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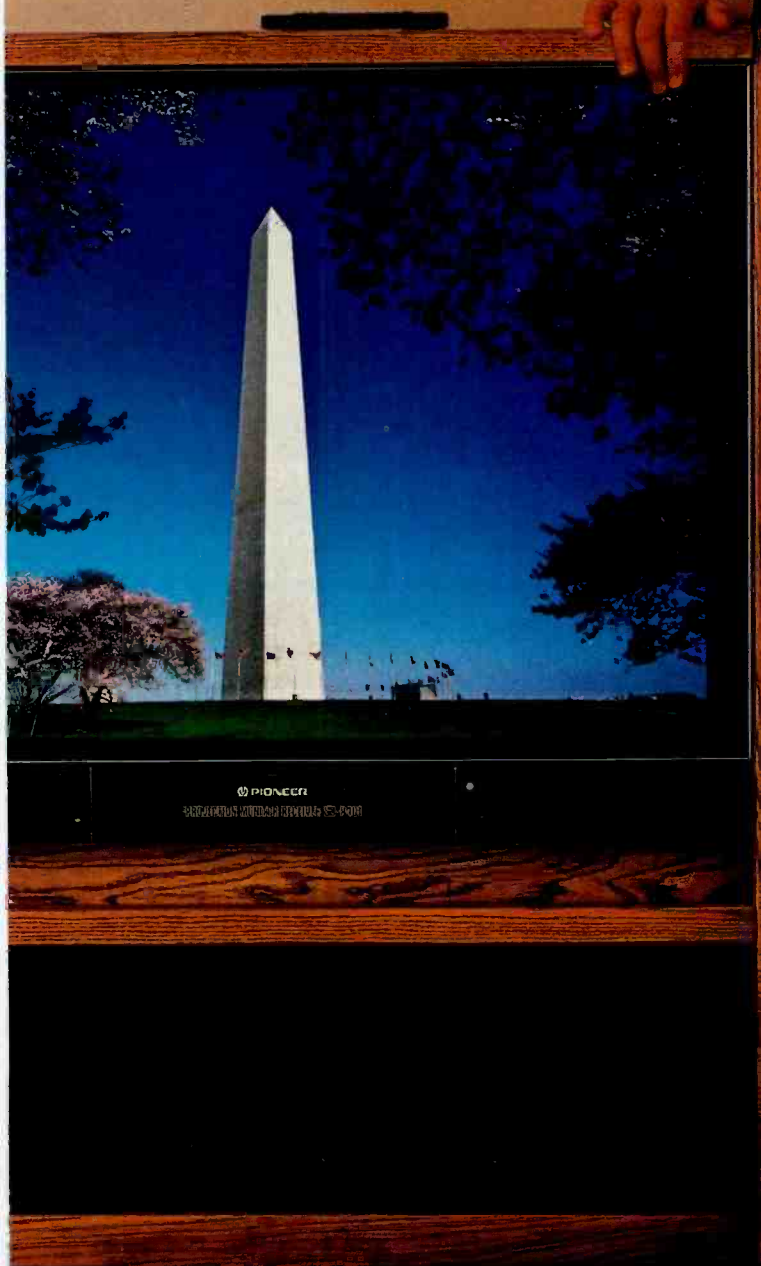
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# HIGH FIDELITY

AUDIO • VIDEO • TEST REPORTS • MUSIC

DECEMBER 1987

VOL. 37 NO. 12



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Two products of the year: At left, the JVC HR-S7000U Super VHS VCR. At right, the Allison IC-20 speaker sans grilles.



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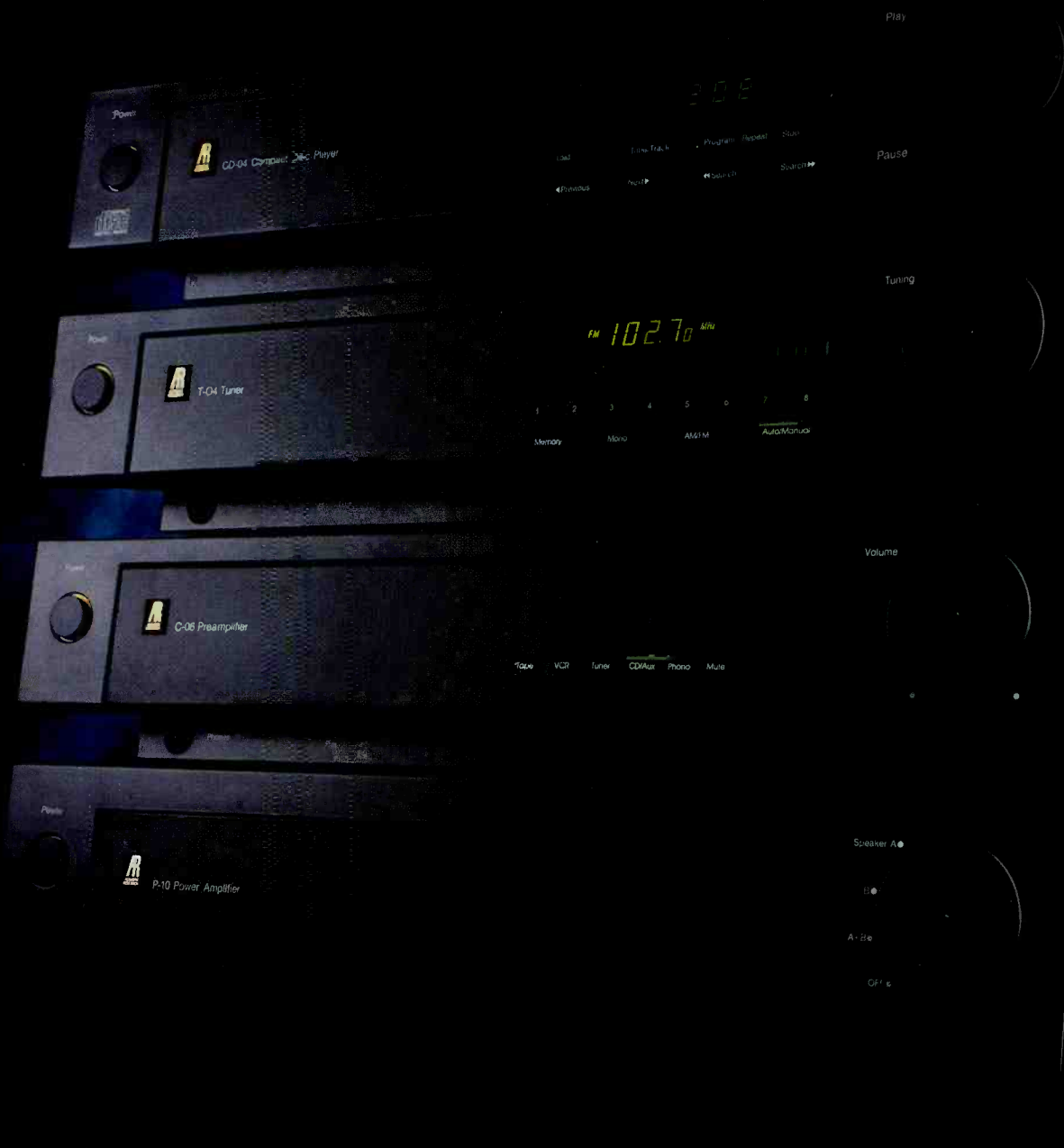
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## When Stereo Isn't Stereo

By Michael Riggs

**R**ecent letters in *HIGH FIDELITY* debating whether the Compact Disc versions of early Beatles albums should have been released in stereo, rather than or in addition to mono, started me thinking: Just what do we mean when we say "stereo"? Does the term apply to any recording made and reproduced with two separate channels, or is something more required? That question is, I think, at the heart of the controversy.

The phrase "stereophonic recording" was coined to suggest an analogy with stereoscopic photography. Both use two slightly different views of an event to create a spatial illusion impossible with less elaborate techniques. A stereo recording is meant to convey a sense of where the instruments and voices in an ensemble are located. This is what we mean when we speak of stereo imaging. The stage can be real, imaginary, or even surrealistic, but we expect stereo to give us an impression of an event occurring in a physical space—something a mono recording cannot do.

Stereo is essentially a trick. We locate sounds by comparing their arrival times and their relative loudnesses at our two ears. (A sound originating to your left will arrive at your right ear slightly later than at your left and will probably be slightly softer as well.) The differences that cue localization can be faked by using two loudspeakers. Sounds that are supposed to come from dead center are recorded with equal loudness in both channels. Those that should be heard as coming from one side are made louder in the corresponding channel and softer in the other. The greater the displacement, the greater the level difference. Timing cues may also be simulated, but level is the primary tool.

Even at its best, stereo has its limitations. For example, it cannot fully reproduce the acoustical characteristics of the space in which a recording is made. The illusion is never perfect, and in the wrong hands, it can be severely warped. But for a recording to be called stereo at

all, it must stage the music in some way, even if the result is not realistic. I think the "stereo" versions of the early Beatles LPs fail that test. Vocals on one side, instruments on the other, and nothing in between is not staging unless it achieves some effect that complements the music.

What we have on the two-channel versions of *Please Please Me* and *With the Beatles* is a travesty. No one involved in the original productions ever intended for them to be issued in stereo; the separate tracks were made only for the sake of convenience and flexibility in creating a final mono mix. If we call these discs "stereo," we might just as easily select any two tracks at random from a 32-track master and label them stereo. This, in fact, pretty well sums up what happened to the Beatles, except that there were only two tracks to choose from.

Some might nonetheless prefer such an arrangement or want it available for reasons of history, but I think such releases should be called something other than stereo. And I suppose that if EMI had known way back when that the Beatles were going to become as big a deal as they ultimately did, the company might have handled these matters more carefully. On the other hand, it might not have. Record companies have prostituted the word "stereo" in worse ways. Consider all the mono recordings that have been reissued after having been "electronically rechanneled for stereo." Elvis Presley and Buddy Holly suffered this particular fate for many years. You can't get stereo from a mono recording, no matter what you do to it. You can smear the sound between two speakers in a way that nobody responsible for the original ever dreamed of, but it won't give you a stereo image and it won't sound good.

Fortunately, this practice seems to be fading away as record companies reissue their libraries on Compact Disc. I see EMI's decision to release the first two Beatles CDs in mono as part of this welcome trend toward truth in packaging. ■

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**CHANGE FOR THE BETTER?**

What happened to my magazine? I have enjoyed the articles and advice contained in HIGH FIDELITY through the years, but there is one other feature that has helped make the magazine worth subscribing to: the listing of date, volume, and issue number along its spine, which makes filing for future reference easy.

Now, with the latest issue, HIGH FIDELITY has become like any other "sports" magazine—no spine. If this is to be the trend, I will just let my subscription run out. Maybe you are saving money this way, but please rethink your decision.

Dennis W. Towle, Jr.  
Green Bay, Wis.

*We miss the spine, too. But switching from the "perfect binding" of years past to "saddle stitch," as the two methods are called, enables us to add color and other refinements that we think more than outweigh the loss. Stick around for a few more issues and see if you don't agree.—Ed.*

**PERFECT COPIES**

One issue in the controversy surrounding digital audio tape (DAT) recorders should be easily resolvable. Some claim that DAT decks can make perfect copies of Compact Discs and that copies can be made of copies, from one DAT machine to another, indefinitely without loss of quality. Others say that the copies would suffer distortion and become unlistenable, as analog recordings do after a few generations of dubbing.

Since you have access to DAT recorders, it would seem a simple matter for you to put this question to the test by making such multigenerational copies and listening to the results. The results of such a test, though subjective, would be significant in determining the validity of the music industry's fear of DAT recorders.

Daniel D. Silva  
Hayward, Calif.

*We can give you a pretty good answer without doing the work (lucky us). If DAT decks could make direct digital copies of CDs, there would be no generation loss; copies of copies of copies would be identical to the original. But they can't. You can still make dubs from a CD player's regular analog outputs to a DAT recorder's analog inputs, however, and the results will be superior to anything you could get with an analog deck. Nonetheless, there will be some loss, and eventually, after many generations of dubbing, the degradation will become apparent.—Ed.*

**TRASHING THE AMSTERDAM TAM-TAM**

In reviewing the new London recording of Prokofiev's Fifth Symphony performed by the Concertgebouw Orchestra [July], David Hurwitz comments that the orchestra's tam-tam sounded like a garbage-can lid. Indeed, it always has—listen to other Concertgebouw recordings (except, for some reason, Sir Neville Marriner's rendition of *The Planets*). As a percussionist, I have always wondered why this world-class orchestra hasn't acquired one of the superb tam-tams available from mainland China.

Amazingly, another critic found this recording of the Prokofiev to be excellent in both sound and interpretation! Thanks to your excellent reviewer for telling it like it is.

Michael McFarland  
Dayton, Ohio

*Mr. Hurwitz, like yourself, is a percussionist. So, incidentally, is HIGH FIDELITY's classical music editor.—Ed.*

**STEINBERG'S BRAHMS SYMPHONIES**

I had what I thought were outstanding recordings of Brahms's Symphonies Nos. 1, 2, and 3 on open-reel tape—the Command recordings by William Steinberg and the Pittsburgh Symphony Orchestra. Will these be remastered and be made available in the CD format?

Frederick S. Reinhart  
Boca Raton, Fla.

*Those were indeed wonderful recordings of the Brahms symphonies, with remarkably fine sound for their day. Unfortunately, because interest in Steinberg's work has waned, they had been overlooked in the CD reissue craze. But the old Command catalog, from which those recordings came, has been acquired by MCA, along with the Westminster, Kapp, and Decca Classics catalogs.*

*Thomas Z. Shepard, chief of the classical division at MCA, says the Steinberg Brahms symphonies are among the recordings he has scheduled to be reissued on cassette and CD sometime in 1988. Also on the way are Hermann Scherchen's Beethoven symphonies, the complete Gilbert and Sullivan from Sadler's Wells, and a handful of Segovia releases. From now on, Shepard expects to release about 40 reissues a year, along with 40 new titles in MCA's Crimson and Black Line series.—Ed.*

*Letters should be addressed to The Editor, HIGH FIDELITY, 825 7th Ave., New York, N.Y. 10019. All letters are subject to editing for brevity and clarity.*

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# C U R R E N T S

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The Bang & Olufsen Beocenter 9000 (\$2,995) contains an AM/FM receiver, autoreverse cassette deck, and CD player in a five-inch-high tabletop unit only 30 inches wide and just over 13 inches deep. The elegant shape of the 9000 is in keeping with B&O's unique design philosophy.

You can operate the 9000 from its remote control or from its touch-sensitive front panel, which is devoid of conventional knobs and switches. The control legends and operating status are displayed in illuminated letters and numbers on the panel. B&O offers a Master Control Link system that enables you to operate the system from other listening locations.

The CD player, which uses the latest four-times oversampling digital decoding circuitry, can be programmed to play a sequence of as many as 30 tracks. The cassette deck includes Dolby B and C noise reduction, and its high-frequency recording capabilities are enhanced with Dolby HX Pro headroom extension—a process developed, incidentally, by B&O. HX Pro lessens the chance that your CD dubs will distort on music passages with high levels of high frequencies. In addition, you have the option of letting the 9000 set the recording levels automatically. A total of 32 selections (on both sides of the tape) can be programmed for playback in any order, providing you leave a four-second or so blank space between selections.

The tuner has presets for a total of 20 AM or FM stations, which can be selected from the remote. Weak, noisy FM stations can be preset in the mono mode to save you the trouble of switching each time. Additional inputs are provided for connecting a turntable, a second tape deck, and an auxiliary source, such as the audio output of a VCR or TV monitor. Amplifier power is a modest 30 watts (14.8 dBW) per channel, but the primary appeal of this system isn't raw power.

Last but not least, the 9000 incorporates a 24-hour timer that will program a number of different recording and play-

back functions in advance. For more information, contact Bang & Olufsen of America, 1150 Feehanville Dr., Mount Prospect, Ill. 60056.

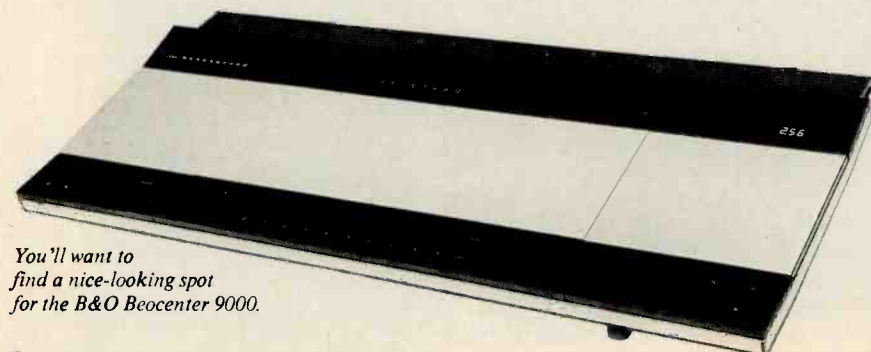
## The Price Is Right

Although not known for inexpensive components, Denon has been filling out its line with more affordable offerings that contain some attractive features for the price.

The \$280 DRA-25 AM/FM receiver is rated at 30 watts (14.8 dBW) per channel but is said to provide additional power to handle short, high-level transients. In the CD Direct mode, CD signals bypass some of the preamplifier circuitry to avoid picking up any related noise. The phono input is said to provide response within  $\pm 1/2$  dB of the RIAA equalization standard. A variable loudness-compensation control can be adjusted for the right amount of correction at any listening level. The tuner has 16 presets for any combination of AM and FM stations. Connections are supplied for two pairs of speakers. Minus its tuner, the DRA-25 is similar to another Denon "budget audiophile" component, the PMA-250 integrated amplifier (\$200).

The \$275 DR-M10HX, Denon's most affordable two-head cassette deck with HX Pro, incorporates Denon's Non-Slip Reel Drive, which is said to maintain consistent tape tension regardless of the load on the take-up reel. Dolby B and C noise reduction are included, as is a bias finetuning adjustment. The DR-M10HX can be operated using the remote control that comes with Denon's DRA-75VR and DRA-95VR receivers.

