a handy alternative for collectors who have favorite versions of

Nos. 2 and 3 and want to pick up the less-favored works without duplicating, and it is a thoroughly satisfying presentation in its own right. It sent me back to the Béroff/Masur (EMI) and Ashkenazy/Previn (London) sets for comparison. Berman and Neeme Järvi (whose own Prokofiev credentials have been firmly established by now), with the great Amsterdam orchestra in its best form, make a fully competitive team, generating the sort of cumulative interaction—most particularly in the left-hand Fourth Concerto—that can't be taken for granted in a live or recorded performance, and the sound is absolutely first-rate. *R.F.*

**RAMEAU:** *Platée.* Gilles Ragon (tenor), Platée; Jennifer Smith (soprano), La Folie, Thalie; Guy de Mey (tenor), Thespis, Mercury; Vincent Le Texier (baritone), Jupiter, a Satyr; Guillemette Laurens (mezzo-soprano), Juno; Ensemble Vocal Françoise Herr; Les Musiciens du Louvre, Marc Minkowski cond. ERATO © 2292-45028-2 two CD's (134 min).

Performance: *Superb*  
Recording: *Excellent*

Jean-Philippe Rameau often exhibited a tendency to be outrageous, but *Platée* (1749) is one of the few operas in which he gave this side of his personality full



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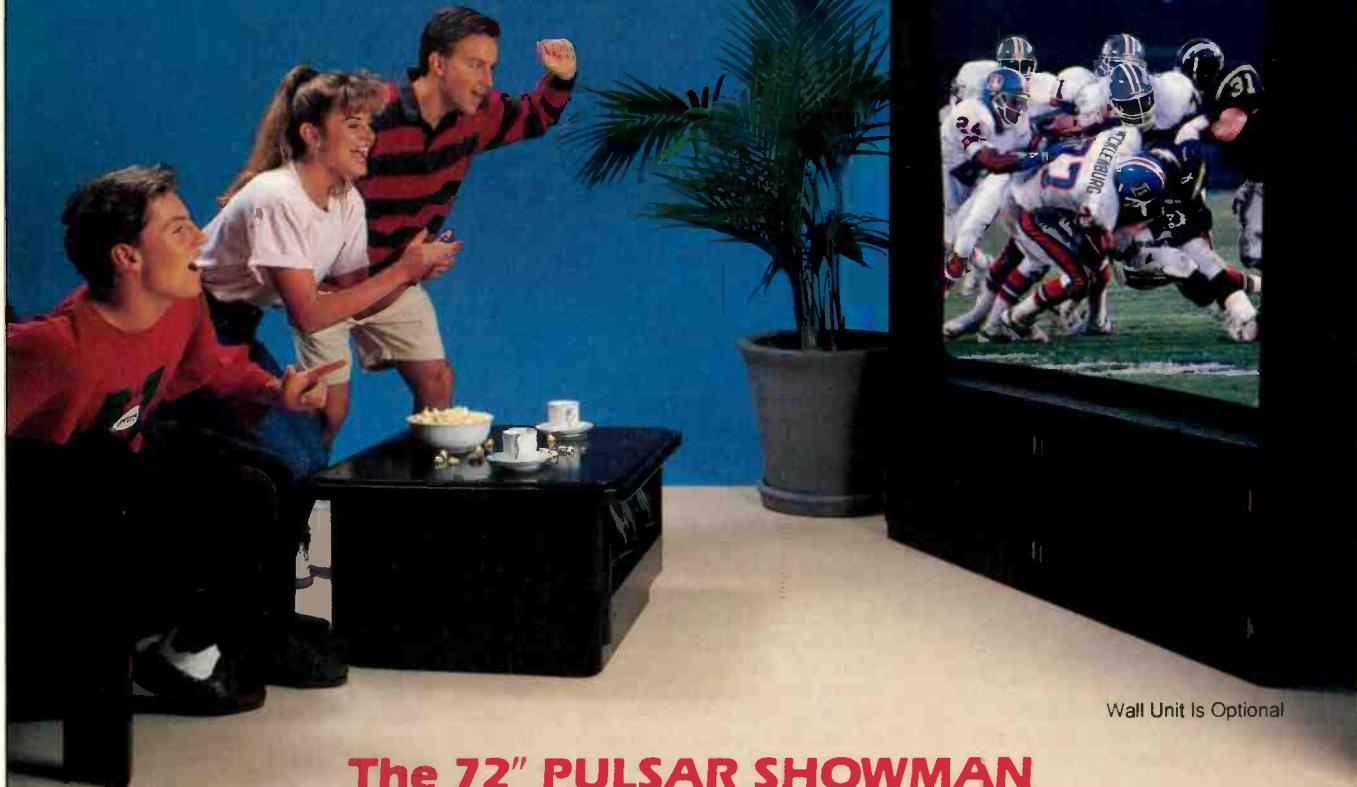
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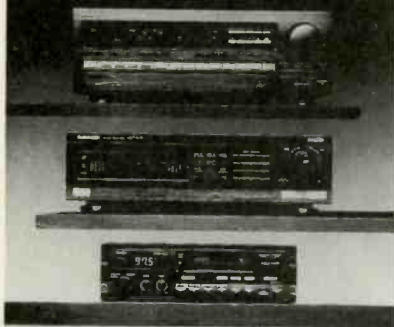
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rein. Among his rare comedies, it lacks much of the artificiality of his other stage works, which is probably why it's been performed more in this country than any other Rameau opera. Revivals have also undoubtedly been prompted by the interest generated by the durable 1956 EMI recording of the work conducted by Hans Rosbaud. As well as that set has held up, *Ramistes* (as champions of Rameau were called during his time) have plenty of reasons to be grateful for this new one released by Erato.

Performed with great verve by Les Musiciens du Louvre, the new *Platée* includes a good deal of dance music that was cut from the EMI recording. It does, though, have a slightly abbreviated ending, with the swamp goddess Platée venting her rage at Jupiter for making a fool of her with his romantic advances. I'm not sure that this edited-down finale enhances the opera's theatricality, as intended, but it does emphasize the opera's cruel lesson, that we all remain confined to our own personal swamps as long as we cling to our pretensions and illusions.

This performance never evokes cheap laughs, which is no small feat in an opera that's so often burlesqued to the rafters: After all, the swamp goddess is portrayed by a man. Gilles Ragon brings a welcome elegance to the title role and allows the humor written into it to emerge naturally, via the text, rather than clowning it up vocally. Elsewhere, the singing is equally stylish, especially that of Jennifer Smith in her two supporting roles. I would have expected more, however, of Guillemette Laurens, whose portrayal of Juno is bedeviled with a few too many vocal swoops.

Marc Minkowski, conductor of Les Musiciens du Louvre, is emerging as one of the most important interpreters of French Baroque music. His performances here and in earlier recordings all have a Gallic tang and take considerable chances. In some of *Platée's* comic stretches, in fact, he drives his forces along at breakneck speed, to dazzling effect. Overall, I'd say that this is the best Rameau recording in years. *D.P.S.*

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**FANFARES FOR THE COMMON MAN.** Copland: *Fanfare for the Common Man*; *Ceremonial Fanfare*; *Inaugural Fanfare*. Hanson: *Chorale and Fanfare*; *Fanfare for the Signal Corps*. Harris: *Fanfare for the Forces*. Cowell: *Fanfare for Latin Allies*. Gould: *Fanfare for Freedom*. Bernstein: *Fanfare for JFK*; *Shivaree*. Thomson: *Fanfare for France*. Piston: *Ceremonial Fanfare*. And eight others. London Philharmonic Orchestra, Jorge Mester cond. KOCH INTERNATIONAL CLASSICS © 3-7012-2 HI (48 min).

Performance: *Good*  
Recording: *Very good*

In 1921, in London, Eugene Goossens founded a magazine called *Fanfare* and

commissioned several composers to write pieces with that title, which were duly published and played. During World War II, Goossens, then conductor of the Cincinnati Symphony, revived the idea as a kind of contribution to the war effort and commissioned nineteen fanfares from as many composers. One of them, Copland's *Fanfare for the Common Man*, has become quite famous, but, as this recording shows, some of the others have merit too. Conductor Jorge Mester and producer David Hubert's idea was to collect twelve of the nineteen fanfares and combine them with similar pieces written for other occasions. This makes for a lot of musical tattooing and flourishing, not all of it equally interesting, but all very neatly accomplished and well recorded.

Besides Copland, two of the other composers stand out: Virgil Thomson, for avoiding bombastics in favor of wit, and Leonard Bernstein, for getting to the jazzy side of the brass. Bernstein, the youngest of this crowd, is the only composer here who was not represented in Goossens's wartime cycle. If you can take it, you'll find all this fanfaring a lot of fun. *E.S.*

**CHERYL STUDER:** *Coloratura Arias*. Bellini: *La sonnambula: Ah! non credea mirarti*. Norma: *Casta Diva*. Verdi: *La traviata: E strano. Il trovatore: Timor di me?* Donizetti: *Lucia di Lammermoor: Regnava nel silenzio. Lucrezia Borgia: Tranquillo ei posa*. Rossini: *Il barbiere di Siviglia: Una voce poco fa. Semiramide: Bel raggio lusinghier*. Cheryl Studer (soprano); Munich Radio Orchestra, Gabriele Ferro cond. EMI/ANGEL © CDC-49961 (57 min).

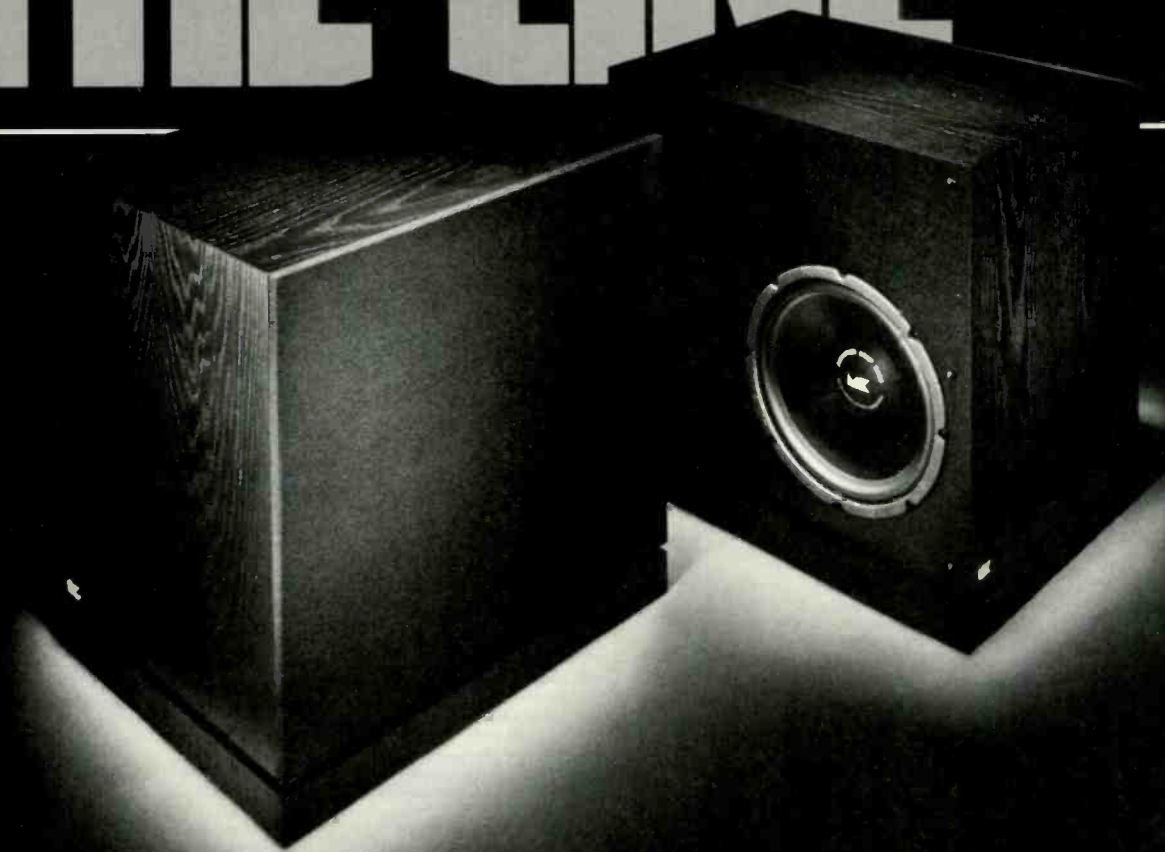
Performance: *Impressive*  
Recording: *Clear, well balanced*

I first heard Cheryl Studer, as Matilda in Rossini's *William Tell*, at La Scala two seasons ago (a live recording has since been released by Philips Classics), and I was struck by her vocal security and style. Later, listening to her singing opposite Plácido Domingo in the new Deutsche Grammophon recording of Wagner's *Tannhäuser*, I was again impressed. Her large voice and dramatic intuition projected an Elisabeth of both musical power and youthful sensitivity.

Studer's performances here are equally impressive. Her vocalism encompasses with easy mobility and accuracy the hazards and hurdles of these eight coloratura arias, and she sings with a real feeling for character and dramatic moment. Especially notable is the self-possession she brings to the first part of *Norma's* "Casta Diva," the silvery quality of her "Timor di me? . . . D'amor sull'ali rosee" from *Il trovatore*, and the vocal excitement of the "Bel raggio lusinghier" from *Semiramide*. Every selection has something to recommend it, however, and all are crisply accompanied by the Munich Radio Orchestra under Gabriele Ferro. *R.A.*

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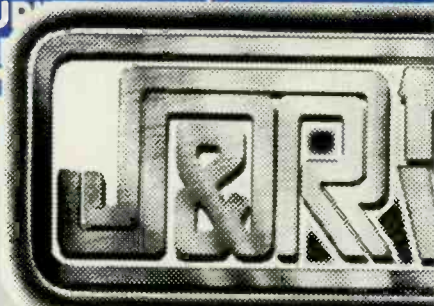
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• 60 watts/channel with CD changer . . . . . **\$399<sup>95</sup>**

### Amplifiers & Tuners



**Proton AA-1150**  
Stereo Power Amplifier  
 • 50 watts/channel • High current power supply with D.P.D. (Dynamic Power on Demand) circuitry • Protection circuitry • Dual power output meters

Our Low Price **\$299<sup>95</sup>** (PRT AA1150)

**Sherwood TD-701OR**  
• Tuner, AM/FM, 30presets . . . . . **\$129<sup>95</sup>**

**Sherwood AI-121OR**  
• Integrated Amp, 100 watts/channel . . . . . **\$199<sup>95</sup>**

**Gemini SA-501**  
• Power Amp, 125 watts/channel . . . . . **\$299<sup>95</sup>**

**Nikko B-600**  
• Preamp/limiter, 2-band parametric EQ . . . . . **\$299<sup>95</sup>**

**Nikko A-400**  
• Power Amp, 120 watts/channel . . . . . **\$299<sup>95</sup>**

**Sherwood AM-7040**  
• Power amp, 200 watts/channel . . . . . **\$299<sup>95</sup>**

### Compact Disc Players



**Technics SL-P370**  
Remote CD Player  
 • New MASH digital/analog converter system for more accurate reproduction • 4 X oversampling • 18-bit digital filter • 20-track programming • Wireless remote

Our Low Price **\$159<sup>95</sup>** (TEC SLP370)

**Sharp DX-677**  
• 20 track programming . . . . . **\$99<sup>95</sup>**

**Sharp DXR-770**  
• 20 track programmable, remote . . . . . **\$119<sup>95</sup>**

**Sherwood CD-1182R**  
• 8 X oversampling, remote . . . . . **\$129<sup>95</sup>**

**Technics SL-P170**  
• 4 X oversampling, MASH system . . . . . **\$139<sup>95</sup>**

**Technics SL-PS50**  
• MASH system, 4 X oversampling . . . . . **\$249<sup>95</sup>**

**Technics SL-PS70**  
• MASH system, 8 D/A, remote . . . . . **\$339<sup>95</sup>**

### CD Changers/Combos



**Technics SL-PC33**  
Remote Rotary Compact Disc Changer  
 • Front-loading • 5-disc design • Change discs while listening • MASH PWM D/A converter • 25-key remote • 32-track programming • Edit guide • 4-mode repeat

Our Low Price **\$249<sup>95</sup>** (TEC SLP33)

**Technics SL-PC15**  
• 5-disc rotary, programmable . . . . . **\$189<sup>95</sup>**

**JVC XLR-302**  
• 5-disc rotary, remote . . . . . **\$199<sup>95</sup>**

**Sharp DXC-3510**  
• 6-disc, magazine load, remote . . . . . **\$199<sup>95</sup>**

**Teac PD-800M**  
• 6-disc, remote . . . . . **\$199<sup>95</sup>**

**Technics SL-PC25**  
• 5-disc rotary, remote . . . . . **\$219<sup>95</sup>**

**ADC 1320**  
• 6-disc w/ 75 watts/channel Receiver . . . . . **\$329<sup>95</sup>**

### Equalizer



**ADC SS-525X**  
Computerized Graphic Equalizer  
 • Custom tailor your sound the professional way • Automatic analyzer equalizes room for precise flat response • 12-bands/channel • Microphone • Pink noise • Wireless remote

Our Low Price **\$299<sup>95</sup>** (ADC SS525X)

**Teac EQ-A6**  
• 10 bands/channel . . . . . **\$69<sup>95</sup>**

**ADC SS-90**  
• 10 bands/channel, 12 db boost/cut . . . . . **\$84<sup>95</sup>**

**Audio Source EQ8/11**  
• 10 bands/channel, spectrum display . . . . . **\$89<sup>95</sup>**

**ADC SS-200**  
• 10 bands/channel, 15 db boost/cut . . . . . **\$109<sup>95</sup>**

**ADC SS-310**  
• 10 bands/channel, pink noise . . . . . **\$159<sup>95</sup>**

**Audio Source EQ-10**  
• 12 bands, analyzer w/ mic . . . . . **\$349<sup>95</sup>**

### Home Speakers



**Pinnacle PN2 +**  
Two Way Speaker System  
 • Patented dualport port for superb bass response from a very compact enclosure • 5 1/4" polypropylene woofer • 50 watt power handling • Beautiful oak trim

Our Low Price **\$149<sup>95</sup>** Pair (PIN PN2 + OAK)

**Technics SBS-25**  
• 2-way mini speakers . . . . . Pair **\$79<sup>95</sup>**

**Memorex WM-200**  
• Weathermate indoor/outdoor . . . . . Pair **\$89<sup>95</sup>**

**Pinnacle PN2 +**  
• 2-way mini speakers . . . . . Pair **\$99<sup>95</sup>**

**Pinnacle PN8 + /Oak**  
• 8" 2-way oak trim . . . . . Pair **\$349<sup>95</sup>**

**Bose AM3**  
• Acoustimass 3 piece system . . . . . **\$399<sup>95</sup>**

**Cerwin Vega 250SE**  
• 3-way, 10" woofer . . . . . Pair **\$399<sup>95</sup>**

### Home Speakers



**Teac ST-X5**  
3-Way Speaker System  
 • 10" polypropylene woofer • 5" midrange • Dome tweeter • Floor standing design • 180 watts maximum input power • 6 ohm impedance

Our Low Price **\$199<sup>95</sup>** Pair (TEA STX5)

**Technics SB-L40**  
• 2-way, 10" woofer . . . . . Pair **\$99<sup>95</sup>**

**Technics SB-L60**  
• 3-way, 10" woofer . . . . . Pair **\$129<sup>95</sup>**

**Recoton W-100**  
• Cordless speakers, built-in amp . . . . . Pair **\$149<sup>95</sup>**

**Technics SB-L80**  
• 3-way, 12" woofer . . . . . Pair **\$169<sup>95</sup>**

**Bose AM5**  
• Acoustimass 3 piece system . . . . . **\$749<sup>95</sup>**

**Bose 901-Classic**  
• Direct/Reflecting system w/ EQ . . . . . Pair **\$1399<sup>95</sup>**

### Electronic Antennas



**Terk 9825 (pi2)**  
Deluxe Indoor FM Antenna  
 • Adjustable gain control • Schott 38dB high gain low noise amplifier • Omnidirectional or directional • Increases FM reception & sound quality • Black finish

Our Low Price **\$79<sup>95</sup>** (TRK 9825)

**Parsec Wavecatcher**  
• AM/FM, passive, uni/omni . . . . . **\$24<sup>95</sup>**

**Terk 9300**  
• FM, active, uni/omni . . . . . **\$29<sup>95</sup>**

**Parsec Stealth**  
• FM, active, up to 32 db gain . . . . . **\$39<sup>95</sup>**

**Terk 9400**  
• FM wedge, active, variable gain . . . . . **\$49<sup>95</sup>**

**Parsec M2000**  
• AM/FM, uni/omni directional . . . . . **\$69<sup>95</sup>**

**Recoton TV-600**  
• UHF/VHF/FM, amplified . . . . . **\$69<sup>95</sup>**

### Compact Disc Specials

**GREAT ARTIST GREAT ART**



Book by *Josephine Hartman* • Book by *Thomas Haggren*  
 Kim Fowley • George Duvivier • Karla Burns • Deanna Pines  
 Nancy Sinatra • David Garrison