Completing this package is Denon's most affordable remote control CD player, the DCD-600 (\$300). It uses the company's Super Linear Converter, a two-times oversampling digital-to-analog converter hand-tuned at the factory to minimize the minute amounts of low-level distortion that normally accompany the decoding process. Separate power supplies are used for the analog and digital sections, and chassis vibration is minimized



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**IL Aurora:** Stereo Systems • **Bloomington:** Alan's Creative Stereo • **Buffalo Grove:** Columbia • **Carbondale:** Superior Stereo • **Champaign:** Good Vibes • **Decatur:** J.R. Lloyd's • **DeKalb:** Audio Plus • **Hoffman Estates:** Simply Stereo • **Highland Park:** Columbia • **Joliet:** Stereo Systems • **Kankakee:** Barnes Entertainment • **Lansing:** Audio Clinic • **Mt. Prospect:** Simply Stereo • **Naperville:** Stereo Systems • **Normal:** Glenn Ploer's • **Orland Park:** Simply Stereo • **Peoria:** Team Electronics • **Rochelle:** Columbia • **Shamberg:** Hi Fi Hunch • **Springfield:** Sundown One • **Spring Valley:** Audio Labs • **Sterling:** Midwest Hi Fi • **Vernon Hills:** Alan's • **Villa Park:** Hi Fi Hunch • **Waukegan:** Alan's  
**IN Evansville:** Riskey's • **FL Wayne:** Classic Stereo • **Indianapolis:** Ovalion • **Lafayette:** Good Vibes • **Marion:** Classic Stereo • **Muncie:** Classic Stereo • **South Bend:** Classic Stereo • **Terre Haute:** Houser  
**KS Junction City:** Audio Junction • **Overland Park:** Audio Electronics • **Wichita:** Audio Visions • **Topeka:** Nelson's  
**KY Bowling Green:** Audio Center • **Campbellville:** Coppool's Home Entertainment • **Lebanon:** Stereo Shoppe • **Ovation** • **Louisville:** Audio Video Buy Design  
**Dwensboro, Paducah:** Riskey's  
**LA Alexandria:** Simpson's Electronics • **Lafayette:** Sound Electronics • **Lake Charles:** Classic Audio Systems • **Opelousas:** Sound Electronics • **West Monroe:** Audio West  
**MA Boston:** Waltham Camera & Stereo • **Fitchburg:** Fitchburg Music • **N. Dartmouth:** Creative Sound Systems • **Worcester:** O'Coins  
**ME Bangor:** Sound Source • **Camden:** Herbar Audio  
**MD Annapolis:** Spaceways • **Baltimore:** Soundscape • **Frederick:** Evergreen • **Rockville:** Myer Emco  
**MI Ann Arbor:** Absolute Sound • **Birmingham:** Almas Hi Fi • **Dearborn:** Almas Hi Fi • **East Lansing:** Stereo Shoppe • **Farmington Hills:** Almas Hi Fi • **Flint:** Stereo Center • **Grand Rapids:** Classic Stereo • **Iron Mountain:** Sound North • **Kalamazoo:** Classic Stereo • **Lansing:** Stereo Shoppe • **Royal Oak:** Absolute Sound • **Saginaw:** Audio Shoppe • **Court St. Listening Room • Traverse City:** Stereo Shoppe  
**MN Duluth:** Mel's TV & Audio • **Mankato:** Audio King • **Minneapolis & Suburbs:** Audio King • **Minnetonka:** Audio King • **Rochester:** Audio King • **St. Paul:** Audio King  
**MO Cape Girardeau:** Stereo One • **Jefferson City:** Joplin, Springfield: Stereo Bull • **St. Louis:** Sound Central  
**MS Columbus:** Audio Advantage • **Gulfport:** Empress • **Hattisburg:** Mclelland TV • **Jackson:** Walters • **Pascagoula:** Empress • **Tupelo:** Audio Advantage  
**MT Bozeman:** Thrifty Ear • **Great Falls:** Rocky Mountain Hi Fi • **Missoula:** Aspen Sound  
**NC Asheville:** Mr. Toad's Stereo Video • **Boston:** Helms • **Chapel Hill:** Stereo Sound • **Greensboro:** Stereo Sound • **Jacksonville:** Southeastern Electronics • **Kinston:** Stereo Concepts • **Moorehead City:** Anderson Audio • **New Bern:** Anderson Audio • **Pinetop:** Stereo Video • **Raleigh:** Audio Buys, Stereo Souq • **Rocky Mount:** Microwave Audio • **Wilmington:** Atlantic Audio • **Winston-Salem:** Stereo Sound  
**ND Bismarck:** Pacific Sound  
**NE Lincoln:** Stereo West • **Norfolk:** Mid City Stereo • **Omaha:** Stereo West  
**NH Concord:** Audio of New England • **Exeter:** AutoSound & Soundcrafters • **Lacoma:** Audio of New England • **Salem:** Cuomo's  
**NJ East Brunswick:** Atlantic Stereo • **Franklin Lakes:** Franklin Lakes Stereo • **Maple Shade:** Home • **Medford:** Audio Buys • **Perdido Radio • Raritan:** AC Audio • **Ridgewood:** Sounding Board • **Shrewsbury:** Monmouth Stereo • **Toms River:** Rands Camera • **Westfield:** Stereo • **Yonkers:** Stereo • **NY Alamo:** DMK Electronics • **Carlsbad:** Beason's  
**NV Las Vegas:** Upper Ear • **Reno:** The Audio Authority  
**NY Albany:** Clark Music • **Batavia:** Unicorn Audio • **Buffalo:** Speaker Shop • **Corning:** Chemung • **Elmira:** Chemung • **Fredonia:** Sid • **Glens Falls:** Audio Genesis • **Huntington:** Audio • **Kingston:** Hbasac • **Chemung • Jamestown:** Studio One • **Manhasset:** Audio Breakthroughs • **Massena:** Hi Fi Shop • **Newburgh:** Audio Expression • **New York City:** Stereo • **White Plains:** Electronic Workshop • **Rochester:** JB Sound • **Scarsdale:** Listening Room • **Syracuse:** Clark Music • **Vestal:** Hart Electronics • **Yonkers:** Audio • **Albany:** Columbia & Suburbs • **Audio Craft • Cincinnati:** Stereo Lab • **Columbus:** Stereo Lab • **Dayton:** Stereo Showcase • **Findlay:** Audio Craft • **Lima:** Stereo • **London:** Stereo • **OH Lakewood:** Hi Fi Shop • **Okla. City:** Audio Dimensions • **Shawnee:** Rave Sounds • **Tulsa:** Audio Advice  
**OK Tulsa:** Rave Sounds • **Bend:** Audio Video Lab • **Eugene:** Bratton's Hi Fi • **Medford:** Sheekel's • **Grants Pass:** Sheekel's • **Medford:** Sheekel's • **Portland:** Stereo Superstore  
**PA Allentown:** Bryn Mawr Stereo • **Allentown:** Sound Concepts • **Blakely:** Hart Electronics • **Bryn Mawr:** Bryn Mawr Stereo • **Camp Hill:** Bryn Mawr Stereo • **East:** Studio One • **Johansville:** Gary's Entertainment • **Kingston:** Hart Electronics • **Lancaster:** G/T Stereo • **Montgomeryville:** Bryn Mawr Stereo • **Natrona Heights:** Stereo Land • **Philadelphia:** Stereo Superstore • **Bryn Mawr:** Bryn Mawr Stereo • **Pittsburgh:** Audio Junction • **Quakertown:** Bryn Mawr Stereo • **Reading:** G/T Stereo • **Scranton:** Stereo Shoppe • **Williamsport:** Stereo Superstore  
**PIETRO RICCO Rio Piedras:** Precision Audio  
**RI N. Providence:** Eastern Audio  
**RI Anderson:** John Brookshire's • **Charleston:** Audio Warehouse • **Greenville:** Mitchell's Stereo • **Westerly:** Myer Emco • **Rock Hill:** Baris • **Spartansburg:** Stereo Shop  
**SD Rapid City:** Team Electronics • **Sioux Falls:** Team Electronics • **TN Chattanooga:** College Hi Fi • **Cookeville:** Lindsay Ward • **Jackson:** New Wave Electronics • **Johnson City:** Mr. Toad's Stereo • **Knoxville:** Lindsay Ward • **McMinnville:** Lindsay Ward • **Memphis:** O'Coin's • **Nashville:** Hi Fi Buys  
**TX Allene:** Sound Blends • **Arlington:** Sound Idea • **Austin:** Audio Video • **College Station:** Audio Video • **Corpus Christi:** Tape Town • **El Paso:** Soundquads • **FL Worth:** Sound Idea • **Galveston:** Island Audio • **Houston:** Sheffield Audio • **Hurst:** Sound Idea • **Laredo:** Melix International • **Lubbock:** Ultra Electronics • **Lufkin:** Spine Music • **Midland:** Harold's Electronics • **Nacogdoches:** Spinel Music • **Odessa:** Harold's Electronics • **San Antonio:** Bill Case Stereo • **San Marcos:** Discovery Audio Video • **Sherman:** WorldWide Stereo • **Temple:** Audio Tech • **Tatarakana:** Sound Town • **Waco:** Audio Tech  
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**VT Essex Junction:** Creative Sound  
**WA Bellingham:** G/O Stereo • **Chelan:** Music Stereo • **Oak Harbor:** G/O Stereo • **Richland:** Tin Ear Stereo • **Spokane:** Electracraft (H&S)  
**WI Appleton:** Sound World • **Eau Claire:** ME Audio Systems • **Green Bay:** Sound World • **Lacrosse:** Sound World • **Madison:** Happy Medium • **Marinette:** Sound Seller • **Milwaukee:** Audio Emporium • **Wausau:** Stereo World  
**WV Barboursville:** Beckley, Charleston, Huntington: Pied Piper • **Piedmont:** Sound Gallery • **Wheeling:** Look & Listen  
**WY Cheyenne:** Electronics Unlimited • **Serifan:** Star Video



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**The makers of the famous D4+<sup>™</sup> Record Cleaning System.**

## TECHNICS TECHNICAL REPORT



**THE NEW TECHNICS AV RECEIVER COMBINES SOPHISTICATED REMOTE CONTROL TECHNOLOGY WITH ADVANCED AMPLIFIER CIRCUITRY.**

### NEW CLASS A AMPLIFIER CIRCUITRY

Technics New Class A Amplifier circuitry varies the bias across the output transistors in accordance with the signal level. This is designed to allow an amplifier to combine the low distortion of Class A operation with the high efficiency of Class B. Additionally, Technics Synchro-Bias system is designed to help reduce amplifier distortion by keeping the power transistors in a ready state at all times, so they don't switch on and off.

### COMPUTER DRIVE AMPLIFIER TECHNOLOGY

This design uses sensors to monitor the amplifier's output stage. Using the input data from the sensors, a microprocessor constantly adjusts the operating characteristics of the output transistors. When combined with New Class A circuitry, this amplifier technology helps provide accurate reproduction of music.

### ELECTRONIC GRAPHIC EQUALIZER

With an electronic graphic equalizer, such as the one in the SA-R510, you have powerful control. The listener can pre-program and store various equalization curves into memory and then recall any one of them at the touch of one button. One equalizer setting might be used for listening to rock, another for jazz, etc.

#### TECHNICAL SPECIFICATIONS FOR SA-R510

**AMPLIFIER SECTION:** Rated minimum sine wave RMS power output, 20Hz-20kHz; both channels driven, 100W per channel (0.007% THD, 8 ohms).

**DYNAMIC HEADROOM:** 1.2 dB (8 ohms).

**GRAPHIC EQUALIZER SECTION:** Band level controls, +12 dB -12 dB (2 dB step); center frequencies, 63Hz, 160Hz, 400Hz, 1kHz, 2.5kHz, 6.3kHz, 12.5kHz.

**Technics**  
The science of sound

## C U R R E N T S



*Despite its many features, the DRA-25 is Denon's least costly receiver.*

with a thick bottom plate and one-inch-thick feet. The player itself can be programmed to play a sequence of as many as 15 selections.

For more information, contact Denon America, 222 New Rd., Parsippany, N.J. 07054.

### Power Buys

The R-117 (\$1,200) is Luxman's top "Ultimate Power" receiver, featuring generous dynamic headroom to cover short peaks in the music signal without running out of amplifier power. In the R-117, the standard 8-ohm stereo rating is 160 watts (22 dBW); however, dynamic power is rated at a whopping 440 watts (26.4 dBW). The receiver is also said to drive low-impedance loudspeakers with ease, a claim substantiated by the 2-ohm dynamic power rating of 700 watts (28.4 dBW) per channel.

A large number of audio and video inputs and outputs are included, with a variety of switching options. Of note is the "CD straight" input, which routes CD signals past the tone controls and switching circuits to avoid picking up any related noise. The phono input is switchable for a moving-coil (MC) or fixed-coil (MM) cartridge. A wireless remote control operates the receiver's main functions and can also control certain Luxman CD players, turntables, and cassette decks.

One of those decks is the K-112 (\$500), which has separate recording and play-

back heads, a bias fine-tuning adjustment, Dolby B and C noise reduction, and HX Pro headroom extension. The new D-117 CD player (\$900) comes with its own remote but will work with the R-117's remote as well. The player features four-times oversampling and a choice of two digital outputs—one via coaxial cable (terminated with standard pin jacks) and one over a fiber-optic cable—for connection to appropriately equipped integrated amps and preamps, such as Luxman's own LV-117 and LV-109 integrations. As many as 16 selections can be programmed for play in any sequence. For more information, contact Luxman, P.O. Box 2859, Torrance, Calif. 90509.

### Super Receiver

That's what NAD calls the Model 7600 (\$1,498)—and probably for good reason, since it is a combination of NAD's three finest Monitor Series separates: the 2600 power amp, the 1300 preamp, and the 4300 tuner.

The amp is rated at 150 watts (21.8 dBW) per channel, but thanks to NAD's Power Envelope design, it can deliver as much as 400 watts (26 dBW) into 8 ohms and 800 watts (29 dBW) into 2 ohms to cover peak signals. These are not strictly dynamic-power ratings: NAD claims the extra power is available for periods well beyond the 20 milliseconds required by the dynamic-headroom specification. The

*(Continued on page 96)*



*Luxman's most powerful receiver is the well-equipped R-117.*

# NOW TECHNICS LETS YOU CREATE AN AUDIO/VIDEO EMPIRE AND CONTROL IT FROM FAR, FAR AWAY.

Start with the new 100W A/V remote control receiver that puts you in complete control.

Imagine. Commanding an audio/video empire with just one remote control device.

Imagine. Controlling a compact disc player. And a cassette deck. And a turntable. All from across the room.

Then imagine expanding this remote control empire to include compatible Panasonic TV's, VCR's and even other brands.\*

Now it is all a reality. With the new Technics 100W AM/FM stereo remote control receiver (100 watts per channel at 8 ohms, 20Hz-20kHz with 0.007% THD) and compatible components.

The new SA-R510 has also been engineered with a built-in electronic graphic equalizer/spectrum analyzer.\*\* So you can make precise adjustments to bass, treble and mid-range sound. There are even 24 AM/FM station random access presets for instant recall.

The new Technics remote control receiver. The beginning of an audio and video empire you can control from far, far away.

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\* See dealer for details.  
\*\* Equalizer not operable by remote.



**SDA 2B**  
\$599.95 ea.

**SDA 1C**  
\$799.95 ea.

*Digital Disc Ready*

**Matthew Polk and his extraordinary new Signature Edition SDA 1C and SDA 2B.**

# "Matthew Polk Has a Passion for Perfection!"

## Experience the Awesome Sonic Superiority of His New Signature Edition SDA 1C and SDA 2B.

The genius of Matthew Polk has now brought the designer styling, advanced technology and superb sonic performance of his award winning SDA Signature Reference Systems into the new Signature Edition SDA 1C and SDA 2B.

**"They truly represent a breakthrough."** *Rolling Stone Magazine*

Polk's critically acclaimed, 5 time AudioVideo Grand Prix Award winning SDA technology is the most important fundamental advance in loudspeaker technology since stereo itself. Listeners are amazed when they hear the huge, lifelike, three-dimensional sonic image produced by Polk's SDA speakers. The nation's top audio experts agree that Polk SDA loudspeakers always sound better than conventional loudspeakers. Stereo Review said, "Spectacular... the result is always better than would be achieved by conventional speakers." High Fidelity said, "Astounding... We have yet to hear any stereo program that doesn't benefit." The new SDA 1C and SDA 2B utilize new circuitry which allows the drivers to more effectively utilize amplifier power at very low frequencies. This results in deeper, more powerful bass response, greater dynamic range and higher efficiency. In addition, the new circuitry makes these new speakers an extremely easy load for amplifiers and receivers to drive. Lastly, the imaging, soundstage and depth are more precise and dramatically realistic than ever.

### Why SDAs Always Sound Better

Stereo Review confirmed the unqualified sonic superiority of Matthew Polk's revolutionary SDA Technology when they wrote, "These speakers *always* sounded different from conventional speakers — and in our view better — as a result of their SDA design.

Without exaggeration, the design principals embodied in the SDAs make them the world's first true stereo speakers. The basic concept of speaker design was never modified to take into account the fundamental difference between a mono and stereo signal. The fundamental and

basic concept of mono is that you have one signal (and speaker) meant to be heard by both ears at once. However, the fundamental and basic concept of stereo is that a much more lifelike three-dimensional sound is achieved by having 2 different signals, each played back through a separate speaker and each meant to be heard by only one ear apiece (L or R). So quite simply, a mono loudspeaker is designed to be heard by two ears at once while true stereo loudspeakers should each be heard by only one ear apiece (like headphones). The revolutionary Polk SDAs are the first TRUE STEREO speakers engineered to accomplish this and fully realize the astonishingly lifelike three-dimensional imaging capabilities of the stereophonic sound medium.

**"A stunning achievement"** *Australian HiFi*

Polk SDA Technology solves one of the greatest problems in stereo reproduction. When each ear hears both speakers and signals, as occurs when you use conventional (Mono) speakers to listen in stereo, full stereo separation is lost. The undesirable signal reaching each ear from the "wrong" speaker is a form of acoustic distortion called interaural crosstalk, which confuses your hearing.

**"Literally a New Dimension in the Sound"** *Stereo Review Magazine*

The Polk SDA systems eliminate interaural crosstalk distortion and maintain full, True Stereo separation, by incorporating two completely separate sets of drivers (stereo and dimensional) into each speaker cabinet. The stereo drivers radiate the normal stereo signal, while the dimensional drivers radiate a difference signal that acoustically and effectively cancels the interaural crosstalk distortion and thereby restores the stereo separation, imaging and detail lost when you listen to normal "mono" speakers. The dramatic sonic benefits are immediately audible and remarkable.