**Julia McGlinn**  
 Emmaus Tapes • London, Ontario

ANG 54033

**27<sup>98</sup>** Per 2 CD Set **15<sup>98</sup>** Per 2 Cassette Set

**KATHLEEN BATTLE**  
Handel Arias  
 NEVILLE MARRINER  
 A treasury of 12 Arias on the 10 discs



**EMI**  
 Angel Digital

ANG 49179

**12<sup>99</sup>** Per CD **7<sup>99</sup>** Per Cassette

Available at 12.99 Per CD and 7.99 Per Cassette

**Virtuoso Duets:** Parkening & Brandon, Guitar (ANG 49406)

**Roman Heroes:** Domingo, NPO/Kohn cond. (ANG 54053)

**Porter:** Nymphs Errant Ballard, Kirk, McArdle, McGovern, Montevercchi (ANG 54079)

**My Funny Valentine:** Frederica Von Stade Sings Rodgers & Hart (ANG 54071)

**Thomas Hampson:** An Old Song Resung (ANG 54051)

**Bruce Hubbard:** For You, For Me - Songs of Copland, Gershwin, Bernstein, others (ANG 49928)

**Kiri Te Kanawa:** Italian Opera Arias (ANG 54062)

**Sweet Power of Song:** Felicity Latt & Ann Murray vocal duets (ANG 49930) CD ONLY

**Ride On; King Jesus!**: Florence Quivar, Harlem Boys Choir (ANG 49885)



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Thom Rotella  
*Without Words*

Your Choice Of These Two  
**12.99** Per CD



GARRY DIAL & DICK OATTS  
**BRASSWORKS**

Available at 12.99 Per CD and 6.99 Per Cassette

**Joe Beck:** Back To Back (DMP 464)  
**Warren Bernhardt:** Heat Of The Moment (DMP 468)  
**Bob's Diner:** Bob's Diner (DMP 471)  
**Garry Dial & Dick Oatts:** Brassworks (DMP 477)  
**The Dolphins:** Malayan Breeze (DMP 474)  
**Mantredo Fest:** Jungle Cat (DMP 470)  
**Film & The BB's:** Further Adventures (DMP 462)  
**Chuck Loeb:** Life Colors (DMP 475)  
**Chuck Loeb & Andy Laverne:** MagicFingers (DMP 472)  
**Bill Mays & Ray Drummond:** One To One (DMP 473)  
**Bob Mintzer:** Urban Contours (DMP 467)  
**Thom Rotella:** Home Again (DMP 469)  
**Thom Rotella:** Without Words (DMP 476)  
**Various Artists:** A Taste Of (DMP 466)

### Cassette Decks



**Teac V-260HX Cassette Deck**  
•Dolby B noise reduction •Dolby HX-Pro headroom extension •Bias fine tuning •Direct function mechanism •Auto-stop •3-mode tape selector •LED level meter

Our Low Price **\$69.95** (TEA V260HX)

- Teac V-480 •Dolby B/C/HX-Pro, fine 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 . . . \$249.95

### Double Cassette Decks



**Teac W-370C Double Cassette Deck**  
•Continuous playback •Dolby B & C noise reduction •Normal & high-speed dubbing •Bias fine 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

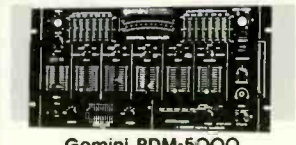


**Panasonic SC-T090 Compact Stereo System**  
•AM/FM stereo tuner •3-band EQ •CD input terminal •Dual cassette deck •Semi-automatic turntable •Matched speakers with 6.5" full-range drivers

Our Low Price **\$149.95** (PAN SCT090)

- 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
- Atus 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
- Atus 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, 8" high . . . Pair \$34.95
- Russound AX6 •Auxiliary input selector, holds 6 . . . \$46.95
- Memorex DS-10 •Surround sound amp, Dolby surround . . . \$99.95
- Niles SWC4 •Speaker selector w/volume control . . . \$249.95
- Standesign Penta •Audio rack, 5-shelf . . . \$249.95
- Nifty 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 •Disc slip mat for slip cueing . . . \$6.95
- Tiptoes 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



**Maxell MXS-90 Metal Bias Audio Tape**  
•Metal formula handles maximum signal levels with lowest distortion •Precision housing ensures smooth tape travel

Our Low Price **\$27.90** 10-Pack (MAX MXS90)

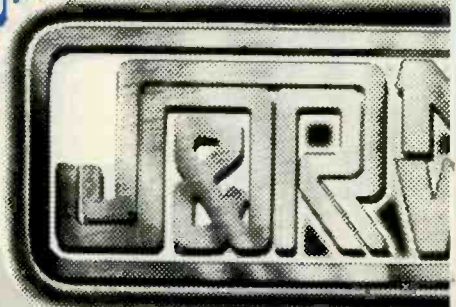
- Maxell XLII-90 •High bias, precision housing . . . 10-Pack \$19.90
- TDK SAC90 •High bias cassettes . . . 10-Pack \$19.90
- Sony SR-100 •Metal formula . . . 10-Pack \$22.80
- TDK SAX-100 •High bias cassettes . . . 10-Pack \$24.90
- Denon HD8-100 •Deluxe high bias cassettes . . . 10-Pack \$27.77
- Sony MMS90 •Metal Master cassettes . . . 10-Pack \$55.90

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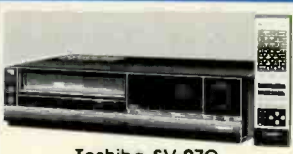
**This Month's**

**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 **\$249<sup>95</sup>** (PAN PV2004)
- Samsung VP-2309 VHS recorder, 14 day/6-event timer . . . \$179<sup>95</sup>
  - Sharp VCA-206 VHS recorder, 14 day/6-event timer . . . \$199<sup>95</sup>
  - Sharp VCA-230 VHS recorder, on-screen display . . . \$219<sup>95</sup>
  - Samsung VR-570 VHS, 4-head, on-screen . . . \$249<sup>95</sup>
  - Panasonic PV-4010 VHS, 4-head, on-screen, remote . . . \$299<sup>95</sup>
  - JVC HRD-660 VHS, 4-head, digital tracking . . . \$349<sup>95</sup>

**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 • Slimline VHS, 1-year/8-event timer • On-screen programming • 8-Event/1-year timer • Shuttle search • Variable search
- Our Low Price **\$599<sup>95</sup>** (TOS SV970)
- KLH VCR-8950 VHS, 14-day/6-event, remote . . . \$179<sup>95</sup>
  - Samsung VR-3700 Slimline VHS, 1-year/8-event, remote . . . \$199<sup>95</sup>
  - Toshiba M-621 Onscreen, 1-year/8-event timer . . . \$349<sup>95</sup>
  - RCA VR620HF 4-head, 8-event/1-year timer . . . \$379<sup>95</sup>
  - JVC HRD-860 4 head, digital tracking . . . \$499<sup>95</sup>
  - Toshiba MHF-845 4-head, flying erase head . . . \$499<sup>95</sup>

**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 auto-focus • CCD image sensor w/RGB color processing • Flying erase head • Datetime recording
- CALL** (SON CCDTR6)
- Sony CGD-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 . . . \$849<sup>95</sup>
  - JVC GR-AX7 VHS-C, 6:1 zoom, 3 lux . . . CALL
  - Panasonic PV-610 VHS, 2 lux, 8:1 zoom . . . \$899<sup>95</sup>
  - Sony CCD-TR6 8mm, mini, 8:1 power zoom w/macro . . . CALL

**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 . . . \$59<sup>95</sup>
  - Sima S11 Cordless video light . . . \$59<sup>95</sup>
  - Recoton V-900 Wireless video sender . . . \$89<sup>95</sup>
  - Vidicraft Vidi-View Audio/video remote transmitter . . . \$129<sup>95</sup>
  - Azden WMS-Pro Wireless mic for camcorders . . . \$149<sup>95</sup>
  - JVC CG-V60 Character/title generator . . . \$179<sup>95</sup>

**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 **\$89<sup>95</sup>** (MEM AV8)
- One-For-All URC-3000 Command Center, for X-10 modules . . . \$39<sup>95</sup>
  - Memorex CP4 For up to 4 A/V components . . . \$49<sup>95</sup>
  - Memorex AV4 Preprogrammed, for 4 units . . . \$49<sup>95</sup>
  - One-For-All URC-4000 Preprogrammed for 4 units . . . \$69<sup>95</sup>
  - Memorex CP8-Turbo Handles to 8 A/V units . . . \$119<sup>95</sup>
  - JVC RM51 Universal screen menus for 11 units . . . \$179<sup>95</sup>

**Blank Video Tape**



- Fuji T120-HQ VHS Tape**  
 • Special Barix particles deliver great color with extra fine detail • Outstanding durability even with repeated playback
- Our Low Price **\$28<sup>90</sup>** 10-Pack (FUJ T120HQ)
- TDK T-120HS High standard tapes . . . 10-Pack \$29<sup>90</sup>
  - Maxell T-120EX Standard VHS tapes . . . 10-Pack \$29<sup>90</sup>
  - Scotch T-120EG Standard VHS tapes . . . 10-Pack \$29<sup>90</sup>
  - Sony L750-ESHG Extra high grade beta tapes . . . 10-Pack \$38<sup>90</sup>
  - Scotch T-160EG + High grade VHS tapes . . . 10-Pack \$39<sup>90</sup>
  - Sony P-120 8mm video tape . . . 10-Pack \$49<sup>90</sup>

**VHS Video Movie Specials**

**MADE 'EM LAUGH!**

The Long, Long Trailer Trailer

**17<sup>95</sup> EACH**

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 A Day At The Races (Marx Bros.)  
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 The Fortune Cookie  
 The Long, Long Trailer (Luci & Desi) Manhattan  
 A Night At The Opera  
 Revenge Of The Pink Panther  
 The Road To Hong Kong  
 A Shot In The Dark  
 What's New Pussycat?

**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 **\$299<sup>95</sup>** (SON KV13TR24 BK) (SON KV13TR24 WH)
- Samsung TC-3833T 13" color TV, on-screen, remote . . . \$199<sup>95</sup>
  - Sony KV-19TS20 19" color TV, on-screen, remote . . . \$399<sup>95</sup>
  - Toshiba CF-2650 26" color monitor, 600-line res. . . \$499<sup>95</sup>
  - 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 . . . CALL

**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 **\$89<sup>95</sup>** (SON FD10A.SI)
- Sony FD-230 2.7" watchman black & white . . . \$99<sup>95</sup>
  - Sony FD-555 4.5" Black White AM FM cassette . . . \$149<sup>95</sup>
  - Panasonic CTM-1041R 10" color, AC DC . . . \$289<sup>95</sup>
  - 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 **\$99<sup>95</sup>** (YAM DD6)
- Yamaha PSS-50 32 keys, 19 PCM rhythms . . . \$39<sup>95</sup>
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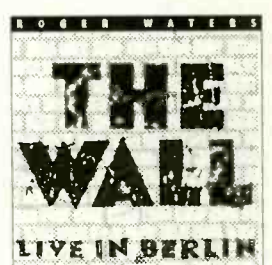


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by *Christie Barter*  
& *Maryann Saltser*

**I**N honor of the film's fifteenth anniversary, *The Rocky Horror Picture Show* is making its long-awaited home video debut on CBS/Fox Vid-

**S**OME of today's most celebrated pop musicians, filmmakers, and visual artists have joined forces to raise money for, and awareness about, AIDS. In a departure from the concert orientation of most recent benefits, "Red, Hot & Blue"

musch, Matthew Rolston, and Wim Wenders. These segments were recently shown as part of a 90-minute TV special saluting Porter, also titled "Red, Hot & Blue," hosted by actors John Malkovich and Daniel Day Lewis and director John Waters. BMG plans to release a home video of the telecast in April 1991.

All profits from the TV show, video, and record will go to AIDS charities around the globe. □

**T**HE Polish-born pianist and conductor Christoph Eschenbach, who is music director of the Houston Symphony, has just signed a four-year recording contract with Virgin Classics calling for two albums a year. These releases will be preceded, however, by an album recorded by Virgin earlier this year that comprises three works by the orchestra's composer in residence, Tobias Picker. One of them is *The Encantadas*, with a text by Herman Melville narrated by Sir John Gielgud.

Scheduled for spring from Eschenbach and his orchestra is a recording of Dvořák's *New World Symphony*, followed by the beginnings of a Brahms symphony cycle. □

**A** SECOND Rock in Rio festival, which promises to attract even larger audiences and more television viewers than the first one in 1985, is scheduled for January 18-27 in Rio de Janeiro's Maracan Sta-



*Houston's Eschenbach*

dium. Among those signed at press time were George Michael, INXS, Guns 'n' Roses, Robert Plant, David Lee Roth, Donna Summer, Lisa Stansfield, and Ziggy Marley. They will be joined by such top Brazilian artists as Gilberto Gil, Alceu Valença, Lobao, and Paralamas. Brazil's TV-Globo Network will televise the event to that country's viewers while the international distributor Radio Vision coordinates a worldwide transmission destined to reach a potential 500 million viewers via thirty satellites. □

**C**HRISTMAS Day is Paramount Pictures' scheduled release date for *The Godfather Part III*, again starring Al Pacino as Family head Michael Corleone. Also featured is Franc D'Ambrosio in the role of Michael's son Anthony, just graduated from law school, who decides to pursue an operatic career. The young, Bronx-born tenor makes his film debut singing Turiddu in scenes from Mascagni's *Cavalleria rusticana* at the century-old Teatro Massimo in Palermo, Sicily.

D'Ambrosio, who is currently studying with Luciano Pavarotti, comes to Hollywood from the New York theater, having made his Broadway debut last year in a revival of Stephen Sondheim's *Sweeney Todd*. He makes his recording debut in the *Godfather Part III* soundtrack, which will be released in all three formats on CBS. □



*The Rocky Horror Picture Show*

eo. Since its release in 1975, *Rocky Horror* has become one of the most popular cult films of all time, grossing over \$150 million almost exclusively at weekend midnight screenings that inspire hearty audience participation.

Many live productions of the musical horror spoof have been staged over the years, and some of them have been recorded. Rhino Records has just released a four-CD/cassette boxed set, "The Rocky Horror Picture Show—15th Anniversary Collection," that includes both the cast album from the famous stage show at the Roxy in Los Angeles and the original motion-picture soundtrack featuring Tim Curry, Susan Sarandon, Barry Bostwick, and Meat Loaf. The set also features previously unreleased material, highlights from various international productions, including *Sweet Transvestite* by the original London cast and the New Zealand version of *Dammit Janet*, and a newly recorded version of *Time Warp* by the University of Southern California Marching Band. □

is an original Chrysalis album featuring reinterpretations of the classic songs of Cole Porter by a diverse group of artists including Neneh Cherry, U2, David Byrne, k.d. lang, Jimmy Somerville, Tom Waits, Annie Lennox, Erasure, and Les Negresses Vertes.

Many of the performances were also captured on video by such acclaimed directors as Jonathan Demme, Jim Jar-



*Somerville and Lennox sing Cole Porter*



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**T**HE Roches ring out the old year in three-part harmony with "We Three Kings," a collection of twenty-four classic Christmas carols on MCA Records.

"We've always, in the back of our minds, wanted to make this record," Terre Roche has said about the Roches' ongoing love affair with carols. "We've actually been singing carols longer than we've been singing our own music." Indeed, it was only after youngest sister Suzzy joined her two elder siblings for some informal street singing one Christmas in New York that they began performing as a trio. As part of a group called the Carolling Carollers, the Roches took to traveling around the

he's been writing film soundtracks, ranging from sci-fi like *It Came from Outer Space* (1953) to the Arctic drama *The White Dawn* (1974) and from the melodramatic *Mommie Dearest* (1981) to 1990's thriller *Fear*. □

**R**ELATIVELY few children's records are available on CD, but the catalog includes a distinguished series from Windham Hill, a label better known for its New Age and jazz recordings. Windham Hill's Rabbit Ears Productions division has released fifteen CD's featuring a leading film or television actor reading a well-known children's story or fairy tale backed by the vocal or instrumental accom-



*The Roches: Suzzy, Muggie, and Terre*

and *Prince Ivan and the Frog Princess*, narrated by the ballerina Natalia Makarova and accompanied by music of Tchaikovsky and Prokofiev performed by the pianist Carol Rosenberger. Also new on Delos is the perennial favorite by Dr. Seuss, *Gerald McBoing Boing*, set to music by Gail Kubik and narrated by Werner Klemperer. □

**G**RACENOTES. Latin-jazz percussionist and band leader Tito Puente, who recently recorded his ninety-ninth album, "*Goza mi timbale*" (Concord Jazz), has been honored with the installation of a star bearing his name on Hollywood's Walk of Fame. . . . Marvin Gaye, who helped make Motown Records one of the most powerful forces in American music, was also honored recently with a posthumously installed star. . . . The Philadelphia Orchestra has named Wolfgang

Sawallisch, currently music director of the Bavarian State Opera in Munich, as the successor to Riccardo Muti, who relinquishes his post as the orchestra's music director in August 1992. Muti will continue his association with the orchestra, however, as laureate conductor. . . . The highly praised feature-film portrait of Thelonious Monk, *Straight No Chaser*, has just been released on VHS videocassette and CDV laserdisc by Warner Home Video. . . . Claudio Abbado, the Berlin Philharmonic's new music director, has extended his long-standing contract with Deutsche Grammophon to 1997. All of his future recordings with the Vienna Philharmonic, with which he has been closely associated in past years, will appear exclusively on the yellow label. Among them is the orchestra's 1991 New Year concert. . . . Happy New Year! □



*D'Ambrosio: son of Godfather*

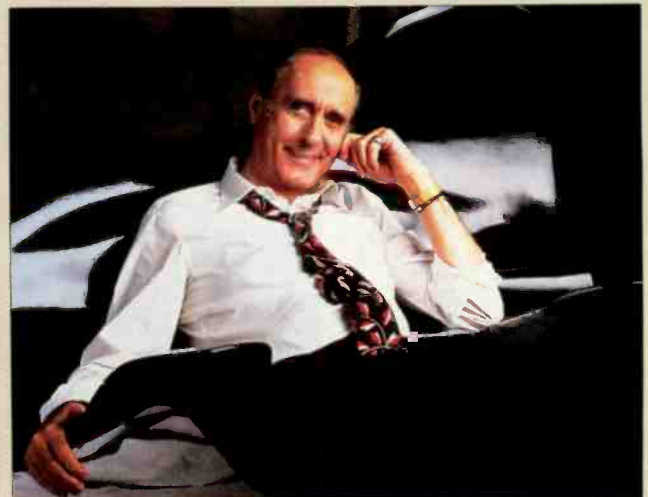
city at Christmastime singing on the streets, in the subways, in Grand Central Station, and sometimes in hospitals, traditionally winding up for a show at the Bottom Line in Greenwich Village. Those days are recaptured in "We Three Kings." □

**J**UST signed to a new and exclusive RCA contract is the veteran composer/conductor Henry Mancini, who can look back on a career of fifty-five years during which he's made over ninety recordings, many of them for RCA. Eight Mancini albums were certified Gold, and twenty of them earned him a Grammy.

His first release under the new agreement is "Mancini in Surround, Mostly Monsters, Murders & Mysteries." Recorded in Dolby Surround, it spans the thirty-seven years

paniment of a celebrated rock or pop musician. The latest releases include the story of Paul Bunyan as read by Jonathan Winters with music composed and arranged by Leo Kottke and tales of Brer Rabbit (identified in the liner notes as "Bugs Bunny's great grandfather") read by Danny Glover to music by Taj Mahal. Among the earlier releases are Beatrix Potter's *The Tailor of Gloucester*, narrated by Meryl Streep with music by the Chieftains; Hans Christian Andersen's *The Steadfast Tin Soldier*, read by Jeremy Irons to the music of Mark Isham; and *Pecos Bill*, narrated by Robin Williams with music by Ry Cooder.

Delos, too, has introduced a series of children's CD's. It's called Music for Young People and leads off with two popular fairy tales, *The Snow Queen*



*Mancini: surrounded by monsters*

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*Discs and tapes reviewed by  
Chris Albertson, Phyl Garland,  
Ron Givens, Roy Hemming,  
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**GARTH BROOKS:** *No Fences.* Garth Brooks (vocals); vocal and instrumental accompaniment. *The Thunder Rolls; New Way to Fly; Two of a Kind, Workin' on a Full House; Victim of the Game; Friends in Low Places;* and five others. CAPITOL © C4-93866, © CDP-93866 (34 min).

Performance: *Goin' places*  
Recording: *Very good*

Garth Brooks, winner of the Country Music Association's Horizon Award, historically given to a new artist with the greatest potential of developing into a major star, has been fighting for two years to come out from under the shadow of his closest competitor, Clint Black.