**"Mindboggling, astounding, flabbergasting"** *High Fidelity Magazine*

Words alone cannot fully describe how much more lifelike SDA TRUE STEREO reproduction is. Reviewers, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved by Polk's TRUE STEREO technology. You will hear a huge sound stage which extends not only beyond the speakers, but beyond the walls of your listening room itself. The lifelike ambience revealed by the SDAs makes it sound as though you have been transported to the acoustic environment of the original sonic event. Every instrument, vocalist and sound becomes tangible, distinct, alive and firmly placed in its own natural spatial position. You will hear instruments, ambience and subtle musical nuances (normally masked by conventional speakers), revealed for your enjoyment by the SDAs. This benefit is accurately described by Julian Hirsch in Stereo Review, "...the sense of discovery experienced when playing an old favorite stereo record and hearing, quite literally, a new dimension in the sound is a most attractive bonus..." Records, CDs, tapes, video and FM all benefit equally as dramatically.

**"You owe it to yourself to audition them."** *High Fidelity Magazine*

SDAs allow you to experience the spine tingling excitement, majesty and pleasure of live music in your home. You must hear the remarkable sonic benefits of SDA technology for yourself. You too will agree with Stereo Review's dramatic conclusion: "the result is always better than would be achieved by conventional speakers... it does indeed add a new dimension to reproduced sound."

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## Answers to Readers' Questions

By Larry Klein

### Stereo-to-Mono Conversion

*My receiver has three pairs of speaker terminals and switching for three sets of speakers. Is it possible to make or buy a gadget that would enable me to hear stereo at the main location and have mono at the other two?*

John Outten  
Plymouth, N.C.

I can think of two easy ways of accomplishing what you want. You could feed the stereo signal from the tape-output jacks of your receiver into a second amplifier switched to mono operation. Each channel of the second amp would power one of your mono speakers, and the receiver would continue to drive your stereo main speakers. Such a setup would also provide independent volume control of each mono speaker system via the amp's volume and balance controls.

Another way of getting stereo in one location and mono in two others is to use *two* small speakers for each mono channel. Wire them in the normal stereo configuration and set them up side by side. The combined acoustic output of each pair will be a well-balanced mono signal. As a bonus, the bass performance will be much better—because of mutual coupling between the woofers—than that of a single driver. However, if you run *six* speakers simultaneously from your receiver, make sure that the impedance of the combined load is not too low for your amplifier. This configuration will not permit separate volume adjustments.

### Used Car Amplifiers

*Is it wise to buy a used car-stereo amplifier? I've seen many of these advertised for less than half the price of equivalent new ones. When auditioning used amps, is there anything I should listen for that would tell me if there's something wrong? What kind of problems could a used amp have? Also, if I connect two pairs of 4-ohm speakers to a two-channel amp rated at 120 watts per channel at 4 ohms, will there be a problem?*

Rancil Alonzo  
Los Angeles, Calif.

If both channels of the used amplifier play into your speakers as loud as you would like and don't suffer from distortion or noise, then I would say the amp is probably in good shape. But it's a good idea to take the amp for a test drive over a bumpy road during your listening sessions to make sure nothing is loose inside it. To answer your second question: Some car amps will handle 2-ohm speaker loads with ease, but others won't. If you don't have access to the specification sheets, the only way you can tell which will and which won't is to ask the manufacturer. One last warning:

Make sure the amplifier's serial number has not been removed, and try to see the original bill of sale. Given the plague of car-stereo rip-offs, it may be that the person selling you the used amp is not really the previous owner, and buying stolen goods is a crime.

### Snap, Crackle, Pop

*A new CD I just bought pops loudly on strong bass notes. The pops disappeared when I played the disc with the bass control on flat instead of my normal +3 setting. Am I overloading anything, and will it cause damage?*

John Baker  
Los Angeles, Calif.

You may be overloading your amplifier, with the popping caused by an inferior protection circuit doing its job noisily. However, it is more likely that the very low, boosted bass on the CD is forcing the woofer voice coil into excessive motion (excursion). When the voice coil is driven too far back into the magnetic assembly, its rear edge strikes the part of the structure known as the backplate. If that happens too often, the voice coil will be physically damaged and may eventually emit buzzing noises on anything you play.

An experienced ear can easily hear the difference between the two effects: The protective circuit causes an electronic pop, while the mechanical overdrive results in a more defined "snap" sound. If your system sounds okay, then assume nothing was damaged, but avoid a repeat performance—even as a test to see if you can distinguish a pop from a snap. The obvious solution is not to play your system with boosted bass until you've upgraded your components, starting with the speakers.

### Old-Speaker Impedances

*Twenty years ago, I bought two JBL speakers that my wife now uses as end tables. My old receiver recently gave up the ghost, and I intend to buy a new one. However, I find that my speaker's terminals are marked 16 ohms, and the receivers I see advertised are all rated for 8 ohms. I like the way my speakers sound, and my wife will kill me if I replace her end tables. What should I do?*

Thomas Pollack  
Palo Alto, Calif.

The fact that today's receivers are rated at 8 ohms doesn't mean they won't drive your 16-ohm speakers. Your JBLs are probably quite efficient and, therefore, should work well with any of today's solid-state amplifiers.

*We regret that the volume of mail is too great for us to answer all questions.*



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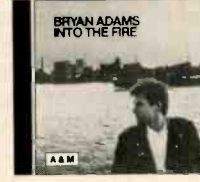
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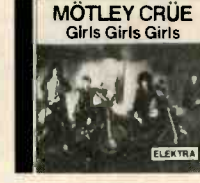
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359901. Mick Jagger—Primitive Cool. (Columbia)  
352534. Halst: The Planets—A. Davis, Toronto Symph. (Digital—Angel)  
347955. Huey Lewis & The News—Fore! (Chrysalis)  
348979. Tina Turner—Break Every Rule. (Capitol)  
346478. Madonna—True Blue. (Sire)

356287. Suzanne Vega—Solitude Standing. (A&M)  
355958-395954. Beethoven: Symphonies Nos. 8 & 9 (Choral)—Michael Tilson Thomas, English Chamber Orch. (Digital—CBS Masterworks)  
357871. Tchaikovsky: Waltzes—S. Commissiona and Houston Symphony (Digital—Pro Arte)

357889. Copland: Billy The Kid; Appalachian Spring; etc.—Bernstein, NY Phil. (Digitally Remastered—CBS Masterworks)  
287003. Eagles Greatest Hits 1971-1975. (Asylum)  
346957. Steve Winwood—Back In The High Life. (Island)  
345777. Peter Gabriel—So. (Geffen)

308049. Creedence Clearwater Revival Featuring John Fogerty/Chronicle. 20 greatest hits. (Fantasy)  
326629. Bruce Springsteen—Born In The U.S.A. (Columbia)  
348649. Pachelbel Canon & Other Digital Delights.—Toronto Chamber Orch. (Digital—Fanfare)

219477. Simon & Garfunkel's Greatest Hits. (Columbia)  
348318. The Police—Every Breath You Take—The Singles. (A&M)  
336222. Dire Straits—Brothers In Arms. (Warner Bros.)  
355156. Vladimir Horowitz Plays Favorite Chopin. (Digitally Remastered—CBS Masterworks)

341073. Steely Dan—A Decade of Steely Dan. (MCA)  
346544. Kenny G—Duotones. (Arista)  
345751. Paul Simon—Graceland. (Warner Bros.)  
356279. Gloria Estefan And Miami Sound Machine—Let It Loose. (Epic)  
336396-396390. Billy Joel's Greatest Hits, Vol. 1 & 2. (Columbia)

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My main musical interest is (check one):  
(But I may always choose from any category)

ROCK/POP       CLASSICAL

Mr. \_\_\_\_\_  
Mrs. \_\_\_\_\_  
Miss \_\_\_\_\_

Print First Name      Initial      Last Name

Address \_\_\_\_\_

City \_\_\_\_\_ Apt. \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Do you have a VCR? (Check one.)  Yes     No      709/588  
Do you have a credit card? (Check one.)  Yes     No

ADVANCE BONUS OFFER. Also send me a fourth CD right now at the super low price of just \$6.95, which will be billed to me.

This offer is not available in AFQ, FPO, Alaska, Hawaii, Puerto Rico. Please write for details of alternate offer. Canadian residents will be serviced from Toronto.

Note: We reserve the right to reject any application or cancel any membership.

SDT/C2  
SDV/C3



## In Search of Excellence

By Christopher J. Esse

**Y**ou can spend a lot of time and money putting together a great audio system and a great listening room but never receive the recognition that, say, an architect would for a beautifully designed home. Why shouldn't you be rewarded for furthering the art of music reproduction? Perhaps an audio manufacturer could organize a contest to find the best systems, starting with local events and ending with a national final. The public could be invited to see and hear what makes your system sound great and to talk with experts from the various manufacturers whose products you used. To enter the contest, you would simply transport your listening room to the site and . . .

Well, maybe that's not entirely practical after all. But it would work for autosound systems, since their listening rooms are on wheels. And that's why the folks at Alpine created the Car Audio Nationals contest.

It all started early this summer, with Alpine staff members, sales representatives, and retailers organizing preliminary events in accordance with Alpine's prepared guidelines. Winners advanced to one of three regional qualifiers, then on to the regional final. The cream of the crop from each region wound up at San Diego's Sea World for the grand finals, held over the Labor Day weekend. This was not a parade of Alpine equipment; in fact, products from more than a dozen other manufacturers appeared in the systems of the finalists. Instead, it was a highly objective exercise for the benefit of consumers, the autosound industry, and—most generously—the Muscular Dystrophy Association. On Labor Day, David Black, Alpine's vice president of marketing, went on TV to present Jerry Lewis with a check for \$300,000.

The Car Audio Nationals sets a new standard for this sort of contest; it is far removed from the local "Crank 'Em Up" and "Car Wars" ear-blasting rituals that have been gaining popularity over the past several years. Decibels take a back seat to balanced frequency response, good stereo imaging, absence of noise, and overall quality of installation. The judging criteria were established beforehand with the advice of leading audio authorities, including HIGH FIDELITY technical editor David Ranada. The judges worked from a detailed handbook, awarding a range of points for each of the various categories. A rundown of the judging categories appears on the next page.

There are two divisions, pro and consumer. The pros, usually autosound dealers, are not restricted to using over-the-counter products. Their systems promote their skills as installers, sometimes incorporating equipment modifications that might later show up in a manufacturer's product. The two power classes within the pro division are 500 watts or less (total, all channels) and 501 watts or more. The consumer division has three classes: 250 watts or less, 251 to 500, and 501 or more. The am-

plifier ratings are computed from the manufacturer's published specifications (the FTC rating into 4 ohms, the usual nominal impedance for car speakers). Contestants in the consumer division must provide proof that they own the car and must sign an agreement testifying that no internal modifications have been made to the audio components.

By the time the finalists arrived in San Diego, Alpine estimated it had judged more than 17,000 systems with a total value (including installation costs) of about \$40 million. The grand prize for each of the three consumer winners was a four-wheel-drive Jeep Comanche pickup truck outfitted with a so-called "killer" Alpine system. Second and third prizes were trips to tropical vacation spots. The pros received trophies and a good deal of recognition, which certainly won't hurt their businesses.



Three winners drove away this Alpine-equipped Jeep Comanche.

Although all the contestants had gone through Judgment Day three times on their way to the finals, it hadn't gotten easier. None of the consumer contestants I spoke with talked about the prizes; they were nervously awaiting their turns with the men in the white lab coats. At the dinner party the night before, many of them were still chewing their last bite of food as they politely excused themselves to do some final tweaking. One sympathetic Alpine official quietly worried about the high level of intensity that had developed throughout the contest.

All of the winning systems featured what you would expect: a CD player, multiple amplifiers, equalizers, and crossovers for the component speakers (including subwoofers). Only one included a CD changer; the rest had in-dash players. The secret to scoring well for sound in a contest such as this basically comes down to three things: first, selecting the proper crossover points for the component speakers; second, locating the speakers where they sound the best and provide a good soundstage; and third,

adjusting the equalizers to counteract acoustic problems and any frequency imbalance.

There's not enough room here to tell you about each of the winning systems, but I'll mention one: In the "low power" consumer class, James Garner's Toyota Supra (no, not *that* James Garner—he does commercials for Mazda) contained an Alpine 7902 tuner/CD combination, an Alpine 3311 equalizer, Alpine amplifiers, and component speakers from Boston Acoustics. Among the other companies represented in the winning systems were ADS (speakers and amps), Sony (CD changer), Nakami-

chi (tuner/tape deck), Fosgate (EQ and speakers), and Yamaha (speakers).

Alpine equipment is standard in the exotic Lamborghini Countach, and a couple of years ago Alpine gave one of those cars away in a sweepstakes. Curiously, that very car was on display at Sea World. It seems the new owner was overwhelmed by insurance and maintenance costs shortly after getting the car, and Alpine was kind enough to buy it back from him. As Andy Warhol may have put it, in the future everyone will own a Countach for 15 minutes. ■

## Getting the Score

*The finals of the Car Audio Nationals were conducted in the same manner as the preliminary and regional events. There were five three-man judging teams, each assigned to evaluate one of the five groups (three consumer, two pro) of finalists. Each team filled out a single scoresheet divided into two sections: sound quality and installation. If Yogi Berra had been watching the judges pore over these cars, he might have declared that 90 percent of the game is half installation. Actually, the sound tests carried the most weight. Judges listened to the same five songs used throughout the Car Audio Nationals, with an emphasis on musicality, rather than test results. In fact, of the 420 points possible in the sound-quality portion, only 180 were based on the test measurements for frequency response and sound pressure level. Installation quality covered just 250 points, bringing the overall total to a possible 670 points. The following describes the categories and gives their individual maximum point values.*

### INSTALLATION

**Cosmetic Integration** (40 points): The judges examine how well the system blends with the cosmetics of the passenger compartment.

**Wiring Cosmetics** (40 points): Neatness and safeness of the wiring throughout the system are considered. This includes wire gauge vs. load requirements as well as fuse location and type.

**Component Installation Integrity** (60 points): Three areas—the head unit, amps and signal processors, and loudspeakers—are rated at 20 points each for neatness, fit, and solidity of installation.

**Ergonomics** (40 points): A good balance of ease and safety of operation (while stationary and while driving) is sought.

**General Creativity** (40 points): The installation as well as the sound is considered here. I'm not sure what

d, though.

**Trimplates** (20 points): The little things are of the trimplates and the side and out.

**Sound Pressure Level** (140 points): This measurement measurement that follows placed where the driver's ponse is measured with a ssed through a Bruel &

Kjaer 3360 Sound Intensity Analyzing System. The resulting curve is compared to Alpine's reference (which takes into account the need to mask road, wind, and engine noise), and points are awarded for a close match and smooth octave-to-octave transitions.

**Sound Pressure Level** (140 points): The contestant sets the volume of the system to just below hard clipping (obvious distortion), using one of the five reference songs as the source. One point is awarded per decibel of loudness, up to a maximum of 140 (yes, that's dangerously loud; earplugs are provided to the volume setter and the car is unoccupied during the measurement). The large number of points assigned to this category is misleading: Everyone in the finals scored at least 115 dB, making for an actual spread of only about 25 points (less than any of the other categories).

**Staging** (40 points): Judges listen for the right amount of back-channel ambience to give the impression of a concert hall. The fader and balance controls can be adjusted by the judges to optimize the effect.

**Stereo Image** (40 points): Left-right separation and the stability of the central image are judged.

**Sound Linearity** (40 points): The balance of low, middle, and high frequencies at both soft and loud listening levels (with the tone-control settings fixed) is evaluated. Judges award a maximum of 20 points at each listening level.

**Frequency Separation and Clarity** (80 points): The judges listen for the delineation of sounds in the low-bass, midbass, midrange, and treble frequencies, awarding as many as 20 points for each range.

**Absence of Noise** (40 points): Points are detracted for any noise caused by the vehicle or added by the system components. The car's engine is turned on and off for comparison.

*Except for the measurement tests, you can evaluate your own system using these criteria. And if you're getting a new system installed, you might meet with the installer beforehand to let him know that you'll be a critical judge. The five winners in the Car Audio Nationals averaged 518 total points (out of a possible 670)—194 for installation (out of 250) and 324 for sound quality (out of 420). Alpine tells me that the judges were particularly unforgiving in the finals. Are you ready to enter next year's competition? I'm not—once again, I think I'll just have to watch.*



## Progress in Projection TV

By David Ranada

The esoterica of video-monitor design have not received the same attention as equivalently arcane audio subjects such as phono-stage input impedance. This has been due to the average consumer's interest in only the crudest parameters of television assessment (screen size, picture brightness, flesh-tone quality, and cabinet finish). However, in the past few years, a welcome emphasis on overall improved picture quality—and how it is obtained—has evolved. Previously hidden aspects of monitor design are being booted out of the video closet, a move no doubt spurred by anxious marketing executives. Nothing reveals this better than the emphasis placed by Pioneer on the technical achievements in its rear-projection monitors.

Pioneer's initial effort in this field—one that may justly be called the first high-quality rear-projection set—was introduced early in 1986. The company's SD-P40 40-inch rear-projection monitor derived much of its startling clarity and brightness from new techniques employed in the optical portion of its design.

Rear-projection sets like the SD-P40 differ from conventional direct-view televisions in two important ways. The first is obvious: In a rear-projection set, the image is formed on the back of a large transparent screen through an arrangement of lenses and mirrors. The second difference is less self-evident: A projection set has three separate picture tubes, one for each primary color used in video (red, green, and blue). Despite the attendant alignment and cost problems, the use of separate tubes is the only way that high picture brightness can be obtained using projection. Each tube's light-emitting phosphors are chosen independently for efficiency (as well as for color accuracy, one hopes), and each tube is driven *hard*. The amount of heat generated by recent projection-set tubes requires that the tubes be liquid-cooled, usually by a transparent-liquid heat sink through which the tube's light must pass. One of the innovations of Pioneer's SD-P40 was its use of a combination lens/cooling-system that significantly reduced the amount of light lost through the cooling devices and increased picture brightness.

Besides incorporating an improved version of the optical system used in the SD-P40, Pioneer's newer 50-inch SD-P501 contains further significant advances in monitor electronics. It has three circuits designed to improve apparent picture quality by deliberate, yet subtle, "distortions" of the image.

The first circuit, *black-level compensation*, is the video equivalent of an audio "downward expander." The process takes the darkest part of an image (that is, the lowest luminance level) and makes it darker. This increases the apparent contrast by eliminating gray-looking black areas. So as not to produce any visually undesirable side

effects, the image-brightness expansion threshold varies according to the overall brightness content of the picture.

The second circuit, *contour compensation*, can be likened to an audio peak expander: Its purpose is to subtly emphasize edges within an image. The eye perceives an edge whenever it encounters sudden changes of brightness within an image. In the words of an engineering white paper, contour compensation adds "a sharply peaked preshoot and overshoot to the rise and fall of the luminance signal, thus producing a bright, clear picture with sharp contours." In accordance with the difference in luminance levels before and after the rise (or fall), Pioneer's contour-compensation circuit modifies the under- and overshoots as well as the rate of transition between levels. This provides a useful degree of added crispness while producing smooth waveform transitions at points of low contrast (and thereby not introducing artificial edges). Unlike other contour-enhancing schemes, the new system allows for separate adjustment of the sets' detail and edge-enhancing controls; in that way, noise is not increased along with apparent picture sharpness.

*Dynamic gamma compensation*, the third and last circuit, is analogous to an audio dynamic-compressor circuit. It limits excessively high video signals that, if passed directly to the picture tubes, would result in "blooming," a blurring of the edges of the most intense picture highlights. Additionally, it increases the picture's average luminance level without obliterating small differences in brightness regions.

The SD-P501 also incorporates measures to prevent subtle forms of picture-dependent distortion. For example, the high-voltage power supply used to charge the picture tubes and to power the electron-beam-deflection circuits is very tightly regulated. This stabilization—and other measures taken in the horizontal-deflection circuits—prevent sudden changes of luminance level from warping the picture. (An extreme example would be the distortion of a background grid pattern by a bright white object.)

It's fascinating to see how these developments are handled in the SD-P501's data sheets. I've listed here what I consider some of the most innovative features of the unit's design as covered in the engineering white paper. The single most important aspect of the unit is that it includes all these features—and yet the first thing the color data sheet covers is the 501's "horizontal resolution of an incredible 600 lines." Again, we see this fixation on resolution, which ignores the fact that no home-video source—in-use or proposed—is capable of even approaching that figure (for further discussion of this topic, see "Across the Lines," p. 55). Despite the public's increased awareness of high fidelity video, we still have a long way to go. ■

# DYNAMIC RELATIONSHIP.

The remarkable FM sensitivity of NAD's new Monitor Series tuner is the perfect match for the exceptional dynamic power of our new Monitor Series amplifier.



In analyzing our new Monitor Series tuner and amplifier, it's easy to focus on specifications. For example, the 4300 tuner's real world FM sensitivity rating is unequalled and the 3300 amp can produce over 300 watts per channel of dynamic power.

But what makes them outstanding products can't be isolated to one or two specifications. What makes them a great combination . . . is a combination of a lot of things. They blend power and sensitivity. They mix the latest in state-of-the-art technology with proven ideas we've used for years. They combine major performance breakthroughs with subtle, yet highly useful, design features.

They are the result of a thousand thoughtful, careful and (we think) correct design decisions. For example . . .

- NAD's proprietary FM NR system in the 4300 tuner reduces noise in weak stereo signals by as much as 10dB (improving its sensitivity rating for 50dB stereo quieting to an astonishing 9µV at 300Ω). It is, arguably, the world's most sensitive tuner.
- The 4300 uses a switchable IF circuit that allows you to choose between "full window" or "narrow window" tuning. The FCC assigns each station a 200kHz-wide "window" on the FM band. But in areas with numerous FM stations, small portions of the broadcast signal of one station will sometimes drift into another station's assigned "window." The 4300 lets you "zoom in" on the central portion of the 200kHz window for any specific station, eliminating annoying interference from adjacent broadcasters.
- Tuning the 4300 combines the accuracy of digital technology with the convenience of a traditional analog knob. We find that most people much prefer spinning a heavy flywheel to holding down a little button.
- The 3300 integrated amplifier uses NAD's innovative "Power Envelope" technology to produce +6dB of dynamic headroom. Conservatively rated at 60 watts per channel, the 3300 produces 300 to 400 watts per channel (depending on speaker impedance) of usable, real world music power.
- Every circuit in the control section of the 3300 is designed with very high headroom and extremely low noise to handle any signal source. Its total dynamic range, measured with respect to the output of a CD player, exceeds 110dB.
- We chose professional quality, semi-parametric tone controls for the 3300. They provide genuinely useful corrections, without veiling or coloration.

In short, what makes the 3300 and 4300 special . . . is a long story. If you'd like to read it, write for our Monitor Series brochure. Or visit your authorized NAD dealer—and hear the result of a thousand design decisions, correctly made.



NAD 5300 Compact Disc Player  
NAD 6300 Cassette Deck  
NAD 4300 Stereo Tuner  
NAD 3300 Integrated Amplifier

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For more information send this coupon to NAD (USA) INC. 1575 UNIVERSITY AVENUE | NORWOOD, MASS. 02062

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Now you can take the dynamics of digital performance anywhere. With TDK HX-S. It captures the purity and nuances of digital sound like no other high-bias audio cassette.

Specifically designed to record digitally-sourced materials, HX-S offers four times the magnetic storage capability of other high-bias cassettes available today. Plus unmatched high frequency MOL (Maximum Output Level) for optimum performance.

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TDK HX-S. One small step for digital. One giant leap for music-kind.

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## A Gift to the Future

By Robert Long

**T**he holiday season, when families often gather together, is the time to think about oral history. I realize that there's so much going on that you may forget to sit down in front of a tape recorder (either audio or video) until it's too late. Don't. Once a family member is gone, it's *really* too late—even if he's only moved too far away for you to get down the family anecdotes that all of you would like to remember.

For example, take my father, who taught flying during the First World War. When he wasn't actually teaching, the Signal Corps (it wasn't yet the Air Force) would send him out barnstorming as a way of recruiting new pilots. Only in the 1960s, after he'd had a stroke that impaired his speech, did I realize how little I knew of his flying days. Fortunately, he considered telling stories into the microphone a form of therapy (which I'm sure it was), and the family gained a document we now treasure. We only wish we could have recorded more.

Then there are the cute things kids say. My son still squirms in embarrassment at mention of the interview I did with him when he was a tot madly smitten by Annette Funicello, then of *Mickey Mouse Club* fame. My wife and I prize that tape, and chances are he will, too—eventually. But I wouldn't dream of playing this one for anybody but family, and I certainly wouldn't want to listen to anything comparable that *wasn't* family—who says all heirlooms have to be put on public display?

Probably the best time for taping is after a good meal, while the family is still sitting around the table. You don't need elaborate equipment. For audio, in fact, a strong case can be made for inexpensive portable decks with built-in mikes and automatic level controls. If you're riding gain manually, you can't participate easily, and you're likely to get so caught up in what's going on that you forget to keep tabs on the levels anyway.

The weakest link in the portables is likely to be the microphones. Basic frequency response is usually broad enough (particularly with electret condenser mikes) and smooth enough for speech, and it's even fair for music. But it's sometimes hard to get good placement with built-in mikes. For one thing, an acoustic comb filter can be formed by interference between the direct sound and that reflected off the surface on which you set the recorder, coloring the sound. Obviously, a bare wood table is much more problematic in this respect than one with a heavy padding under a tablecloth.

The smallest cassette portables can often be placed so that the mike is virtually at the table surface, thus keeping any interference effects at or beyond the top of the audio spectrum. The usual problem with setting any mike directly on the table is that it picks up too much mechanical noise—even that from a gentle finger tap. The obvious solution is proper mike stands, preferably with shock

suspensions. I don't think that's the way to go, however, because the quasiprofessional clutter and the setup time tend to intimidate many potential subjects.

I prefer a small pillow (the flatter the better) as a shock absorber. It keeps the mike low, near the table surface, while absorbing table reflections. For stereo, I've used two separate cardioid mikes back to back at the center of the table, each pointing toward an end of the table. There could be a slight phasiness or coloration in voices coming from the center of the table sides—that is, nearest to and equidistant from the microphones—but family pecking orders usually put those you most want to record at the table ends anyway. And when a whole gang is present, stereo sure helps you sort out who's talking and even lets you understand what's being said when everyone talks at once.

If you're recording using a stereo boom box, you may be able to apply what I've just said by using separate, plug-in mikes to override those that are built-in. If your model won't accept plug-ins, you'll have to decide which way to face the built-in ones. Suspending a boom box facedown from the ceiling above the table is sonically effective but usually impractical. Unless the table is awfully crowded, you can move everybody over to one side and set the recorder opposite them. Again, a pad under the recorder should help.

Some subjects bloom much more fully when speaking one-on-one. In this case, use stereo (if you have it) to keep interviewer and interviewee separate—unless you encounter a *real* talker who needs no prompting. Either way, I prefer lavalier mikes (which can be quite inexpensive) for this sort of thing because they stay close to the talker without being particularly obtrusive. That way, you can retain a better sense of natural conversation. But the cables can be a nuisance (unless you're willing to spring for cordless models), and if carelessly placed, lavaliers can pick up horrendous noise when brushing against clothing. You'd have to monitor on headphones (and forget that conversational feel) to spot the noise before it's too late.

Since these recordings are, in some senses, priceless, don't be cheap: Use a fresh tape for each new interviewee. For general listening and distribution to other family members, use copies of the original. If you're not sure what kind of deck another family member has, don't use noise reduction in the copy, even if there is music on the tape. And if you're recording on cassette and your deck can handle it, use metal tape for your original master. Not only will it give you good dynamic range, but it is less subject than other tape types to erasure by stray magnetic fields and less subject to print-through in long-term storage. In any case, label the cassette and break off its erase-protection tabs *as soon as you're done*. ■



**'We didn't design our speaker with only one bass response, because we didn't design your listening room!'**

—Ric Ceccoli, KEF SENIOR DEVELOPMENT ENGINEER

#### ONE STEP IN THE MAKING OF A KEF

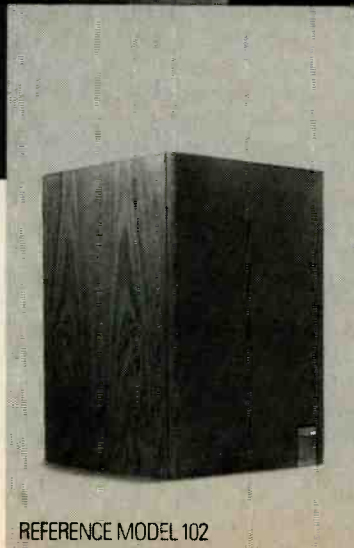
All loudspeaker designers make assumptions about amplifier power, room location, and desired bass extension. Unfortunately, these assumptions can never hold true in all cases. And whenever the assumptions are wrong, so is the sound.

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device: the KEF User-adjustable Bass Equaliser or "KUBE." For the first time, you can tailor bass rolloff frequency and contour to match your listening conditions perfectly.

'With our KUBE-equipped speakers, you can do more than simply hope for the best. You can be assured of it.'

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REFERENCE MODEL 102



*The Speaker Engineers*



Report preparation supervised by Michael Riggs, David Ranada, Christopher J. Esse, Robert Long, and Edward J. Foster. Laboratory data (unless otherwise indicated) is supplied by Diversified Science Laboratories.

# Test Reports

**S**ony, a co-inventor of the Compact Disc medium, was among the very first companies to offer a CD player. Since then, the company has remained in the digital vanguard in both the variety and the quantity of its CD products. The suffix of this model fixes its position within that spectrum: The *ES* proclaims it as part of Sony's premi-

um, limited-production *ES* Series, while the *D* denotes that it is fitted with a digital data output. Obviously, Sony is preparing for the day—which may be nearer at hand than you imagine—when fully digital preamplifiers and signal processors will accept the digital bit stream from such an output. They will do their jobs by mathematical calculation, without introducing the noise and distortion that normally accompanies signals processed in analog form.

and the main power switch is a timer-mode selector that you can use in conjunction with a separate timer to wake up either to playback from the start of the disc or to a track sequence randomly selected by the machine itself ("shuffle play," as Sony calls it).

Just below the disc drawer are buttons that control the repeat functions

## Sony CDP-505ESD Compact Disc Player



um, limited-production *ES* Series, while the *D* denotes that it is fitted with a digital data output. Obviously, Sony is preparing for the day—which may be nearer at hand than you imagine—when fully digital preamplifiers and signal processors will accept the digital bit stream from such an output. They will do their jobs by mathematical calculation, without introducing the noise and distortion that normally accompanies signals processed in analog form.

One of the three gold-plated pin jacks on the back panel is the digital output, with an on/off switch nearby. The other jacks deliver a standard line-level analog output. The front-panel level control, exclusively for the headphone jack, is at the lower-left corner of the panel. Between it

and display modes. The first repeat button sequences through repeat of the current track, repeat of the entire disc, and no repeat. If you're playing a programmed sequence, it will only repeat the full sequence when pressed; if you're repeating between cues that you have set with the second repeat button, it cancels the function. The display button's action is similarly responsive to the current operating mode. If you're playing a disc normally, it switches between current track (and index) and elapsed time within the track, current track and the time remaining within the track, and the number of tracks and the time remaining on the disc. During programmed play, the first two steps are the same, the third shows tracks and time remaining in the

**Dimensions:** 17 by 3 $\frac{3}{4}$  inches (front), 13 inches deep plus clearance for connections.

**Price:** \$600.

**Warranty:** "Limited," three years parts and labor.

**Manufacturer:** Sony Corp., Japan.

**U.S. Distributor:** Sony Corporation of America, Sony Dr., Park Ridge, N.J. 07656.

# What happens when studio recording engineers also design home tape recorders.

What qualifies a company to build audiophile cassette decks? Try seven decades of intimate knowledge in every aspect of the recording process. Creating award-winning blank tape. Recording award-winning classical and jazz releases. Building transcription-quality open-reel recorders, multi-track



THE SAME EARS THAT GUIDE DENON RECORDING SESSIONS ALSO EVALUATE THE SOUND OF DENON HOME COMPONENTS.

decks for studio work, and finally the world's first digital recorder good enough for commercial record production.

Only one company has all these qualifications. That company is Denon.

Consider Denon's DR-M30HX Cassette Deck. This machine's professional heritage is evident in the three-motor drive system for flawless tape movement, the high-overload heads with oxygen-free copper



A CASSETTE DECK IS ONLY ONE HALF OF THE RECORDING SYSTEM. HERE'S THE OTHER.

coils for the barest minimum noise, and the wideband DC playback amplifier for ruler-flat

response. Even the power supply has separate windings for the audio circuits—for absolute minimum distortion.

Although not highly publicized, the control of supply reel back tension can be a cassette deck's Achilles' Heel. Over time, the typical friction clutch can wear down, disturbing tape-to-head contact and degrading high frequency response. That's why Denon borrowed the

## "Top Class"

Germany's Stereo Magazine on the DR-M30HX

Under test, its metal tape overload (MOL) margin is incredibly high, at +6db being as good as the best Nakamichi's! This is without excessive bias either. Overload margins on chrome and ferric tape were high too, so the benefit is a general one. If not being quite so marked with ferric tape, (NCR Primary Reference Standard tape). This new +2db headroom advantage over other decent advantage with metal and chrome tapes so recordings can be taken up to a higher level (+8 on the indicators), so making hiss less noticeable.

cult types of music on the Denon DR-M30HX. You'll hear steady, unwavering pitch on sustained piano chords. And you hear cymbals and harpsichords with all their distinctive overtones.

You might expect audio components of this caliber to come with high-caliber price tags. Yet Denon cassette decks



THE DENON DR-M30HX. THREE MOTORS, THREE HEADS, DOLBY B, C, AND HX PRO DON'T BEGIN TO TELL THE STORY.

open-reel concept of Non-Slip Reel Drive—servo-controlled back-tension that will not degrade over time.

Denon incorporates such studio technology for one purpose only: its direct effect on sound quality. The proof is in the listening. Record the most diffi-

## "Best Buy"

Britain's Hi-Fi Choice on the DR-M20

start at less than \$250.\* So for the price of far lesser audio components, you can do what studio engineers all over the world do. Record on a Denon.

# DENON

DESIGN INTEGRITY

\*Suggested retail price. Clipping reprinted with permission from Hi-Fi Review, November/December, 1986 issue.

sequence, and the fourth displays the numbers of the next two tracks in the sequence.

The display itself also has a "calendar" display of as many as 20 tracks that lights only the numbers available on the current disc or, once you've begun programming, those that have been selected for the sequence. Unless you're in the repeat mode, each track number vanishes once that track has been played. Interspersed with the time and track figures are discrete but explicit indicators for the various modes and functions—repeat, pause, and so on. All of the transport controls are directly below the display. In addition to the usual bidirectional scan (cue) and seek (skip) buttons, a third pair of buttons advances or retreats by index number, in case you have discs with indexing.

At the right end of the panel are the programming keypad and selectors for autospacing (which adds about three seconds of extra "breathing room" between tracks), shuffle play (which can be combined with REPEAT for endless random playback), and the programming function itself. The keypad duplicates the numbers (1–20) of the calendar display and adds keys for +10 and 0 so you can access tracks with higher numbers.

All of the controls, with the exception of the power on/off switch and the drawer control, are duplicated on the supplied RM-D350A wireless remote, which runs on a pair of AA cells. Like the player itself, the remote's styling is businesslike and relatively low-key, creating a look of uncluttered elegance despite the number of player functions it commands. We found both the front-panel and handset controls very easy to use, even though an English-language manual was not available to all of our testers. If that's the ultimate test of a control scheme, the Sony passed it admirably. Programmed playback of contiguous tracks also is seamless—a rare ability among earlier players but increasingly commonplace today.