The trouble is that both men perform essentially traditional music, and both qualify as "hat acts," neo-cowpokes who hide their good looks under the wide brims of western chapeaux. But Brooks and Black are really different kinds of artists. Brooks refuses to label himself a pure traditionalist, for example, since he also has a flair for smoother country, evidenced here by his soulful ballad rendition of Tony Arata's *Same Old Story*, and for adapting pop tunes to fiddles and steel, such as his western-swing version of the Fleetwoods' old *Mr. Blue*.

But Brooks, aided by producer Allen Reynolds, also has a knack for taking risks—for writing or picking songs that veer a little off the beaten path and for refusing to cast them in formulaic productions. Some of these offbeat numbers are more artistic than others. The gothic cheatin' song *The Thunder Rolls* is certainly a different one for the books, but *Friends in Low Places*, a great rough-house tune about true love and faux pas, is the hit.

"No Fences," which is Brooks's second album, has enough similarity to the great history of country music to qualify as tradition—listen to his take on Merle Haggard in *New Way to Fly* and the white-trash anthem *Two of a Kind, Work-*



## BETTE'S BACK

**I**N her heyday, Bette Midler was a revelation. Funny and totally unpredictable, she was a kind of Carmen Miranda on acid, as prepared to shock as she was to soothe the heart. Somewhere along the line, though, she turned into Barbra Streisand, toning down the bathhouse hamminess but favoring a melodramatic vocal style that was not altogether interesting.

In "Some People's Lives," her first nonsoundtrack album in nearly eight years, Midler returns to the kind of middle ground she inhabits best, a musical arena in which she can be free to be both emotional and campy without crossing the line into excessive sentimentality. In a newspaper interview, she admitted that the album highlights her Bohemian side as well as that part of her personality that mirrors the taste of the middle-class housewife.

She sets a theatrical tone in the opener, *One More Round*, an energetic, quirky, big-production number rife with island rhythms. From there she moves on to spotlight her more reflective side with *Some People's Lives*, an exquisite pop-country ballad about the lonely, the forgotten, and the unloved. Destined to become a pop classic, it showcases the Midler of *The Rose* and *Wind Beneath My Wings*.

In the rest of the album, Midler further illuminates her twin personalities. She launches into a wild and campy big-band treatment of Cole Porter's *Miss Otis Regrets*, offers a sophisticated remake of the cabaret standard *Spring Can Really Hang You Up the Most*, and then di-

verges to embrace Julie Gold's quest for spiritual Utopia, *From a Distance*, which Nanci Griffith and Judy Collins have already covered in softer, less cluttered arrangements.

Much of the newer material seems sketchy. For example, Diane Warren's *Moonlight Dancing* is sexy and atmospheric but peters out too soon, and *Night and Day*, by Roxanne Seeman and Billie Hughes, never gets far on its emotional journey. Miss M is still divine, though. She imbues her songs with great tenderness, and even if some of the "smaller" numbers, such as *From a Distance* and *The Girl Is On to You*, are overproduced and oversynthesized, losing the elegance of their simplicity, Midler herself is on target.

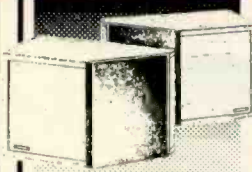
"Some People's Lives" isn't the kind of album that makes a new cult star—or draws a lot of new fans to an existing one—but it should be more than enough to keep Bette Midler's fortunes swirling, both in Bohemia and in the middle-class boroughs of the heart. *Alanna Nash*

**BETTE MIDLER:** *Some People's Lives.* Bette Midler (vocals); Cissy Houston, others (background vocals); Ron Carter (bass); Grady Tate (drums); other musicians. *One More Round; Some People's Lives; Miss Otis Regrets; Spring Can Really Hang You Up the Most; Night and Day; The Girl Is On to You; From a Distance; Moonlight Dancing; He Was Too Good to Me/Since You Stayed Here; All of a Sudden; The Gift of Love.* ATLANTIC 82129-1, © 82129-4, © 82129-2 (46 min).

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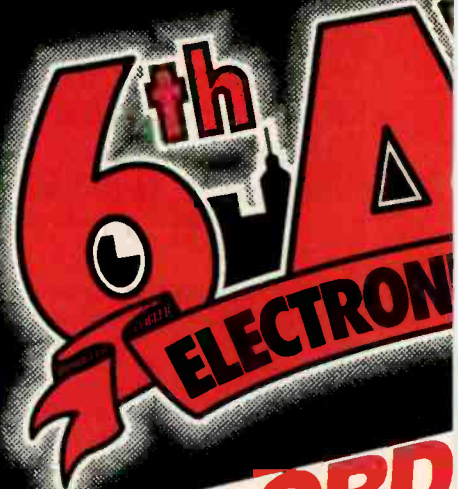
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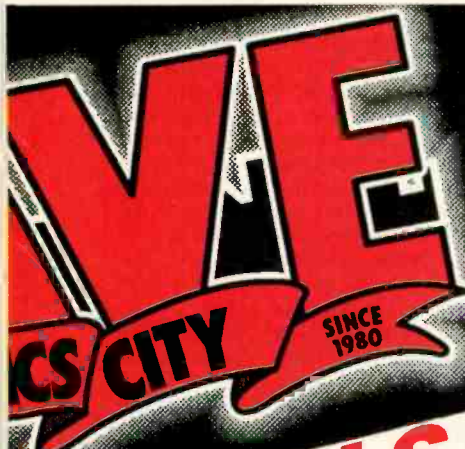
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in' on a Full House ("A pickup truck is her limousine/And her favorite dress is her faded blue jeans"). But the album is also different, varied, and entertaining enough to distance Brooks from almost any other competitor. By next year's awards, Brooks will probably have all of them shakin' in their boots. A.N.

**JONATHAN BUTLER:** *Heal Our Land*. Jonathan Butler (vocals, guitars); vocal and instrumental accompaniment. *Heal Our Land; Sing Me Your Love Song; All Grow'd Up; Good Life; This Time Is Forever*; and five others. JIVE/RCA 1361-1-J, © 1361-4-J, © 1361-2-J (44 min).

Performance: *South African soul*  
Recording: *Very good*

Since his first album was released in the U.S. in 1986, Jonathan Butler has shifted the center of his style from easy-listening jazz to a more r-&-b-based pop sound. In "Heal Our Land" he has adjusted the balance of influences to place somewhat more emphasis on the lilting rhythms and rich vocal textures that characterize the music of his South African homeland. This is also the first recording to present him primarily as a singer.

Although most of the songs here are like the polished American pop we have come to associate with such singers as Al B. Sure! and Stevie Wonder, Butler performs this set with enough fervor and individual flair to distinguish himself from others. A seriousness of purpose can be detected in the lyrics, as in *Black & White in Colour*, which addresses the enigma of race relations in a land where degrees of freedom are based on skin color. Butler is at his best, though, when he delves more deeply into his own musical heritage. The truly outstanding selections are those that *sound* more South African, presented in a style he calls "smoothed-out township music." The opening and title song, *Heal Our Land*, with its melodic beauty and boundless spirit, is especially moving, as are *Sing Me Your Love Song* and *All Grow'd Up*, with their impassioned lyrics, richly harmonized vocals, and Zulu embellishments. When Butler settles into the groove that is truest to himself, he shows himself to be the heir apparent to Hugh Masakela and Miriam Makeba, who first entranced the Western world with the magic of South African music. P.G.

**MARK CHESNUTT:** *Too Cold at Home*. Mark Chesnutt (vocals); vocal and instrumental accompaniment. *Too Cold at Home; Brother Jukebox; Blame It on Texas; Your Love Is a Miracle; Broken Promise Land*; and five others. MCA © MCAC-10032, © MCAD-10032 (31 min).

Performance: *Familiar*  
Recording: *Very good*

Newcomer Mark Chesnutt, who wears a face oddly similar to John Belushi's, will likely suffer a lot of other comparisons before he's through. A devotee of George Jones, the tradition-minded

Chesnutt even managed to get the Master to endorse him in the liner notes. "It's flattering," Jones writes, "for me to hear Mark sing and to know that he picked up something from the Possum." I'd be afraid to pick up anything from the Possum myself, but Chesnutt goes as far as to fraternize with the ghost of Keith Whitley, recording *Brother Jukebox*, a memorable tune that appeared in Whitley's last album, and with competitor Garth Brooks.

Brooks has already had a No. 1 hit with *Friends in Low Places*, and his recording of it is better than the one here—he knows how to make the song throb and tingle in a way that Chesnutt never dreamed. Nevertheless, there's a winning earnestness about Chesnutt's delivery, even more so in the western-swing of *Blame It on Texas* and *Too Cold at Home*, the predictable story of a restless husband who's tempted by the "good-lookin' thing in the corner." Still, it's hard to listen to Chesnutt, who apparently has no writing skills of his own, without thinking of Jones, Whitley, and even Waylon Jennings, who recorded the cliché-ridden *Broken Promise Land* years ago. An occasional cover song is one thing. Half an album of 'em is something else again. A.N.

**COCTEAU TWINS:** *Heaven or Las Vegas* (see Best of the Month, page 92)

**HOLLY DUNN:** *Heart Full of Love*. Holly Dunn (vocals); vocal and instrumental accompaniment. *Heart Full of Love; Don't Worry; Temporary Loss of Memory; The Light in the Window Went Out; Home*; and five others. WARNER BROS. 26173-1, © 26173-4, © 26173-2 (33 min).

Performance: *In a reflective mood*  
Recording: *Very good*

Holly Dunn, who continues to cling to an intelligent and mostly traditional style of



Burton Lane and Michael Feinstein

country music, is a joy to hear. Her albums, which she produces with her brother, Chris Waters, are tasteful and low-key, with smart instrumentation (the right smattering of mandolin and harmonica, for example) and ample demonstration of Dunn's richness of timbre, emotional zing, and maturing vocal control. Her songwriting, too, shows growing versatility, if only in aiming her lyrics toward radio-ready romance and backing off somewhat from rural themes, such as that of her early hit *Daddy's Hands*, which earned Dunn comparisons with Dolly Parton in her *Coat of Many Colors* era.

In "Heart Full of Love," Dunn hits on another Parton theme, the plight of street children, in *When No Place Is Home*, an affecting song that wisely eschews the excessive sentimentality Parton favors. But while Dunn spices up the program with the pseudo-rockabilly *You Really Had Me Going*, the hit-bound *My Anniversary for Being a Fool*, and the reflective *Broken Heartland*, with Rob Hajacos's sensual, moaning fiddle, she and Waters have included too many medium-tempo tunes for the album's own good, giving it a sluggish, sleepwalking effect. In time, Dunn should be a contender for the Female Vocalist of the Year crown, but her albums will need a bit more gusto before that honor comes around. A.N.