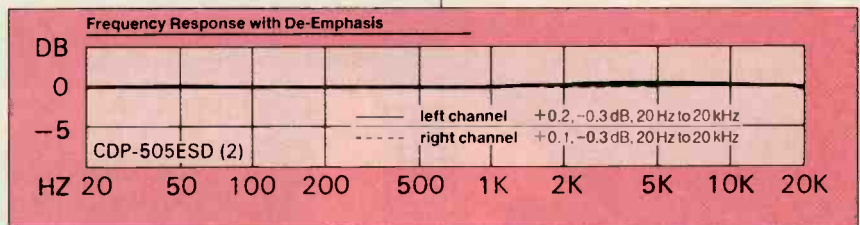
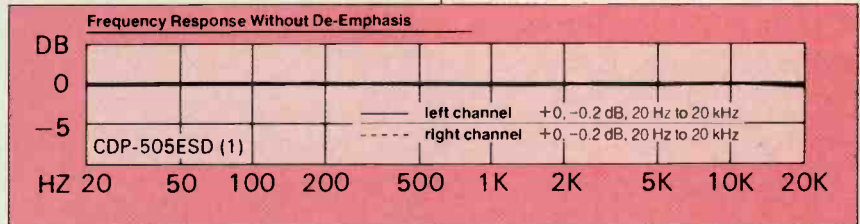
The 505 did equally well in DSL's lab tests. The decoder employs four-times oversampling and digital filtering. As a result, the well-controlled ultrasonic ringing visible in the square-wave and pulse traces is symmetrical. In other words, the transients cause as much ringing before they occur as after, confounding cause and effect as they exist in the analog domain. The pulse is positive, indicating correct polarity (absolute phase)—a desideratum whose audibility is a subject of debate. Not all Compact Disc players are so fastidious. Incidentally, Sony uses separate digital-to-analog conversion in each channel to pre-

vent interchannel phase differences.

Response is exceedingly flat. Without de-emphasis, the only discernible departure from perfection is a slight rolloff at the top end, no doubt attributable to the relatively gentle analog filtering that backs up the "brick wall" digital filter. With de-emphasis, there's also an even smaller rise in the region around 5 kHz.

Sony has adopted several measures to ensure the reliability of tracking and data recovery. The one-piece, vibration-

All data were obtained using the Sony YEDS-7, Technics SH-CD001, Philips 410 055-2, and Philips 410 056-2 test discs.

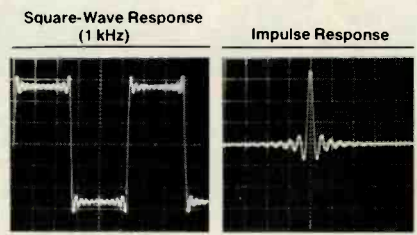


resistant, injection-molded monocoque chassis additionally incorporates isolation feet to damp mechanical vibrations. To prevent mistracking, the pickup servo freezes when it loses its RF tracking signal, and an Error Prediction Logic circuit is said to further minimize data errors. As a result, we weren't surprised that the 505 passed every lab test for data recovery with flying colors and proved less susceptible to mechanical shock than most players we have tested.

Noise and distortion measurements are all above reproach: Better measurements, where we have found them, don't imply audibly superior performance. The only specific that raises a question of audibility is the seeming compression of very low signal levels, which shows up in the linearity figures and is greater than we usually encounter. However, no audible oddities attributable to this phenomenon showed up in our listening tests.

In fact, in-use experience proves that the 505 merits a superior rating, both sonically and functionally. Add to this that it is the least expensive CD player in Sony's ES Series, and it's clear that the 505 is a player to be reckoned with. Granted, it's not a budget model, but we know of no budget model that comes even close to its capabilities and elegance of design—let alone its purity of sonic output. And then there's the promise of that digital output . . .

Channel Separation (at 1 kHz)	113 3/4 dB
Channel Balance (at 1 kHz)	± < 0.1 dB
<b>S/N Ratio (re 0 dB; A-weighted)</b>	
without de-emphasis	101 1/4 dB
with de-emphasis	101 1/4 dB
<b>Harmonic Distortion (THD+N; 40 Hz to 20 kHz)</b>	
at 0 dB	< 0.01%
at -24 dB	≤ 0.026%
<b>IM Distortion (70-Hz difference; 300 Hz to 20 kHz)</b>	
0 to -10 dB	< 0.01%
at -20 dB	0.013%
at -30 dB	0.028%
<b>Linearity (at 1 kHz)</b>	
0 to -60 dB	no measurable error
at -70 dB	+0.3 dB
at -80 dB	+1.8 dB
at -90 dB	+6.3 dB
<b>Tracking &amp; Error Correction</b>	
maximum signal-layer gap	> 900 μm
maximum surface obstruction	> 800 μm
simulated-fingerprint test	pass
<b>Maximum Output Level</b>	
line output	2.16 volts
headphone output	1.18 volts
<b>Output Impedance</b>	
line output	1,600 ohms
headphone output	100 ohms



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Buffalo, New York 14240  
(416) 297-0595

## Onkyo TX-84M AM/FM Audio- Video Receiver

Onkyo's TX-84 receiver comes in two versions. With the M suffix, as reviewed here, it includes the RC-AV1M "universal" wireless remote control, which comes preset to operate Onkyo's audio equipment but can be programmed to operate a TV set, VCR, cable converter, or other remote-controllable gear as well. It can also be reprogrammed for use with audio components made by other companies. For a list price of \$90 less, however, you can buy the same receiver with a dedicated remote control—that is, a nonprogrammable handset designed specifically for the TX-84 and certain other Onkyo components.

We actually had a few months' head start working with the programmable RC-AV1M (which Onkyo calls the Unifier) before the receiver arrived. It's worth considering all by itself (at \$120), even if you don't need the receiver. If your system already requires at least two remote controls, replacing them with the RC-AV1M will make life a lot simpler.

The RC-AV1M has 35 control buttons plus a three-way switch, with each position supplying a separate 35-slot command memory. Adding up all three memories yields a total of 105 commands that can be programmed. In theory, the only thing you have to worry about is the possibility that two of your components will respond to the same infrared code. But in the months we've been using this control, that never happened. In fact, our only problem came from a non-Onkyo unit whose remote required two buttons to be pressed simultaneously for certain functions. The RC-AV1M successfully learned some, but not all, of these codes.

The RC-AV1M's three programmable memory banks are electronically equivalent (as are the individual buttons), but nevertheless are marked AUDIO, VIDEO, and AUX as an aid to the programmer. Also useful are different button labels for the audio and video banks. The audio options include volume, tuning, manual preset scan, and source selectors for a receiver like the TX-84. In addition, there are labeled buttons for phono reject and all basic tape functions (even power on/off) and CD functions. The video bank handles TV tuning, VCR functions, and cable options, while the aux bank is for anything else. The audio setting actually has access to a fourth memory bank, the one preprogrammed with Onkyo's standard codes. If you use the programmable audio memory and then buy Onkyo gear, you can revert to the permanent memory's Onkyo codes. Onkyo supplies a

blank write-on faceplate cover so you can make notes of your latest programings and use it as a pop-on crib sheet until you learn which buttons to press. (Computerniks will recognize this as an adaptation of the preprinted keyboard overlays available to help you learn word-processing or spreadsheet controls.) The RC-AV1M requires four AAA cells (alkaline only, for some reason); the dedicated remote for the TX-84 requires only two.

The basic configuration of the receiver itself is fairly standard, though not the



way Onkyo has implemented it. Audio functions come complete with FM and AM tuning, while video functions include switching for composite video signals and their associated audio. There is no TV tuner. The back panel has video plus stereo-audio inputs for VCR 1 or VDP (videodisc player), video and stereo-audio (switchable at the jacks for mono) inputs and outputs for VCR 2, and a video-monitor output. Dubbing is possible from VCR 1 to VCR 2.

There are also connections for two audio decks: Tape 1 and Tape 2. Again, you can dub only from Tape 1 to Tape 2, but because the switching is handled by electrical logic, rather than directly by the front-panel selectors, operation is a trifle counterintuitive, albeit cleverly managed. For example, after selecting Tape 1 to receive a signal, you can proceed with the dubbing. However, if you

**Dimensions:** 17¼ by 4½ inches (front), 12½ inches deep plus clearance for controls and connections.

**AC Convenience Outlets:** One switched, one unswitched (100 watts max. each.).

**Price:** \$530.

**Warranty:** "Limited," two years parts and labor.

**Manufacturer:** Onkyo Corp., Japan.

**U.S. Distributor:** Onkyo U.S.A. Corp., 200 Williams Dr., Ramsey, N.J. 07446.

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# ARMY RESERVE

want to monitor from the playback head of Tape 2, you press the Tape 2 button. Instead of selecting it as the new source, as you would expect with a conventional system, Tape 2 keeps the dub going but switches only the monitoring. Comparison of tape and source must then be via the Tape 2 deck's monitoring switch; if you press the Tape 1 selector again, it cuts the source feed to both Tape 2 and the monitor.

Otherwise, operation of the selectors, which also include phono and CD, is quite straightforward. They are arrayed across the bottom of the front panel. Just to their left is the power switch, which must be left on if you want the handset to control power. Higher up at the extreme left are the headphone jack and on/off switches for two pairs of speakers. Above the right end of the selector array are the tuning controls, including eight preset buttons that store a total of 16 station frequencies in any mix of AM and FM. A mode button chooses between manual tuning (by full channels on either band—0.2 MHz on FM, 10 kHz on AM) and bidirectional automatic-scan tuning.

The right end of the front panel has treble, bass, balance, and volume controls, as well as switches for a simulated stereo function and FM mono (which also increases sensitivity of the tuning scan and muting thresholds). Filling the remainder of this portion of the panel are on/off switches and adjustment sliders for three of the receiver's most interesting functions: the Dynamic Bass Expander, the Selective Tone Control, and the Stereo Image Expander. (We'll come back to these shortly.) One remaining control appears on the remotes only: MUTING, which reduces output by 19.5 dB as measured by Diversified Science Laboratories.

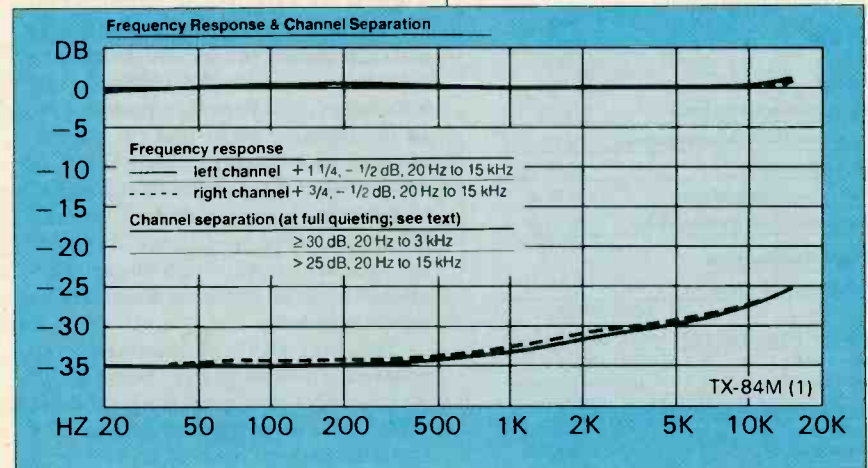
The display panel is more elaborate than most. It shows tuner signal strength in four steps with respective thresholds of 18, 24½, 38, and 44 dBf—good choices, though more steps would be appreciated by anyone trying to orient an antenna rotator. Aside from the tuned frequency and various function indicators (selected preset, tuning mode, and the like), the rest of the panel is dominated by indicators for the APR (Automatic Precision Reception) system, Onkyo's method of tailoring tuner parameters to current reception conditions.

Antenna connections on the back panel are standard lightweight binding posts, requiring a balun transformer if you use 75-ohm coaxial downlead or cable for FM. (An illustration in the owner's manual seems to indicate that the in-

ternational model, not available in the U.S., has the preferable 75-ohm F connector for the FM antenna.) A supplied AM loop antenna mounts near the binding posts. Connectors for the speaker leads are spring clips. Three sockets on the back panel are used to relay control signals from either remote to a tape deck, a CD player, and a turntable. The instructions list several Onkyo models in each category appropriate for these connections.

The manual itself is fairly good, but it

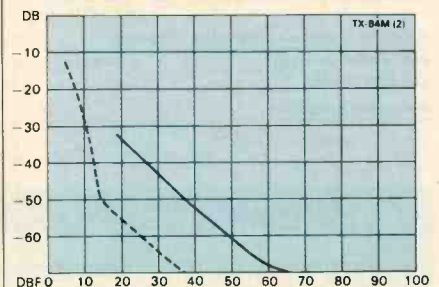
## FM Tuner Section



could profit from a technical section that explains more fully what is going on in such a complex product. For example, it doesn't tell you the significance of the various pilot lights in the tuner's APR readout, leaving you to figure them out. "Noise reduction" appears to be some sort of dynamic noise filter that comes on only for very weak stations (23 dBf or less). Reception at that stage is usually so poor that any amelioration in sound quality is virtually unnoticeable—even with the signal strength at the "noise reduction" threshold and the indicator flicking on and off. "Hi-Blend" is much more noticeable and has the usual effect of trading away some high-frequency separation (shrinking it to about 18 dB at 1 kHz) to reduce hiss on stereo stations whose signal strength is below 43½ dBf. The tuner automatically switches from blended stereo to mono when the signal drops below 17½ dBf. "RF Mode," which switches from DX (distant) to local when signal strength rises above 70 dBf, presumably acts as an RF attenuator to prevent front-end overload.

APR is reasonably effective overall, making the tuner sound somewhat better than the basically good measurements suggest. But when a station's signal strength vacillates around 43 dBf, toggling the hiss on and off with the blend function, we would prefer a progressive

## Sensitivity & Quieting



— stereo quieting (noise)	
- - - mono quieting (noise)	
<b>Stereo sensitivity (for 50-dB noise suppression)</b>	
37 1/4 dBf at 98 MHz, with 0.64% THD + N	
(37 1/4 dBf at 90 MHz; 37 dBf at 106 MHz)	
<b>Mono sensitivity (for 50-dB noise suppression)</b>	
14 3/4 dBf at 98 MHz	
<b>Muting threshold</b>	17 1/2 dBf
<b>Stereo threshold</b>	17 1/2 dBf
<b>Stereo S/N ratio (at 65 dBf)</b>	69 1/2 dB
<b>Mono S/N ratio (at 65 dBf)</b>	74 1/4 dB
<b>Capture Ratio</b>	1.0 dB
<b>Selectivity</b>	
alternate-channel	53 1/4 dB
adjacent-channel	2 dB

## Harmonic Distortion (THD+N)

	stereo	mono
at 100 Hz	0.56%	0.52%
at 1 kHz	0.32%	0.36%
at 6 kHz	0.40%	0.24%
Stereo Pilot Intermodulation	0.25%	
Intermodulation Distortion (mono)	0.22%	
AM Suppression	62 1/4 dB	
Pilot (19 kHz) Suppression	83 1/4 dB	
Subcarrier (38 kHz) Suppression	69 3/4 dB	

## Amplifier Section

### Rated Power (8 ohms)

17.8 dBW (60 watts)/channel

### Output at Clipping (at 1 kHz; both channels driven)

8-ohm load	18.4 dBW (69 watts)/channel
4-ohm load	20.0 dBW (100 watts)/channel

### Dynamic Power (at 1 kHz)

8-ohm load	19.1 dBW
4-ohm load	20.7 dBW
2-ohm load	21.5 dBW

### Dynamic Headroom (re rated power; 8-ohm load)

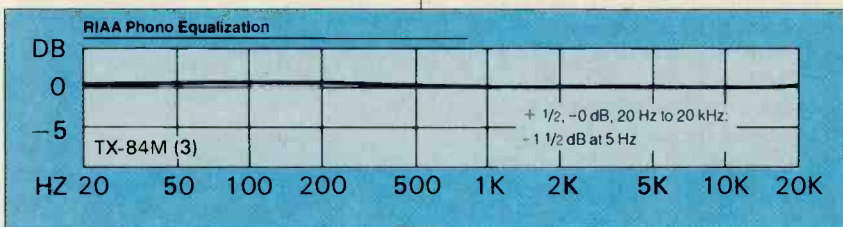
+1.3 dB

### Harmonic Distortion (THD; 20 Hz to 20 kHz)

at 17.8 dBW (60 watts)	≤ 0.044%
at 0 dBW (1 watt)	≤ 0.025%

### Frequency Response

± 1/4 dB, < 10 Hz to 66.5 kHz  
+ 1/4, -3 dB, < 10 Hz to 182 kHz



### Sensitivity & Noise (re 0 dBW; A-weighting)

	sensitivity	S/N ratio
aux input	19.4 mV	77 1/2 dB
phono input	0.36 mV	73 dB
Phono Overload (1-kHz clipping)	140 mV	

### Input Impedance

aux input	41k ohms
phono input	46k ohms, 60 pF

### Output Impedance (to tape)

from aux input	2,600 ohms
from tuner section	5,200 ohms
from phono input	4,300 ohms

### Damping Factor (at 50 Hz; re 8 ohms)

80

### Channel Separation (at 1 kHz)

56 1/4 dB

automatic blend of less ostentatious operation. Fortunately, such a station is too weak to be a likely candidate for regular listening. Otherwise, the section can't be faulted, and can be praised in at least one respect—the 1-dB capture ratio, which is noticeably better than we normally expect in this class of equipment.

Phono response is unusually flat, with no significant rolloff toward either extreme of the frequency range and only a mild upward shelving (to about +1/2 dB) in the lower midrange and bass. There is no warp-taming infrasonic filter, either fixed or switchable, so your cartridge should be carefully matched to your tonearm to avoid problems in this area. Input capacitance is unusually low. In the unlikely event that the capacitance of your tonearm wiring is just as low and your fixed-coil cartridge so finicky that the highs are affected, you can always add more capacitance. The phono input also accepts high-output moving-coil pickups, which are unaffected by input capacitance.

The tone controls are reasonably well behaved. The bass shelves below about 50 Hz, with a maximum range of about +14 1/2, -12 dB at the ±10 settings. The treble has maxima of about ±12 dB at 20 kHz and appears to either peak or shelf above that frequency. Neither control has much influence on signals on the far side of 1 kHz from its controlled band, which is as it should be.

The Selective Tone Control (STC) is the nearest thing to loudness compensation available in the TX-84. Unlike a

typical loudness curve, the bass boost it introduces has a relatively narrow peak—one to about +11 dB (with respect to the midrange) at 35 Hz at its median setting and, more sharply, to +16 dB at 50 Hz at the maximum setting. By rolling response off at frequencies below the peak, Onkyo avoids the potential for infrasonic overload that you might have with a more typical compensation. The median setting also introduces a slight (about 2-dB), broad rise in the treble, while the maximum setting adds 8 dB at just below 20 kHz. The most important aspect of the STC design, however, is the slider that lets you set the degree of adjustment independent of the volume set-

ting. Because of differences in room size and speaker sensitivity, this is, in theory, the way all loudness compensation (under whatever name) should work.

At first glance, the Dynamic Bass Expander (DBE) seems to work against the effect of the loudness compensation (sorry—STC), because the DBE adds bass at high volume levels. The DBE, however, does its job on the basis of instantaneous signal strength, rather than overall listening level. It is intended to add strength and solidity to climaxes—undoing, for example, the effect of limiters that compress the bass (in the vertical, out-of-phase direction, at minimum) in the cutting of most LPs. As such, it is effective as long as you don't give in to the temptation to overdo it.

The Stereo Image Expander (SIE) feeds adjustable amounts of each channel, out of phase, into the other. Like most such features, it adds a sense of space, but at noticeable expense in the specificity of the stereo imaging. We suspect it will find wider, more enthusiastic acceptance in listening to pop and rock than to classical or folk music. The stereo-simulator switch, which offers only on and off positions, also is fairly typical of its genre. It introduces an interchannel phase difference that varies from very small at the lowest frequencies to about 180 degrees at the highest. Its application, like that of the SIE, is strictly a matter of taste.

As the lab tests show, the amplifier section continues to add power as load impedance drops, confirming Onkyo's design aim of handling low impedances with equanimity. Dynamic headroom is fairly generous as well, delivering considerably more power on music signals than the receiver's moderate continuous rating (60 watts, or 17.8 dBW, per channel) suggests. The 2-ohm dynamic output is, in fact, equivalent to 140 watts. At both test levels, harmonic distortion is below our 0.01-percent reporting threshold right up to 10 kHz—where harmonics are all at 20 kHz or above, making it moot whether even this distortion has any meaning.

All in all, Onkyo has managed to turn an accepted format into an unusual and individual product that is both capable and intriguing. Even ignoring some of its special features (about which there is admittedly room for debate, particularly among audiophiles who categorically mistrust signal processors), the basic listening quality and ergonomics of the TX-84M's design make it an attractive value as the heart of a performance-oriented audio-video system. ■

(Continued on page 34)



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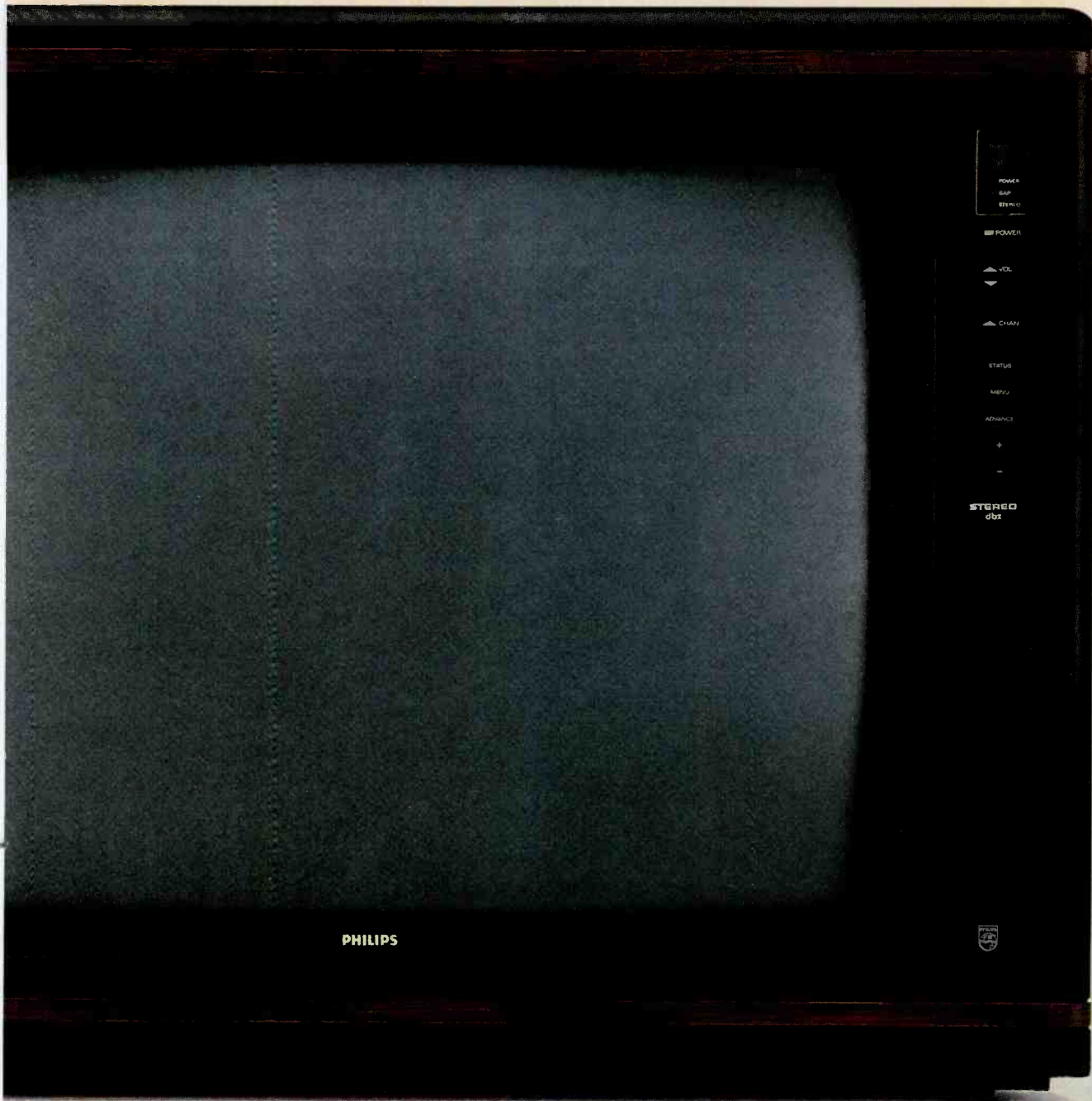
*The first reviews for the CD 960 compact disc player (top) are in, and the verdict is unanimous: This is the new "CD reference standard." The FA 960 integrated amplifier (bottom) brings out the true potential of the CD sound—with 100 watts per channel at 8 ohms ( $D \leq 0.03\%$ ). Its CD Direct mode eliminates every avoidable source of noise and distortion.*

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**PHILIPS**

## Allison IC-20 Loudspeaker



**Dimensions:** 21 by 48 inches (front), 12 inches deep.

**Price:** \$4,900 per pair.

**Warranty:** "Limited," five years parts and labor.

**Manufacturer:** Allison Acoustics, Inc., 7 Tech Circle, Natick, Mass. 01760.

In many ways, the Allison IC-20 is extraordinary. As the company's top speaker, it has the most drivers, the biggest cabinet, the most complex crossover—and the highest price. Most unusual, however, is that the Allison IC-20 puts this normally conservative company among other Boston-area speaker manufacturers who have experimented with radical alterations of the speaker radiation pattern to enhance the listening experience. To quote the extremely well-written and informative manual, the

seated listener. The two tweeters on one panel form what is called a line array. Such an arrangement uses interference effects to slightly decrease upward and downward radiation and thus reduce floor and ceiling reflections. The same holds for the two midrange units on each panel, located above and below the tweeter array. In this case, the longer wavelengths handled by the midrange drivers permit their vertical spacing to be wider than that of the tweeters and yet still achieve the line-array effect. The tweeters themselves are Allison's familiar and successful 1-inch convex-diaphragm units incorporating silicone damping and cooling material. The midrange drivers are 3½-inch convex-diaphragm models with ferrofluid cooling and damping. Crossover from midrange drivers to tweeters occurs at 3,750 Hz.

Each panel is driven separately to obtain the "image control" that gives the IC-20 its initials. Using the remote handset, you can cycle through the three settings: left-panel output favored, right-panel output favored, or both panels full on. The corresponding radiation patterns are left-directed, right-directed, or hemispherical. In all cases, the total output remains constant. The enclosures are not labeled left and right. Instead, you can assign each using a switch on the back of the enclosure. This ensures that the two enclosures will react identically to each press of the remote control, switching the entire system through the three settings: center-directed ("focus mode," as Allison calls it), forward-directed ("intermediate mode"), and outward-directed ("expansion mode"). Two red LEDs on the center post of each enclosure indicate which panels are selected (the middle "LED" is actually the remote-control sensor).

The switching mechanism is powered by a small transformer that also plugs into a wall socket and into the rear of a speaker. Only one transformer is needed, with a thin umbilical running between the speakers. If that is not convenient, a second transformer is supplied for powering each speaker's switching circuits separately. In case the remote control fails or its battery dies, a rear-panel switch can turn the panels on and off.

Unlike the two sets of upper-frequency drivers, the two acoustic-suspension woofers in each cabinet are *not* driven separately. This isn't necessary for imaging purposes, since, as the manual puts it, "With the uncommonly low 350-Hz crossover frequency, [the woofers] generate no significant directional information." Instead, the two woofers operate in push-pull: Although both 10-inch

sound radiation pattern of the IC-20 "can be adjusted, with a hand-held remote control [supplied], to project a stereo image having spatial properties appropriate to the original music."

To that end, each of the IC-20's enclosures has two separate sets of midrange drivers and tweeters (two of each on the panels to either side of the center post). Aligned vertically, the drivers on each panel form mirror-image pairs around a center point 36 inches above the floor, said to be average ear level for a

diaphragms move inward and outward in sync, they are magnetically and mechanically moving in opposite directions. This is because one driver of the pair is mounted "backward," with its cone facing inward; the entire assembly is inset so that the frame and magnet do not project beyond the cabinet. When done correctly, this push-pull technique reduces even-order harmonic distortion.

Like all of Allison's "room matched" speaker designs, the IC-20 is meant to be placed against a wall. Fairly detailed placement suggestions are included in the manual.

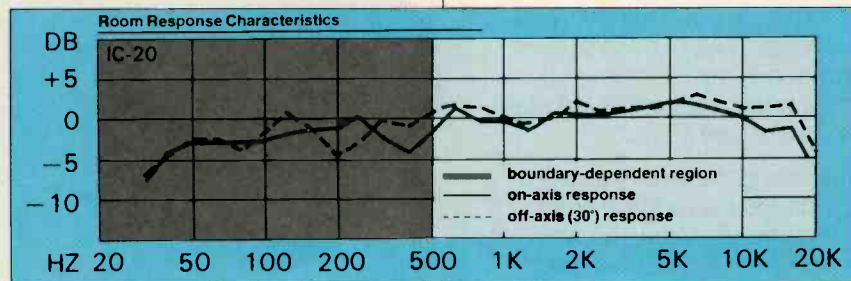
All of the IC-20's drivers are protected by self-resetting, current-sensing bistable resistors. Connections, located at the bottom of the rear panel, are multi-way banana jacks. Extra terminals and a rear-panel switch are provided for bi-amplified operation. Sensibly for such a massive (100-pound) speaker, all the major subassemblies of the IC-20 are field-replaceable. This includes the drivers, the crossover, the image-control circuitry, and the connection panel. Replacement instructions are included in the manual, which even has a paragraph elegantly describing the clawing operation that is the essence of grille removal. Said grille, by the way, is made of cloth stretched over a plastic frame; metal grilles further protect the drivers. The front panels are available in either completely finished oak, oiled walnut, or black-lacquered walnut veneer.

How does the IC-20 sound? Just as you'd expect a \$4,900 speaker to sound—very, very good. But don't expect to be stunned in the first few moments of hearing it in a dealer showroom. First of all, sit down! The designer intended for your ears to be positioned 36 inches above the floor—do not seriously audition these speakers while you're standing up. While they still sound fine when you're on your feet, their true quality can be heard when you're properly seated.

Second, experiment with the remote control. Switch the speakers from the focus mode, through the intermediate setting, and to the expansion position for each recording you use in the audition. Although we found the focus mode the most universally appropriate (its pinpoint imaging quality is preserved over a wide listening area), we also discovered—as intended by the design—that increasing the outward-directed radiation by using the intermediate and expansion modes enhanced the realism of large-scale musical works (especially those recorded in reverberant locales) and increased our appreciation of complex pop arrangements. (As stated in the manual,

Allison believes the intermediate setting to be the most universal, and the speakers revert to this setting should the power to the crossovers ever be interrupted or the relay-drive circuits fail.)

What also surprised and pleased us was that the basic sound of the speaker changed little as we went through the three radiation patterns with various recordings. Only the apparent sense of spaciousness and the precision of the imaging seemed to alter. With such a distance between woofers and midrange drivers,



we were also pleased to find that the IC-20's woofers never imaged separately, even when we listened fairly close to the speakers.

The overall balance is excellent, though this is also unlikely to attract attention in a showroom. In comparison with many other speakers, you'll probably notice a slight lack of "bass." What you are hearing, however, is partially a consequence of truly flat upper- and mid-bass response in combination with a decided lack of coloration in the lower midrange. This results, we believe, from the locations of the woofer and midrange drivers in combination with the lack of floor reflections caused by the line array. Just put on a pipe-organ recording and you'll find the IC-20 to have all the clean low bass you should ever need. In normal operation, some might feel that a slight bass boost with a conventional tone control will help.

For best results at upper frequencies, we would advise taking the recommended listening arrangement seriously: an approximate equilateral triangle formed by the speakers and the listener. If you sit too far away relative to the inter-cabinet spacing, you'll find that the very high frequencies sound a bit muffled.

Diversified Science Laboratories' measurements indicate a fine speaker. Except for a dip in the woofer-to-midrange crossover region, the focus-mode response at 1 meter was only  $\pm 2\frac{1}{2}$  dB from 40 Hz to above 16 kHz. Considering the interference effects that must be occurring among the multiple drivers, it's amazing that this response spec holds

(Continued on page 38)

Sensitivity (at 1 meter; 2.8-volt pink noise)

90 1/2 dB SPL\*

Average Impedance (250 Hz to 6 kHz) 11 ohms

\*On the axis of the inner panel in Focus mode. See text.

## REPORT POLICY

Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data are provided by Diversified Science Laboratories. The choice of equipment to be tested rests with the editors of High Fidelity. Samples normally are supplied on loan from the manufacturer. Manufacturers are not permitted to read reports in advance of publication, and no report or portion thereof may be reproduced for any purpose or in any form without written permission of the publisher. All reports should be construed as applying to the specific samples tested. High Fidelity and Diversified Science Laboratories assume no responsibility for product performance or quality.

# After four years at Hewlett-Packard, we w

In 1983, Dr. Godehard Guenther, President of a/d/s/, issued an injunction to our engineers and designers. "Guys," he said, "somebody's got to come up with a new loudspeaker standard. Let's make sure it's us."

Understand: he wasn't suggesting our existing loudspeakers weren't good. Rather, he was challenging us to address the shortcomings present even in the very best speakers, ours included. Shortcomings made all the more apparent by the sonic demands of the compact disc.

What we sought to build were speakers that didn't sound like a set of drivers stuffed in a box. Our goal was to create speakers characterized by a stable sound stage, pinpoint imaging and sound that seemed to emanate from free space.

It was a tall order. But the technology that has resulted—Unison™ . . . of one voice—is the kind other speaker makers will be emulating for years to come.



At a/d/s/, we make our own drivers. Our high definition woofers feature new cones, magnets, baskets and voice coil assemblies—painstakingly crafted to eliminate coloration.

## We finally had the tools to be as critical as we were inclined to be.

Our first task was to take a long, hard look at the limitations inherent in loudspeaker drivers. That required a powerful "microscope." And, fortunately, we had one—a high-resolution, super-fast computer from Hewlett-Packard, supported by a sophisticated mathematical program of our own devise.

Housed in a specially designed a/d/s/ acoustics laboratory, the computer gave us the ability to generate and analyze driver performance data with an accuracy, thoroughness and detail never attainable before.

High technology enclosure materials enable us to make the new CM7 (left) and CM5 extremely compact without sacrificing interior volume. How compact? Consider that the CM5 measures a mere 9<sup>3</sup>/<sub>8</sub>" x 5<sup>3</sup>/<sub>4</sub>" x 6<sup>7</sup>/<sub>8</sub>".

Unison is a trademark of Analog and Digital Systems, Inc.

In this veritable mountain of information, acoustic truths resided.



The CM7's 4th-order, 24dB/octave crossover network. Complex, sophisticated and expensive to manufacture, it's a major reason why the speaker produces such a stable image.

## If the drivers aren't flawless, no amount of camouflaging will hide the flaws.

One fact was obvious: the traditional materials used to construct woofers, tweeters and midranges—polypropylene, metal, cellulose compounds—were simply inadequate. So we set about to discover new ones ideally suited at the molecular level to the jobs they're required to do.

For the domes of our tweeters, we selected a proprietary copolymer that's exceedingly rigid, yet has superb internal damping and freedom from ringing. For the voice coil formers in our midranges, we adopted stainless

# the keyboard of a ere ready for a Steinway.

steel. Strong and non-magnetic, it enabled us to produce a motor quick enough to resolve the finest detail, even at the highest volume level. And so our research went, until our drivers were as perfect as the laws of physics allow.

**The crossover network. You don't see it. You shouldn't hear it, either.**

When most speaker makers design crossover networks, their primary concern is the interaction of the drivers. We were more ambitious. We sought crossovers that optimize the relationship between the drivers and their

enclosure, even with the room in which the system is played.

And we had an advantage: the excellence of our drivers allowed us to use *ideal* crossover points. Using these points, all the fundamental tones of the human voice can be reproduced by a single driver. With the computer, we evaluated countless prototypes of crossovers. A 4th-order network of the Linkwitz-Riley type proved the most appropriate. This type alone yields the response that satisfied our requirements for neutrality and realistic imaging. On a frequency response plot, the crossover points aren't even detectable.

**How good it ultimately sounds depends on the box you put it in.**

That's why we employed a polymer material filled with an



With its stainless steel coil former and copolymer cone, the Unisōn midrange does something a cone midrange has never done before: span the fundamental range of the human voice—from 200 to 2,000 Hz.