**MICHAEL FEINSTEIN:** *Sings the Burton Lane Songbook, Vol. 1*. Michael Feinstein (vocals); Burton Lane (piano). *Applause, Applause!; Dancing on a Dime; Too Late Now; You're All the World to Me; Babes on Broadway Medley; Finian's Rainbow Medley*; and seven others. ELEKTRA/NONESUCH © 79243-4, © 79243-2 (57 min).

Performance: *Fine*  
Recording: *Excellent*

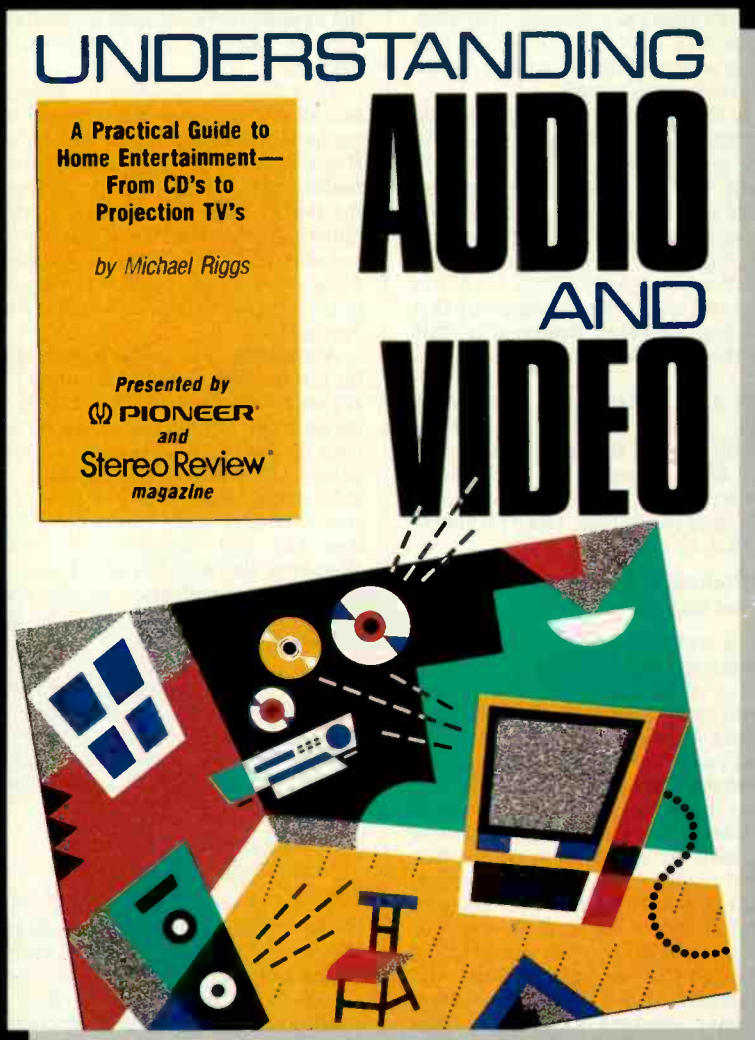
As the first in a projected series of albums in which Michael Feinstein is recording the work of some of our top songwriters with the respective songwriters accompanying him, this is a definite winner. Burton Lane (now seventy-eight) may not be a household name, but he's written dozens of songs for Broadway and movies that almost everyone knows (*How Are Things in Glocca Morra?*, *Old Devil Moon*, *How About You?*, *Too Late Now*) and many equally good but neglected ones that Feinstein has long championed.

In typical Feinstein fashion, the album mixes both the familiar and the neglected, including several songs that have never previously been recorded and two wonderful new ones, *And Suddenly It's Christmas* (lyrics by Ervin Drake) and *I Can Hardly Wait* (lyrics by Alan and Marilyn Bergman). He is in excellent voice, projecting more depth in some of the ballads than the tossed-off nonchalance of some of his earliest albums—without any loss of the buoyant charm and obvious enthusiasm for what he's



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doing that have helped to turn him into a Broadway and club superstar. Lane's serviceable voice joins Feinstein's only for the opening track. Thereafter, he sticks to piano accompaniments. Lane's playing is pleasant enough and certainly authentic, but after a while Feinstein fans may begin to miss the singer's own more colorful and inventive keyboard style. *R.H.*

**FIVE STAR.** Five Star (vocals); instrumental accompaniment. *Treat Me Like a Lady; Hot Love; I Can Show You Love; Feelings; Feel Much Better; I'm Still Waiting; That's the Way I Like It;* and three others. EPIC E 46768, © ET 46768, © EK 46768 (38 min).

Performance: *British Jacksons*  
Recording: *Very good*

Imagine a British pop group with all the verve, energy, and charm of the Jacksons in their youth. That should give you some idea of what Five Star has to offer. These three sisters and two brothers of a West Indian family grew up in England with a father, Buster Pearson, who must rival Joe Jackson in his determination to make some sort of impression on the music industry. He even founded his own label while the kids were growing up. By the time they were in their mid-teens, back in 1983, they convinced him that they were good enough to record for it. And they certainly are.

While the songs here are all new, and all written by the five young Pearsons in various combinations, they are cast in the mold of the Jacksons' catchy tunes of a decade ago. There is that same built-in dance quality that defies indifference, and the high, teasing voice of lead singer Denise Pearson is irresistible. Five Star is a vigorous and very exciting group that should find an eager audience on this side of the Atlantic as well. *P.G.*

**HINDU LOVE GODS.** Warren Zevon (vocals, guitar); Peter Buck (guitar); Mike Mills (bass); Bruce Berry (drums). *Walkin' Blues; Travelin' Riverside Blues; Raspberry Beret; Crosscut Saw; Junko Partner;* and five others. GIANT/REPRISE © 24406-4, © 24406-2 (37 min).

Performance: *Deliberately goofy*  
Recording: *Good*

This is a sort of busman's-holiday project featuring the (seemingly) unlikely pairing of elder cult-folkie Warren Zevon with three members of the college-radio rock institution R.E.M. Given the musical pedigrees of all involved, however, what's particularly odd about the album is the repertory, mostly the sort of blues standards that late-Sixties garage bands used to warm up with. In that informal context, the results are entertaining enough. Nobody is ever going to mistake Zevon or the R.E.M.-sters for real blues players, but as a replica of what you or I or any baby boomer who ever jammed in his parents' basement might have sounded like if he'd been

professionally recorded, "Hindu Love Gods" has a certain rough-hewn charm. The standout track—a metallic first-take assault on Prince's *Raspberry Beret*—is also something of a ringer, but that only adds to the fun. *S.S.*

**INDIGOGIRLS: Nomads•Indians•Saints.** Indigo Girls (vocals, guitars); other musicians. *Hammer and a Nail; Welcome Me; World Falls; Southland in the Springtime; 1 2 3; Keeper of My Heart;* and five others. EPIC E 46820, © ET 46820, © EK 46820 (47 min).

Performance: *Bracing*  
Recording: *Excellent*

Success hasn't changed the Indigo Girls, who stand by their acoustic, soul-bearing modus in "Nomads•Indians•Saints." The modest amount of electrical embellishment that turns up is more felt than heard, as the voices and guitars of Emily Saliers and Amy Ray remain the central focus. They make a joyful noise with modest tools—songs, hands, voices, and a lot of heart. They are open, down to earth, vulnerable, and candidly *real*. The telepathic interplay of the voices, which break off into daring and unusual harmonies, is full and commanding in range. In *1 2 3* and *Hand Me Downs* they achieve the dynamic force of rock by performing with an intensity that transcends mere decibels.

Two distinct personalities emerge in this album. Saliers is more gentle, philosophical, and intuitive in nature, while Ray's sensibility is that of the wounded realist. She comes off as no stranger to the thorny side of love and experience. Saliers, on the other hand, celebrates the possible with an infectious optimism in *Hammer and a Nail* and relates her love of place in the hymnlike *Southland in the Springtime*.

Admittedly, they wear their hearts so far out on their sleeves that some listeners may find themselves overdoing on earnestness. At least once, each crosses over the gray line into a zone of emotional overkill in songs whose titles are almost perfect summations of their respective excesses: Ray's *Pushing the Needle Too Far* and Saliers's *Girl with the Weight of the World in Her Hands*. But these are a small price to pay for the heartfelt and intimate spell the Indigo Girls weave here. *P.P.*

**INXS: X.** INXS (vocals and instrumentals). *Suicide Blonde; Disappear; The Stairs; Faith in Each Other; By My Side; Lately; Who Pays the Price;* and four others. ATLANTIC 82140-1, © 82140-4, © 82140-2 (42 min).

Performance: *High-octane*  
Recording: *Hot*

INXS just keeps tightening up, and "X" is the band's most flinty, knife-edged album of rock *noir* to date. Taut and coiled with a cobra-like tension, the music of INXS is the product of a pure band-oriented mentality that compares

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INXS: flinty, knife-edged rock noir

with the Rolling Stones at their lean, sinuous best. At the same time, this Aussie sextet, especially lead singer Michael Hutchence, strives for a charismatic reach like that of the Doors or Billy Idol. INXS's rhythmic muscularity supports a classic hipster-cool aesthetic that could easily fall on its face if the music weren't so powerful. What makes INXS work isn't excess (the band's name to the contrary) but the lack of it; there's not a wasted note or loose end to be found in "X."

The band's mastery of dynamics means that it doesn't have to overplay to make a point. When the instrumentalists venture beyond their tightly meshed matrix, it's as jolting as a lightning strike—witness the out-of-nowhere downstroke that announces the guitar solo in *The Stairs* or the U2-style six-string orgy in the middle of *Lately*. Similarly, Hutchence juggles and parses syllables with a deft, slithering control and a surehanded ease that makes him one of rock's most commanding vocalists. Andrew Farriss, keyboardist and co-composer of most of INXS's material, subtly channels, orchestrates, and anchors the tunes. His ascending, cathedral-like keyboard figure in *Hear That Sound* gives it depth and grandeur, and his deceptively minimalist frameworks support nearly every song with a tensile, steely power.

INXS manages to pump life and substance into a durable program of danceable, rhythm-based rock that rarely lets up in intensity or impact. "X" marks the spot where your ears and feet ought to be. *P.P.*

**IAIN MATTHEWS:** *Pure and Crooked*. Iain Matthews (vocals, acoustic guitar, percussion); other musicians. *Like Dominoes; Mercy Street; A Hardly Innocent Mind; New Shirt; Bridge of Cherokee*; and six others. GOLD CASTLE © D4-71354, © D2-71354 (45 min).

Performance: *Rootsy folk-rock*  
Recording: *Very good*

Singer-guitarist Iain (formerly Ian) Matthews was a founding member of the pioneering electro-folk ensemble Fairport Convention in 1967, and he left that group after three albums to form Matthews Southern Comfort. (Remember their shimmering, near-definitive version of *Woodstock*?) A prolific if not consistently inspired solo artist through the Seventies, he was all but silent in the Eighties. Happily, "Pure and Crooked" marks his creative resurgence and puts him back on the track of his earliest and finest albums, "If You Saw Thru' My Eyes" and "Tigers Will Survive." His return to roots is musically audible in the clean, uncluttered accompaniment and literally evident in the reversion to the Celtic spelling of his first name.

Matthews's lissome melodies, angelic voice, and romantic urgency are consistently strong in "Pure and Crooked." The songs, especially *A Hardly Innocent Mind*, *Perfect Timing*, and a gorgeous cover of Peter Gabriel's *Mercy Street*, have a windy, autumnal quality of yearning that comes straight from the heart. Matthews knows how to flesh out his folk-minded confessionals with melodic pop hooks that are modest but sturdy.

"Pure and Crooked" is, in short, an attractive and companionable album from a friendly, familiar voice. *P.P.*

**GEORGE MICHAEL:** *Listen Without Prejudice* (see Best of the Month, page 91)

**MICHAEL MARTIN MURPHEY:** *Cowboy Songs*. Michael Martin Murphey (vocals, guitar); vocal and instrumental accompaniment. *Cowboy Logic; I Ride an Old Paint/Whoopee Ti-Yi-Yo, Git Along Little Dogies; Tumbling Tumbleweeds; Tying Knots in the Devil's Tail; The Old Chisholm Trail; Home on the Range*; and fifteen others. WARNER BROS. © 26308-4, © 26308-2 (67 min).

Performance: *Tie me up, tie me down*  
Recording: *Good*

Michael Martin Murphey believes in putting the "western" back in country-and-western music. He takes his cowboys—cosmic and otherwise—seriously, and he wants them to have their due. Murphey has recorded twenty-one examples of cowboy songs written throughout the decades, most of them traditional and familiar tales about genuine working cowpokes.

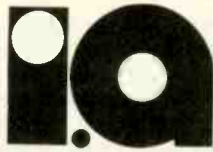
A project like this can be either a tiresome historical collection or, infused with the correct spirit, a lively and fascinating compilation. Murphey, who apparently lives and breathes the cowboy way, does it right, keeping the backing spare but sprightly and energetic. Even when he's joined by such commercial singers as Highway 101, Tammy Wynette, and Suzy Bogguss—hardly the first people you'd think of for an album like this—the songs emerge with integrity, heart, and feeling (I especially like his arrangements of *O Bury Me Not on the Lone Prairie* and *Goodbye Old Paint*). The record is a tad too long, and Murphey is occasionally too indulgent. But on the whole, this is a more-than-pleasant ride down a favorite old trail. *A.N.*

**YOUSSEU N'DOUR:** *Set*. Youssou N'Dour (vocals); other musicians. *Set; Albouy; Sabar; Toxiques; Sinebar; Medina*; and seven others. VIRGIN © 4-91426, © 2-91426 (50 min).

Performance: *Explosive*  
Recording: *Very good*

Thanks to the globetrotting efforts of Paul Simon and Peter Gabriel, among others, the American public has heard again and again about the glory of World Beat. So far, however, no international musician has enjoyed a major hit in the U.S. Maybe "Set" will change that. In his new album, Youssou N'Dour packs a transcultural wallop. He remains true to the pop style of his native Senegal, rich with rhythm upon rhythm and delicate interweaving melodies, but he also explodes with the kind of kinetic power we expect from rock-and-roll. More than ever before, N'Dour's work transcends regional or national or continental cul-

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## HOLLY NEAR

**A** NEW Holly Near album can be counted on for any number of things—a superb display of artistry, a collection of songs that reflect her passion for Latin America and her hatred of political and sexual oppression, and a musical framework that alternates between the sentimentality and safety of Broadway-style show tunes and the charge of fiery, driving rhythms.

"Singer in the Storm" is no exception. Unlike her last album, "Sky Dances," which addressed both the dead and the grieving, the new release is a grab bag of songs that aim for the head, the heart, and the lower regions, sometimes all at the same time.

Because Near is at the top of her form in live performance—more energetic, fluid, and free than in the studio—"Singer in the Storm" was recorded live, with just pianist John Bucchino backing her. The tape was then hauled back to the studio, where a dozen or so other musi-

cians and singers added bass, rhythm, and harmony. However it was put together, it's a stirring and involving record, whether you care more for the conservative, Broadway element of Near's catalog, which is tame enough for the blue-haired ladies who line up for matinees, or the strong electrical current of her rhythmic forays. She is best in this latter category when she collaborates with other artists who push her to her musical limits, be they Ronnie Gilbert, Trapezoid, or Inti-Illimani. Here, in two political songs of war, death, and oppression—*Todavía Cantamos (Still We Sing)* and Sting's *They Dance Alone (Cueca Solo)*, presented as a magnificent and affecting English/Spanish duet—she teams up with Argentina's Mercedes Sosa and her band. It's a brilliant pairing.

Some of the other offerings in "Singer in the Storm" are new renditions of songs Near has recorded in years past, done up with looser, more interesting arrangements, such as the jazzy backing for *Sun Won't Stop*, a chilling and haunting song underscoring the ephemerality of life.

There are times when Near's political rallying cries sound too much like rhetorical clichés. *Singing for Our Lives*, for example, has a kind of "Let's hold hands!" or "Everyone gather round the campfire" quality that somehow rings schmaltzy. Near is also a tad too self-celebratory, if also self-revealing, on the title cut.

But none of this diminishes her achievement as a political and musical activist striving to balance entertainment and politics. After fifteen years of singing, during which she became a cult figure but missed mainstream acceptance, Near's time has finally come. With fourteen albums for her own Redwood label, she has now found a bigger distributor and protector in Chameleon Records, one that should help guide her to a larger audience. In addition, her autobiography, *Fire in the Rain . . . Singer in the Storm*, was published last summer, and PBS is preparing a documentary about her life and work. Even with its mawkish moments, "Singer in the Storm" proves that it's about time.

Alanna Nash

**HOLLY NEAR:** *Singer in the Storm*. Holly Near (vocals); Mercedes Sosa (vocals); vocal and instrumental accompaniment. *Sing to Me the Dream*; *Sun Won't Stop*; *Singer in the Storm*; *Ella's Song (We Who Believe)*; *Harriet Tubman (Lifeline)*; *Te Doy una Canción*; *Don't You Worry*; *The Great Peace March*; *Icicle Blue*; *Si Buscabas*; *Singing for Our Lives*; *They Dance Alone (Cueca Solo)*; *Todavía Cantamos*. CHAMELEON D1-74832, © D4-74832, © D2-74832 (47 min).

tures. Maybe someone should create a Nobel Prize for music and give it to N'Dour.

Listening to this album can be an intoxicating experience. Nearly all of the songs begin with a riff, often a twisting guitar figure played with a dexterity that belies its difficulty. Over this musical core, other instruments are layered: percussion ranging from light slappings to deep, resonant thumps; supple bass lines that surge, stop, and spin away; needle-sharp synthesizers that dance around the basic melody, underscore the drums, charge off into a dazzling new riff. Fragments come together and split apart at a torrid clip. Soaring, chiming, chirping over it all is N'Dour's honeyed tenor, one of the sunniest yet most plaintive voices in pop, often singing, in his native Wolof, of the simpler things in life: peace, hope, friendship, home. Even if N'Dour's supercharged music seems to overpower his homespun themes from time to time, his energy and spirit make "Set" a pure joy. **R.G.**

**NEIL YOUNG AND CRAZY HORSE:** *Ragged Glory*. Neil Young and Crazy Horse (vocals and instruments). *Country Home*; *White Line*; *F\*#!#in' Up*; *Over and Over*; and six others. REPRISE 26315-1, © 26315-4, © 26315-2 (65 min).

Performance: *Torrential*  
Recording: *Immediate*

Something elemental happens when Neil Young performs with Crazy Horse. It's more than just a great fit, although Frank Sampedro, Billy Talbot, and Ralph Molina form a perfect rhythm section for Young, loping alongside him wherever his inexhaustible guitar leads. Crazy Horse permits Young to really play. But that's not all. Much as children play to explore their world and themselves, Young plays to understand. In that sense, "Ragged Glory" is *serious* play.

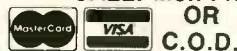
Unlike 1989's "Freedom," which brilliantly focused Young's fury on tight song structures, "Ragged Glory" burns on the edge of spontaneity. Young, Sampedro, Talbot, and Molina plugged in, warmed up, and let it rip. The songs have verses and choruses, certainly, but more important, the tunes are launching pads for Young's guitar. Several are pretty much guitar solos interrupted by a few bouts of singing. *Country Home*, for example, has a nice sentiment: "I'm thankful for my country home/It gives me peace of mind/Somewhere I can walk alone/And leave myself behind." But the song allows Young to stretch out with solos four separate times, thereby presenting a tutorial on the art of improvisation: first painting the melody in broad, leisurely strokes, then blotting out the notes with rumbling distortion, then filling in the cracks with needle-sharp details, then coasting away on a breeze of reconfigured riffs. And that's just the first song on the album. Young lives to play and plays to live. And we get to listen. **R.G.**



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**MARK ISHAM.** Mark Isham (trumpet, keyboards); other musicians. *Honey-moon Nights; I Never Will Know; Mari-onette; Blue Moon;* and five others. VIRGIN © 4-91293, © 2-91293 (45 min).

Performance: *Sumptuous*  
Recording: *Very good*

Whenever I listen to Mark Isham's music—and this album is no exception—I feel like movie credits should begin to appear before my eyes. Maybe that's because Isham has composed the scores for a number of films. But, more than that, he simply makes gorgeous music, arranging rich sounds in a very evocative way. No one creates a mood as well as Isham, and no one works harder to maintain one. His songs are beautiful set pieces, musical landscapes for his fat, liquid trumpet playing. Melody is less important than pure texture; the songs don't develop so much as evoke. If I try to listen to an entire CD of Isham, I often become restless, as if I can't wait for the movie to start. That's true for this one as well, despite the addition of some husky, languorous vocals by Tanita Tikaram. But, one scene at a time, I'm always entranced.