Our tweeters' domes are made of yet another proprietary copolymer, giving them the unique ability to provide smooth, detailed, high frequency response at even the highest levels.

extremely high mass compound to produce the rigid, aurally "invisible" enclosures of our Compact Monitor Series. You'll be amazed by the weight of these little beauties—they're heavy. You'll be floored by the sound.

To our ears, our new speakers—the M Series and compact CM Series—offer convincing proof that Unisōn technology does indeed define a new era in speaker performance. For more information about a/d/s/ products, phone a/d/s/ toll-free, at 1-800-345-8112. (In PA, call 1-800-662-2444.)



The M12 is the instrument on the right.

a/d/s/

## Harman Kardon Citation 21 Preamplifier

for *all* the other microphone positions used and all the other image-control settings. This must account for the consistency of the speaker's basic sound quality through all settings of the image control, as well as conclusively demonstrating that the pattern of radiation alone can account for considerable differences in speaker imaging.

Distortion is very low. At 85 dB sound pressure level, it is below 1 percent at all frequencies. Even at the highest test level (100 dB SPL), it remains below 2 percent at all frequencies. In the low bass at this level, distortion is extraordinarily low: less than 1/4 percent from 100 Hz on down. This is the cleanest bass we can recall finding at this sound level. The push-pull design must be responsible, because second-harmonic distortion is extremely low for a speaker; you'd almost think an *amplifier* were being measured.

Sensitivity is about average and varies about 1 dB up or down depending on the placement of the microphone. In our

300-Hz pulse power-handling test, the IC-20 accepted the full output of DSL's test amplifier (613 watts peak, or 27.9 dBW) to deliver an extremely loud, calculated peak sound pressure level of 118.4 dB. The average impedance is rather high, and the curve slopes gently downward from 10.1 ohms at 20 Hz to the overall minimum of 5 ohms at 20 kHz with a few bumps along the way (19.1 ohms at 35 Hz, 20.1 ohms at 500 Hz, and 10.9 ohms at 5 kHz).

The manual describes the IC-20 as "supremely accurate and competent [when] judged by conventional standards," to which we can only add that its sound is smooth, revealing, and fascinating as well. As Allison says in its conservative but precise style, the IC-20 incorporates "every technological refinement known to be audibly useful." And with its image control, the IC-20 radically addresses and embodies important and generally overlooked aspects of top-flight speaker performance. ■

**H**arman Kardon's Citation line has a distinguished, and rather cyclical, history dating back to the early 1960s, when the legendary Stewart Hegeman's ultra-wideband tube electronics advanced the state of the au-

don feels are necessary for accurate reproduction. Once again, these components were among the best of their time—in this case, the early and middle '70s.

Citation vanished again in the late '70s, reappearing in 1981 when Harman Kardon introduced a radical and very costly series of preamps and power amplifiers designed by Finnish engineer Matti Ojala. These models were novel in that they continued the tradition of wide bandwidth without recourse to large amounts of negative feedback. In addition, the power amps were capable of delivering very large amounts of current, thereby assuring they could drive even difficult loudspeaker loads with equanimity.

That line ran its course a couple of years ago. Now Harman Kardon has brought out four new Citation components that combine the design concepts of the preceding generation with some new ideas in much more reasonably priced packages.

The Citation 21 provides all the basic features expected of a high-performance preamplifier. Buttons for power and source selection are in one row; other controls, along with the moving-magnet/moving-coil switch for the phono input, are ranked underneath. (Actually, there are two sets of phono inputs, one for fixed-coil and the other for moving-coil, so you could use the phono mode button to switch between two turntables.) A headphone jack graces the lower

(Continued on page 42)



**Dimensions:** 17½ by 3½ inches (front), 12¾ inches deep plus clearance for controls and connections.

**AC Convenience Outlets:** Two switched (200 watts max. total), one unswitched (200 watts max.).

**Price:** \$525.

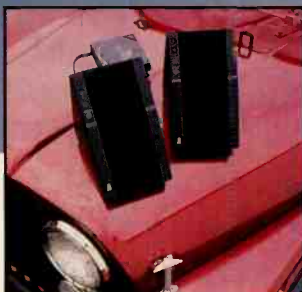
**Warranty:** "Limited," three years parts and labor.

**Manufacturer:** Made in Japan for Harman Kardon, 240 Crossways Park West, Woodbury, N.Y. 11797.

dio art. After a hiatus of several years, the company introduced a new Citation series comprising a preamp and power amp, a groundbreaking tuner, and an omnidirectional loudspeaker. Although the electronics were entirely new and based on solid-state technology, they upheld the philosophy of wide bandwidth and low phase shift, which Harman Kar-



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# The best audio



A lot of TV manufacturers are trying to sell you audio equipment whose most outstanding feature is its resemblance to their TVs. At Akai, we take audio-for-video a lot more seriously.

Akai's origins are in high fidelity and we never forget it. When we build audio/video equipment, we produce components that do an audiophile proud.

Consider our AA-V405 Receiver. Instead of a paltry 35 or 40 watts per channel, the AA-V405 produces 100 watts per channel (continuous, 0.05% THD, 20 Hz — 20 kHz into 8 ohms). To add life even to mono signals, we've designed a special Surround Sound stereo circuit. To correct the faults of so many video sound tracks, we've built in a seven-band graphic equalizer. And a full function remote control lets you operate the entire system from your listening/viewing position.

The Akai AA-V405 has all the connections you'll need to integrate your video system perfectly. Three TV antenna inputs plus a cable converter output handle your RF needs.



No modern video component should come without remote control.

# Audio for video.



AA-V405-B Receiver

Three direct-line video inputs and three video outputs accommodate a pair of VCRs, a video disc player, and video monitor. If you're impressed, you're not alone. The judges of the CES Design & Engineering competition have already cited the AA-V405.

To round out your Akai Audio/Video system you can choose from a variety of components built to stand on their own, not as an adjunct to someone's marketing program. Akai Digital Oversampling CD Players, Twin-Field Super GX Head Cassette Decks, and P-Mount Turntables consistently earn praise from reviewers throughout the world. They are the tangible results of Akai's master plan to develop audio and video components of such high caliber that audio and video truly become one.



Akai's CD-A305-B Compact Disc Player boasts digital oversampling and 36-track programmability.

## AKAI

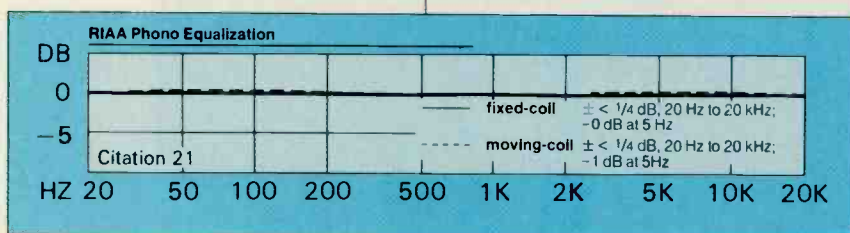
Where audio and video are one.

right-hand corner. All the buttons in the top row have pilot lights to indicate their settings. The main selector bank, which is set off to the right, is distinguished by large, rounded buttons: one for the single phono input, the remainder (labeled TUNER, VIDEO, CD, and CD DIRECT) for high-level sources. The CD DIRECT connections offer a direct link from input to output, bypassing all of the preamp's gain and control circuits for minimum noise and distortion.

The Citation 21's two tape-monitor loops are controlled by smaller buttons in two groups to the left. One set is for source/tape monitoring; the other is for dubbing, which can be from any of the main sources to either or both tape decks or from Tape 1 to Tape 2. You can dub

the bottom of the audio range to its upper edge and beyond; the high-level section's response extends past 100 kHz. The bass and treble controls shelve below 50 Hz and above 10 kHz, respectively, with maximum boost/cut ranges of approximately  $\pm 10$  dB at the extremes of the audio band. The TREBLE's action is not entirely symmetrical and can reach as far down as 200 Hz, but the controls are otherwise well-behaved. Noise is satisfactorily low, and distortion is below our reporting limit (and thus well below the threshold of audibility). Input and output impedances are well-chosen, assuring trouble-free interface with other components. DSL reports that the headphone amplifier is unstable into capacitive loads, but this should not be a problem except in the case of electrostatic models, which would normally attach to a power amp anyway. It works just fine with conventional headphones.

Our complaints are quite minor. We would prefer larger or easier-to-turn knobs for the balance and tone controls, which are a little hard to manipulate, and a sharper infrasonic filter. Otherwise, we could not be more pleased. In features, performance, and styling, the Citation 21 is a worthy successor to its illustrious predecessors. We don't know of any preamplifier capable of audibly superior reproduction, and few can match it on the test bench. If the Citation 21 meets your control needs, we don't see how you could do significantly better at any price.



<b>Output at Clipping (at 1 kHz)</b>		
line output	14.0 volts	
headphone output	1.66 volts	
<b>Harmonic Distortion (THD; 20 Hz to 20 kHz)</b>		
aux or phono input	< 0.01%	
<b>Frequency Response</b>		
	+0, -1/4 dB, < 10 Hz to 50.3 kHz	
	+0, -3 dB, < 10 Hz to 161 kHz	
<b>Sensitivity &amp; Noise (re 0.5 volt; A-weighting)</b>		
	sensitivity	S/N ratio
aux	66 mV	91 dB
fixed-coil phono	1.14 mV	75 dB
moving-coil phono	64 $\mu$ V	79 dB
<b>Input Overload (1-kHz clipping)</b>		
aux	> 10 volts	
fixed-coil phono	220 mV	
moving-coil phono	12 mV	
<b>Input Impedance</b>		
aux	26k ohms	
fixed-coil phono	48k ohms; 155 pF	
moving-coil phono	56 ohms	
<b>Output Impedance</b>		
main output	580 ohms	
tape output from aux	direct	
tape output from phono	970 ohms	
headphone output	18 ohms	
Channel Separation (at 1 kHz)	71 3/4 dB	
Infrasonic Filter	-3 dB at 15 Hz; $\approx 7$ dB/octave	

from deck to deck while listening to another source.

The switches and knobs in the lower row include tone controls with a defeat switch between them, a mono button, a switchable infrasonic filter that affects all inputs, and a loudness-compensation switch. The LOUDNESS circuit is unusual in several respects. It affects only low frequencies (the theoretically correct approach) and is compensated to nearly eliminate the phase shift that normally would accompany any alteration of frequency response. On the other hand, the boost it imposes—starting at about 300 Hz and rising to a maximum of approximately 10 dB below 40 Hz—is fixed, making the control less flexible than one that is adjustable. It is best suited for use at very low listening levels, where the emphatic boost will restore the warmth and body that would be lost without some form of compensation.

Harman Kardon's attention to quality is evident in the gold-plated input and output jacks and in the integral rubber base intended to absorb vibration. Internally, the designers have used precision parts, careful layout, and fully symmetrical low-feedback, wideband circuits to obtain highly accurate reproduction of musical waveforms.

Their success is borne out by Diversified Science Laboratories' measurements, which demonstrate exemplary performance in all categories. Response is flat through all inputs from well below

#### ABOUT THE dBW

We currently are expressing power in terms of dBW—meaning power in dB with a reference (0 dBW) of 1 watt. The conversion table will enable you to use the advantages of dBW in comparing these products to others for which you have no dBW figures.

WATTS	dBW	WATTS	dBW
1.0	0	32	15
1.25	1	40	16
1.6	2	50	17
2.0	3	63	18
2.5	4	80	19
3.2	5	100	20
4.0	6	125	21
5.0	7	160	22
6.3	8	200	23
8.0	9	250	24
10.0	10	320	25
12.5	11	400	26
16.0	12	500	27
20.0	13	630	28
25.0	14	800	29

**T**he NEC DX-5000U sports a number of home-video firsts. While it doesn't set a new record for picture resolution—after all, it's not a Super VHS deck—it does demonstrate the power of digital technology to noticeably reduce video noise and to improve special effects. Although NEC has used digital noise-reduction techniques before, the DX-5000U's new system is the first to work on every video signal passing through the set. You can use this VCR to clean up broadcast or cable reception or, for that matter, any video source fed to its line input (such as a videodisc or another VCR). The deck also has a new Natural Slow Motion feature that provides twice the frame rate of conventional VCR slow motion. And there's a new digital dropout compensator that the company claims is the first in a consumer product to correct for momentary losses of color and luminance.

In designing the DX-5000U, NEC engineers seem to have adopted the "when in doubt, don't leave it out" philosophy. This VCR has nearly every conceivable feature, but we will cover only the most important here. It records at all three VHS speeds (SP, LP, and EP) and has Hi-Fi as well as stereo edge-track audio recording and playback (a rare combination nowadays). Dolby B noise reduction is included for the edge tracks. The stereo video tuner spans every VHF, UHF, and unscrambled cable channel and is capable of receiving the SAP portion of MTS signals. There are six forward and six reverse playback speeds. With the unit's digital picture memory, you can freeze any frame of a broadcast or a tape, and a digital "strobe" special effect updates the picture (from tape or broadcast) every  $\frac{1}{6}$ -,  $\frac{1}{4}$ -, or  $\frac{1}{2}$ -second while the sound continues. The tape counter operates in real time as well as serving as a conventional "footage" counter.

The DX-5000U includes a 99-point VHS index-search system (which cues up a tape at index marks that you can place on the tape during or after the original recording), and there's an index-scan feature that plays approximately six seconds at each index point before advancing to the next. The electronics incorporate the extended white-clip level and detail-enhancing portions of VHS's foursome of HQ circuits.

As many as eight events over a 21-day period can be programmed for recording, with a full 24-hour backup on the internal clock and memory in the event of a power failure. Additional programming options are Segment Recording, which stops a recording already in prog-

ress up to 6½ hours later, and Delayed Segment Recording, which permits you to delay the start of a recording by up to 24 hours without explicitly programming the unit.

That's not all. You can control almost every feature of the DX-5000U (short of loading a tape and setting the audio recording level) via the machine's 80-function wireless remote. And thanks to the handset's LCD readout, you can program timer-activated recordings without even turning on the VCR or TV.

Now for the prime reason we are interested in this VCR—its digital noise reduction. Every modern video noise reduction system capitalizes on the repetitive nature of video images and the random character of video noise. Consider what happens when the contents of one



## NEC DX-5000U VHS Hi-Fi VCR

picture field (half of a video frame) are added to that of the next field on a point-by-point basis. To the extent that there has been no change in the picture, the "good" information will double in level (increase by 6 dB) while the noise, being random, tends to partially cancel itself out and increases by only 3 dB. When the signal is reduced back to the original level, there's a 3-dB improvement in signal-to-noise ratio. If the noise reduction system recirculates—that is, if the average of two fields is added to the next, re-averaged, added to the next, etc.—a very substantial improvement in signal-to-noise ratio can be achieved.

Of course, a real video picture is not stationary. There are some changes from field to field as objects move in the im-