R.G.

**TANIA MARIA:** *Bela Vista.* Tania Maria (vocals, keyboards, percussion); other musicians. *210 West; Satisfaction; Marguerita; Ça c'est bon; I Can't Give You*

ebullient singer, pianist, composer, and arranger who can offer up a universe of pleasure in a single exquisitely crafted performance. Her peppery piano work and rapid-tongued vocals are infused with the fire of Caribbean salsa, while her arrangements leave ample room for the sort of improvised expression that lies at the heart of jazz. Passion and a musical intelligence inform everything she does, and this superb new recording finds her in peak form.

She opens with the blistering riffs of an original titled *210 West*, then shifts into an unforgettably sensual interpretation of the Rolling Stones' classic *Satisfaction*. She's also totally engaging in the other cover, Dorothy Fields and Jimmy McHugh's *I Can't Give You Anything but Love*, and she casts a hypnotic spell in all six of the other original numbers. You'll want to listen to this album again and again.

P.G.

**SUSANNAH McCORKLE:** *Sabia.* Susannah McCorkle (vocals); other musicians. *Tristeza; Estate; Vivo sonhando; Dilema; Sabia; So Many Stars;* and five others. CONCORD JAZZ © CJ-418-C, © CCD-4418 (56 min).

Performance: *Classy*  
Recording: *Excellent*

In his notes for "Sabia," Leonard Feather suggests that one might momen-

American idiom beautifully. Her subtle style, with its gentle lilt and slight tremolo, is perfect for the romantic, often infectiously whimsical songs of Luiz Bonfá and Antonio Carlos Jobim. I have always marveled at the attention McCorkle pays to lyrics; her knack for storytelling makes us listen to the content of a song. McCorkle, who is also an author and journalist, has herself contributed wonderful new lyrics and translations for several of the songs in this album, including Bonfá's popular *Manhã de carnaval* and my favorite, *P'rá machucar meu coração*, a dreamy tale of lost love.

The accompaniment is superb, with perfect supporting statements from tenor saxophonist Scott Hamilton, a Concord Jazz perennial whose rich tone and fluid style bring to mind the great reed soloists of the Swing Era. Also contributing mightily is the late guitarist Emily Remler, whose last recording this was. No doubt about it, Susannah McCorkle is today's foremost ballad singer, and she gets better with each release.

C.A.

**MARLENE VERPLANCK:** *A Quiet Storm.* Marlene VerPlanck (vocals); Sonny Costanzo Big Band and Trio (instrumentals). *I Wished on the Moon; Things Are Looking Up; Soft Lights and Sweet Music/When Lights Are Low; The Lies of Handsome Men; Sister Moon; A Quiet Storm;* and nine others. AUDIOPHILE © ACD-256 (51 min).

Performance: *Marlene at her best*  
Recording: *Brightly up-front*

Marlene VerPlanck is much too young to have been a part of the big bands in their heyday, but this alternately sizzling and lightly romantic album proves that she could easily have sung almost any of the era's better-known canaries right off the bandstand. With pipes as full and rich as Helen Forrest's, as bright and chipper as Helen O'Connell's, and as stylistically versatile as Jo Stafford's, VerPlanck plunges clear-eyed and clear-toned into a nicely varied program of new and old songs.

There doesn't seem to be a tricky rhythm or a shifting mood that can faze her. What's particularly enjoyable is the freshness of her approach to most of the songs—for instance, her saucy treatment of Ralph Rainger and Dorothy Parker's classic *I Wished on the Moon*, which contrasts with her torchy account of Sting's haunting *Sister Moon*, or her wide-awake romp through Cole Porter's unjustly neglected *Dream Dancing*. She even brings off a tour de force of over-dubbing by singing no fewer than eighteen parts in an imaginative *a cappella* version of Lerner and Lane's *Too Late Now*. Throughout, VerPlanck's impeccable taste and pure joy in music-making are always front and center. A really great set.

R.H.



Tania Maria: passion and musical intelligence

*Anything but Love;* and four others. WORLD PACIFIC/CAPITOL © C4-93871, © CDP-93871 (42 min).

Performance: *One of Brazil's best*  
Recording: *Very good*

Of all the artists benefiting from the current vogue for Brazilian music, none so completely reflects the rich diversity of the Americas as Tania Maria, the

tarilly mistake Susannah McCorkle for Flora Purim. Not for a second. McCorkle's intimate, authoritative style puts her on a level that is out of reach for most singers; she is in a class by herself, and even when she sings Brazilian songs in Portuguese, as she does here, she leaves Purim in the dust.

"Sabia" does represent a departure for McCorkle, but she handles the South



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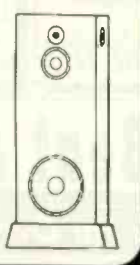
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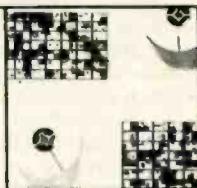
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		KE1550 149		
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		KE2600R 189		
		KE3600R 209		
		KEH7500R 369		
		KEH767R 249		
		KEH666 239		
		KEH96961R 259		
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by Ralph Hodges



## DIGITAL CINEMA ARRIVES

**N**OT much was said of it at the time, at least within my earshot, but with the release of *Dick Tracy* last summer it was possible for the public, at a limited number of theaters and for a limited time, to hear a digital soundtrack from motion-picture film. This opportunity resulted from a collaboration between Eastman Kodak and its Rochester, New York, neighbor, Optical Radiation Corp. Their system, called CDS (Cinema Digital Sound), is in fact an optical one; the digital soundtrack was photographically recorded on the film in a space normally occupied by an analog soundtrack. The team's stated intent was to accompany the picture with CD-quality sound. Some audiophiles will find that an odious objective, but the number and stature of studios beginning to associate themselves with this development suggest that there is strong interest in digital movie sound in Hollywood.

The CDS people gave a rushed overview of their work at the October technical conference of the Society of Motion Picture and Television Engineers (SMPTE). So did the creators of a similar but competing system, a consortium of companies organized by the

National Film Board of Canada. The Canadian group appears to be just passing out of the feasibility-study stage, and information on ultimate formatting was scant. CDS seems to be complete and immutable, however, so it gets the lion's share of this report.

CDS is intended to occupy the 0.1-inch-wide space now devoted to the analog optical track on 35mm prints. It is read by a high-intensity LED and a charge-coupled-device (CCD) pickup. Magnified, the track appears as a very boring cribbage-board arrangement of dark and clear dots (data bits), each 14 x 14 microns. The CDS team not only wants the track to sound like a CD; they want it to work like a CD too. The sampling rate is 44.1 kHz, and what ultimately pops out the back end is 16-bit linear digital audio. The techniques of data formatting and of error correction and concealment are also essentially what we get from the silvery discs. There is an important difference, however.

As the Canadians also acknowledge, existing film speeds, which cannot be meddled with by mere audio people, just do not allow enough data capacity per second to do the job. Some compression is required, and CDS gets it from a delta-modulation scheme that affords a 24-percent bit reduction on the film.

What the CDS process leads to is five full-range (20- to 20,000-Hz) discrete channels, plus a below-100-Hz subwoofer channel, plus automation and identification data that are helpful to the exhibitor but of no concern to the audience. SMPTE's recommendation for full-range channel assignments is left, center, right, left surround, and right surround—in other words, stereo surrounds, which have been rare up to now and never seriously considered as a "standard" format. This five-channel sound is available without the magnetic striping of six-track 70mm film or the matrixing of 35mm Dolby Stereo optical. You'll soon hear arguments that surrounds needn't be stereo to be effective and also that surrounds shouldn't go out to 20,000 Hz and wouldn't in most theaters because of loudspeaker and other limitations. Time and the ideas of film producers and mixers will have to tell.

The CDS folk came to the SMPTE affair with 18 minutes of demo material in what I suspect was Cinemascope

(that is, 35mm), although I heard no announcement to that effect. The film was screened at the Loews Astor Plaza, one of Manhattan's best first-run theaters, and while it was produced with conspicuous professionalism, its content was almost bewilderingly motley, consisting of pictureless sound collages of voices, barks, and emergency vehicles, narration/hype from Hollywood poolsides and screening rooms, and scraps of modern and ancient film "classics." These last bits sounded generally satisfying, but no mention was made of how, considering the antiquity of some of them, they had been upgraded to showcase-theater opulence and fidelity. Digital signal processors? Judy Garland imitators?

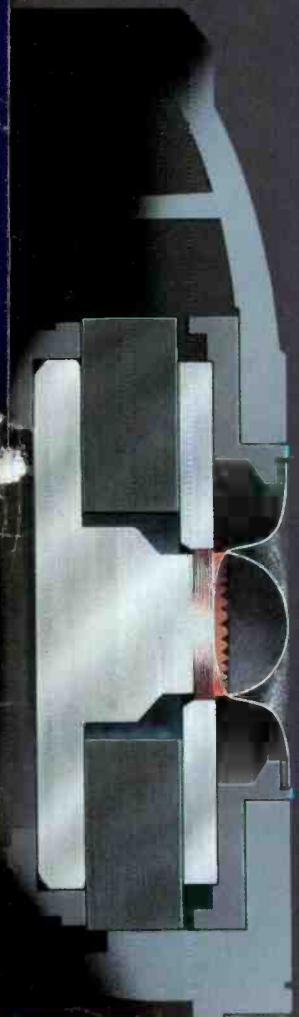
The real kicker came when the narrator started a gunfight with the audience, and we shot back—or some of us did, I am convinced. I was astonished at the authority and truly sharp localization of muzzle blasts and bullet "plaps" from every sector of the auditorium. In particular, the localization was puzzling. I heard some excellent side images, and these are quite difficult to form even with five full-range channels. In any case, I don't think you could bring this sort of business off with less than full-range surround channels. But would you want to? (No joke here. The Astor Plaza is in Times Square, which is a hangout for drug dealers. For a terrifying moment, I thought some had sneaked in.)

The bothersome thing about CDS is that it kicks the analog soundtrack off the film, and until they can sell enough popcorn to pay for the new equipment, many theaters will continue to need it. I asked Ray Dolby whether he considered that a serious problem. For long seconds he stared at me with what I can only guess was perplexity before replying, somewhat testily, "Of course it is." I pressed on, knowing full well that Dolby Labs is deep into developing a digital soundtrack of its own. Could it find a way to save the 35mm analog track? "There's always more than one way to skin a cat" was the best I could get.

When Dolby's digital soundtrack is finally released, it will certainly be optical and almost certainly quite different from the CDS version. Eastman Kodak was a partner in launching Dolby Stereo analog optical. Where will it stand now? □



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