*(Continued on page 46)*

**Dimensions:** 17 by 4 inches (front), 14½ inches deep.

**Price:** \$1,199.

**Warranty:** "Limited," two years parts, one year on video heads, 90 days labor.

**Manufacturer:** NEC, Japan.

**U.S. Distributor:** NEC Home Electronics (USA), Inc., Audio/Video Division, 1255 Michael Dr., Wood Dale, Ill. 60191.

# Where to feel the Yamaha Digital Home Theatre.

**ALABAMA** Long's Electronics Inc.—Birmingham (two locations) • Sound Distributors, Inc.—Huntsville • The Record Shop Inc.—Montgomery • Kincaid TV & Stereo—Tuscaloosa **ARIZONA** Hi Fi Sales—Mesa • Emporium Audio Video—Tucson • Jerry's Audio/Video and More—Tucson **ARKANSAS** Stereo Buff/Fayetteville—Fayetteville • Audio Visions—Ft. Smith • Leisure Electronics—Littlerock **CALIFORNIA** Honkers Sound Company—Berkeley • Kustom Hi Fi Music House—Burlingame • Sound Goods—Campbell • The Federated Group—Canoga Park • Rogersound Lab—Canoga Park • Shelley's Stereo Video CT—Canoga Park • Dow Stereo/Video—Carlsbad • Sounds by Dave—Chico • Dow Stereo/Video—Chula Vista • Sound Distinction—Concord • Pacific Coast Audio—Corona del Mar • Audio Video Specialists—Downey • Dow Stereo/Video—El Cajon • The Federated Group—El Cajon • Genesis Audio—El Toro • Rogersound Lab—El Toro • The Federated Group—Hollywood • Tubes N Tunes—Livermore • Act Electronics TV & HiFi—Long Beach • Sound Goods—Mountain View • Pro Audio Electronics—Oakland • Western Audio—Palo Alto • Rogersound Lab—Pasadena • The Federated Group—Riverside • Stereo Showcase, Inc.—Sacramento • Dow Stereo/Video—San Diego (two locations) • Harmony Audio Video—San Francisco • Maybrun's Hi-Fi Video Ctr—San Francisco • The Stereo Store—San Francisco • Tubes N Tunes—San Ramon • The Federated Group—Santa Ana • Burdick's—Santa Cruz • Rogersound Lab—Santa Monica • Shelley's Stereo Video CT—Santa Monica • Golden Ear Hi-Fi Video Ct—Santa Rosa • The Federated Group—Torrance • Rogersound Lab—Torrance • Stereo Showcase, Inc.—Vallejo • Rogersound Lab—Van Nuys • Thrifty Electronics—Van Nuys • Visalia Sight & Sound, Inc.—Visalia • Rogersound Lab—Westminster **COLORADO** SoundTrack—Arvada • SoundTrack—Aurora • Listen Up—Boulder • SoundTrack—Boulder • Sunshine Audio—Colorado Springs • Listen Up—Denver • SoundTrack—Denver • SoundTrack—Highlands Ranch • SoundTrack—Littleton • Sunshine Audio—Pueblo • SoundTrack—Thornton **CONNECTICUT** Tweeter, Etc.—All Locations **DISTRICT OF COLUMBIA** AudioKrafters—Washington **DELAWARE** Sound Studio Inc.—Dover • Sound Studio Inc.—Newark • Bryn Mawr Stereo—Wilmington • Sound Studio Inc.—Wilmington **FLORIDA** Audio Spectrum, Inc.—Altamonte Springs • Sound Advice—Boca Raton • Sound Advice—Clearwater • Sound Advice—Coral Gables • Stereotypes—Daytona Beach • Sound Advice—Ft. Lauderdale • Stereo World—Ft. Myers • Sound Advice—Hialeah • Sound Advice—Hollywood • Electronics World—Gainesville • Audio Tech—Jacksonville • House of Stereo—Jacksonville • Sound Source—Marathon • Audio Trend Inc.—Melbourne • Southern Audio—Merritt Island • Sound Advice—Miami • Sound Advice—N. Miami Beach • Stereo World—Naples • Audio Spectrum, Inc.—Orlando • Audio Spectrum, Inc.—Orlando • Sound Advice—Sarasota • Sound Advice—St. Petersburg • Sound Advice—Tampa • The Audiohouse—Vero Beach • Electronic Connection—West Palm Beach • Sound Advice—W. Palm Beach **GEORGIA** Hi Fi Buys—Atlanta (five locations) • Stereo City of Georgia—Agusta • Custom Sound—Albany • Custom Sound—Athens • Merit TV & Sound City—Columbus • Hi Fi Buys—Duluth • Hi Fi Buys—Kennesaw • Ken's Stereo Junction—Macon • Hi Fi Buys—Morrow • The Music Room—Rome • Hi Fi Buys—Tucker **HAWAII** Audio Center—Honolulu • Honolulu Audio & Video—Honolulu • The Audio Shoppe—Honolulu **IOWA** Audio Labs Inc.—Des Moines • Sound World—Fort Dodge **IDAHO** Music West—Nampa **ILLINOIS** Columbia Audio Video—Arlington Heights • United Audio Centers—Aurora • Alan's Creative Stereo—Bloomington • Glenn Poor's Audio Video—Champaign • Good Vibes—Champaign • United Audio Centers—Chicago (two locations) • United Audio Centers—Deerfield • LaSalle Electronics Inc.—Galesburg • Columbia Audio Video—Highland Park • Barrett's Entertainment—Kankakee • Unitek Electronics, Inc.—Lansing • United Audio Centers—Niles • Glenn Poor's Audio Video—Normal • Gill Custom House—Palos Hills • Columbia Audio Video—Rockford • H.F. Hutch—Schaumburg • United Audio Centers—Schaumburg • United Audio Centers—Vernon Hills • H.F. 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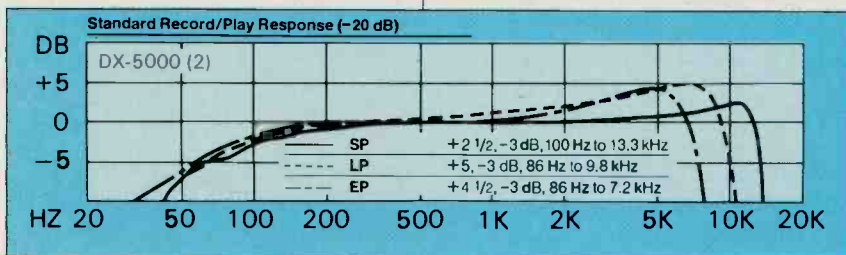
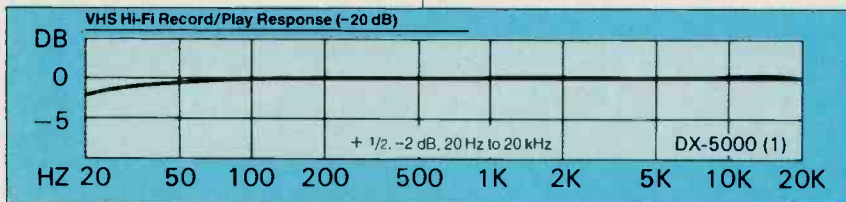
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# Test Reports

## VCR Section

Except where otherwise indicated, the recording data shown here apply to all three speeds—SP, LP, and EP (SLP); data listed for standard edge-track audio recording were taken with the Dolby B noise reduction engaged. All measurements were made at the direct audio and video outputs, with test signals injected through the direct audio and video inputs. For VHS Hi-Fi, the 0-dB reference input level is the voltage required to produce a 0-dB reading on the VCR's audio level meter; for the standard audio recording mode, it is the voltage at which the automatic level control (ALC) produces 3 dB of compression at 315 Hz. The 0-dB reference output level is the output voltage from a 0-dB input.



### Audio S/N Ratio (re 0-dB output; R/P; A-weighted)

	standard	VHS Hi-Fi
SP	47 1/4 dB	70 3/4 dB
LP	46 dB	70 3/4 dB
EP	46 1/2 dB	70 dB

### Recording Level for 3% Distortion (315 Hz)

VHS Hi-Fi	+17 dB
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### Indicator Reading for 3% Distortion (315 Hz)

VHS Hi-Fi	> +10 dB
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### Distortion (THD at -10 dB input; 50 Hz to 5 kHz)

	standard	VHS Hi-Fi
SP	≤ 2.1%	≤ 0.56%
LP	≤ 2.2%	≤ 0.56%
EP	≤ 2.4%	≤ 0.56%

### Channel Separation (315 Hz)

VHS Hi-Fi	78 dB
standard	≈ 59 dB

### Indicator "Ballistics"

Response time	1.6 msec
Decay time	≈ 28 msec*
Overshoot	0 dB

### Flutter (ANSI weighted peak; R/P; average)

	standard	VHS Hi-Fi
SP	± 0.11%	± < 0.01%
LP	± 0.17%	± < 0.01%
EP	± 0.36%	± < 0.01%

### Sensitivity (for 0-dB output; 315 Hz)

VHS Hi-Fi	55 mV
standard	255 mV

### Audio Output Level (from 0-dB input; 315 Hz)

VHS Hi-Fi	0.34 volt
standard	0.32 volt

### Audio Input Impedance (VHS Hi-Fi)

	46k ohms
--	----------

### Video Record/Play Response

	SP	LP	EP
at 500 kHz	1/4 dB	-1/4 dB	flat
at 1.5 MHz	-4 3/4	-7 1/4 dB	-7 1/4 dB
at 2.0 MHz	-6 1/4 dB	-9 3/4 dB	-9 dB
at 3.0 MHz	-10 1/4 dB	-23 1/2 dB	-15 dB
at 3.58 MHz	-23 1/2 dB	**	-4 dB
at 4.2 MHz	**	**	**

age. If the recirculation continues ad infinitum and each new field is given a weight equal to the average of its predecessors, the final output will, at best, average to a blur. NEC gets around this in two ways. First, the average of the previous field is not given the same weight as the current field; second, a "limiter" selects the levels of the video signal that get recirculated.

In the DX-5000U, the level selection is determined by the setting of the three-

detail than previous 6-bit systems systems when still frame, strobe action, and slow motion are used with the noise reduction employed. (Chroma is encoded with 6-bit precision, which is adequate for the color information.)

Are there drawbacks to digital noise processing? Yes. Besides some residual blurring (noticeable mainly at the noise reduction's LEVEL III setting and, to a lesser extent, at LEVEL II), the video bandwidth—which translates directly to horizontal luminance resolution—is limited in all modes. The reason for this is precisely the same as that which limits the audio bandwidth of a Compact Disc to 20 kHz. In order to prevent "aliasing" (an undesirable by-product of incorrect analog-to-digital conversion), the DX-5000U restricts the video-signal bandwidth to 2.7 MHz by means of filters. The horizontal resolution is thereby limited to about 215 lines, regardless of the capability of the recorder. And since the DX-5000U's filtering seems to be applied to all sources, broadcast resolution through the tuner is limited to well below its full NTSC potential.

Measurements by Diversified Science Laboratories indeed found this to be the case. Using the standard multiburst pattern, tuner response is virtually flat to 2.0 MHz but is down by 8 1/2 dB at 3.0 MHz and by more than 20 dB at 3.58 MHz and 4.2 MHz. On the other hand, luminance level is spot-on, and the gray-scale linearity is quite acceptable. Chroma differential gain (change in color intensity with variation in picture brightness) is a bit more than average, but most of the error occurs at the brightest scene level and will hence be less noticeable. Chroma differential phase (change in tint with brightness) is quite low. Chroma-level accuracy is marginally worse than average (blue scenes are more saturated than red and cyan). Red and blue proved to be the most accurate hues, however, with cyan and yellow farthest off the mark.

position front-panel switch. At the first setting, only very low-level video information is recirculated. In a basically clean picture, this permits low-level noise to recirculate and be reduced in amplitude while the "good," higher-level video remains unaffected. Motion can be displayed without blurring. The other two settings increase the recirculation threshold and trade increasing amounts of picture blur for the ability to reduce greater amounts of noise.

As implemented in the DX-5000U, this technique for reducing video noise has four interesting benefits. First, because it operates on a field-by-field basis (rather than line-by-line), it can realize greater levels of noise reduction with less effect on the picture. (Successive video fields are more redundant than successive video lines because the only changes between frames are caused by motion, whereas successive video lines carry the picture's vertical detail.) Second, by using a constant recirculation factor and adjusting the degree of noise reduction via changes in the clipping level, the DX-5000U can achieve a substantial reduction in low-level noise with very little blurring. Third, NEC uses another, similar system to reduce chroma noise much more effectively than has been the case heretofore. And finally, with its 8-bit luminance-level resolution, the NEC system has potentially greater gray-scale

The tuner's audio performance is very good. A sharp whistle filter limits the bandwidth while effectively eliminating any possibility of horizontal-scan whistle. Signal-to-noise ratio with normal pictures is better than average, too. When the audio-output switch is in the Hi-Fi position, the recording-level sliders serve as volume controls. At their detents (the recommended setting for recording broadcasts), output is a respectable 0.42 volts. If you advance the controls fully, the circuit clips on a 100-percent-modulated broadcast (producing about a maximum of about 2.5 volts prior to clipping), so it's best to leave the sliders at the detent. In the edge-track



audio-output mode, the deck's automatic level control (ALC) limits output to 0.26 volts. Audio output impedance is fine for any application.

For a standard-VHS deck, video recording performance is excellent at the fastest speed, where response is down just a tad more than 6 dB at 2.0 MHz for a resolution of approximately 160 lines. Furthermore, there's useful output even at 3.0 MHz despite the noise-reduction filters. At the two slower speeds, response is down 7 1/2 dB at 1.5 MHz for an implied resolution of 100 to 110 lines, with useful response to 2.0 MHz. DSL also reports that, at the first two settings, the digital noise reduction system had no negative effect on video resolution and that the reduction in high-frequency response was negligible (1 1/2 dB at 1.5 MHz and 2 dB at 2 and 3 MHz) even at the maximum third level.

Luminance level is perfect at all speeds, and gray-scale linearity is about par for the course. Chroma level is low, but this happens more often than not with VCRs. Chroma phase error is below the lab's measurement limit. Chroma differential gain and phase are better at the fastest speed than at the slower ones, but this is no cause for concern. The lab reports that the video noise reduction is remarkably effective at reducing chroma noise and has no effect on chroma level or phase accuracy.

VHS Hi-Fi performance is exemplary. Response is within +1/2 dB, -2 dB from 20 Hz to beyond 20 kHz at all speeds and recording levels, implying excellent tracking of the noise reduction system. There's no measurable wow or flutter, and A-weighted noise is at least 70 dB below the meter-zero recording level. Since the 3-percent distortion point doesn't occur until 17 dB above that level, the deck has a potential dynamic range of 87 dB. Hi-Fi channel separation is excellent. The recording-level indicators are easy to use since they respond quickly and hold the maximum reading for about a second or so. Line input impedance is more than adequate, as are input sensitivities.

The edge-track recording level is set automatically by an ALC that has an extraordinarily tight control action. It takes about 250 millivolts of audio input to reach the threshold of the ALC, and the corresponding output level is virtually identical to that of a Hi-Fi recording at meter zero. Edge-track channel separation is surprisingly good, while its response varies with recording speed (as is to be expected). At all speeds, overall response remains basically unchanged when the Dolby B noise reduction is on.

A-weighted noise ranges from 37 1/2 dB to 39 3/4 dB below our reference level (without Dolby) and improves to our listed figures when the noise reduction system is used. Edge-track low-frequency distortion, when measured 10 dB below the reference point, just tops 2 percent at every speed. This is considerably lower at higher frequencies. Flutter varies with recording speed, but the figures obtained by the lab are about average in each case.

While it may not win any awards for horizontal resolution, the DX-5000U has a lot going for it. Tape-playback resolution is at least as good as that of most other standard-VHS VCRs, and the video noise reduction has an uncanny ability to reduce chroma noise by obvious amounts, especially in large red and blue areas. The effect increases at the higher settings, but that setting, as NEC suggests, should be used only when matters get so bad that you're willing to put up with a fair amount of blurring in a fast-changing image for the sake of a cleaner screen. The system cleans up luminance as effectively as it handles the color, but we've always been more bothered by chroma noise than small amounts of snow. The Natural Slow Motion feature



is great for viewing action shots that originate with a video source. (If the original is on film, there probably weren't enough frames taken to see a substantial difference from regular slow motion.) Doubling the apparent slow-motion frame rate, as NEC does, really helps smooth out the action of a golf stroke.

The digital special effects are also great. Still frame, strobe, and 1/3-speed playback are free of noise bars, and the ability to freeze a broadcast picture can come in handy when trying to copy down a phone number. There's certainly nothing to complain of on the audio front, either. Broadcast audio reception and VHS Hi-Fi performance are both exemplary, and the deck is even fully compatible with old prerecorded VHS tapes that have Dolby stereo on the edge track and no Hi-Fi track. And in a deck such as this, the VHS Index Search system is icing on the cake. For its video noise reduction alone, we strongly recommend that you check this one out. ■

<b>Sharpness Control Range</b>	
at 500 kHz	+2, -1 dB
at 1.5 MHz	+4 1/2, -5 dB
at 2.0 MHz	+4 3/4, -7 1/4 db
3.0 to 4.2 MHz	no measurable effect
Luminance Level	standard
Gray-Scale Nonlinearity (worst case)	≈ 22%
Chroma Level	≈ 5 1/4 dB low
<b>Chroma Differential Gain</b>	
SP	≈ 10%
LP	≈ 14%
EP	≈ 14%
<b>Chroma Differential Phase</b>	
SP	≈ ±9°
LP	≈ ±12°
EP	≈ ±10°
Median Chroma Phase Error	0°

\* Decay time for peak-hold segment is 1,040 msec.

\*\* Too low to measure

### TV Tuner Section

All measurements were taken at the direct audio and video outputs.

<b>Audio S/N Ratio (mono; A-weighted)</b>		
best case (no color or luminance)	53 dB	
worst case (multiburst pattern)	21 1/2 dB	
<b>Residual Horizontal-Scan Component (15.7 kHz)</b>		
	< -78 dB	
<b>Maximum Audio Output Level (100% modulation)</b>		
	2.56 volts	
Audio Output Impedance	560 ohms	
<b>Video Frequency Response</b>		
at 500 kHz	- 1/2 dB	
at 1.5 MHz	+ 1/4 dB	
at 2.0 MHz	+ 1/2 dB	
at 3.0 MHz	- 8 1/2 dB	
at 3.58 MHz	- 23 1/4 dB	
at 4.2 MHz	- 26 1/2 dB	
Luminance Level	standard	
Gray-Scale Nonlinearity (worst case)	≈ 17%	
Chroma Differential Gain	≈ 30%	
Chroma Differential Phase	≈ ±4°	
<b>Chroma Error</b>		
	level	phase
red	-5 1/2 dB	0°
magenta	-2 3/4 dB	+3°
blue	-1 3/4 dB	0°
cyan	-5 1/2 dB	+6°
green	-3 dB	+4°
yellow	-2 1/2 dB	+6°
rmedian error	-3 5/8 dB	+3°
uncorrectable error	± 1 7/8 dB	± 3°

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(302) 478-9300

## FLORIDA

Absolute Sound  
(305) 629-1930  
Audio Advisors  
(305) 586-8497  
Fox Audio  
(305) 287-4335  
Sound Design & Eng.  
(305) 565-7210  
Sound Plus Wood  
(305) 391-1843  
Stereo By Design  
(305) 232-1812  
Stereo By Design  
(305) 344-3700  
Verns Electronics  
(305) 391-3259  
Audio Workshop  
(813) 748-3868

Cooper For Stereo  
(813) 527-6363  
Maurice Stereo  
(813) 876-1951  
Stereo Garage  
(813) 775-5900  
Behren's Audio Lab  
(904) 721-1860

## GEORGIA

HiFi Buys Custom  
(404) 266-1694

## HAWAII

Audio Shoppe  
(808) 537-1931  
Bose Entertainment Ctr.  
(808) 533-6738  
Hilo Audio  
(808) 935-7146

## ILLINOIS

Audio Enterprises  
(312) 754-6056  
Audio/Video Encounters  
(312) 629-5000  
Audio Visions  
(312) 980-4946  
Columbia Audio-Video  
(312) 394-4770  
Columbia Audio-Video  
(312) 433-6010  
Media Room  
(312) 966-5590  
Mills Recording  
(312) 332-4116  
Sounds Deux  
(312) 887-9818  
Stereo Systems  
(312) 896-6464  
Stereo Systems  
(312) 357-0046  
Team Electronics  
(312) 658-8600  
Columbia Audio-Video  
(815) 964-4886  
Stereo Systems  
(815) 741-350  
The Shoppe  
(815) 939-4014

## INDIANA

Audio Radio Specialist  
(219) 255-6434  
Classic Stereo  
(219) 483-9553  
Classic Stereo  
(219) 483-0553  
Classic Stereo  
(317) 282-3264  
Classic Stereo  
(317) 662-9344  
Ovalton Audio  
(317) 849-7729  
Tom Doherty's Audio  
(317) 848-7503  
Alan Audio  
(812) 332-2192  
Audio Connection  
(812) 232-663  
Risley Electronics  
(812) 479-8787  
Risley Electronics  
(812) 886-9543

## IOWA

Spencer Sound Syst.  
(319) 354-1448  
Wright's Sight & Sound  
(515) 437-4814  
Pflanz Electronics  
(712) 252-4507

## KANSAS

Audio Visions  
(316) 681-1751  
Audio Electronics  
(913) 381-8585  
Nelson's  
(913) 267-2200  
University Audio  
(913) 841-3775

## KENTUCKY

Audio Video By Design  
(502) 425-3333  
Risley Electronics  
(502) 685-2264  
Risley Electronics  
(502) 821-5620

Risley Electronics  
(502) 443-4444  
Audio Connection  
(606) 432-8132  
Ovation Audio  
(606) 278-0335  
Sight In Sound  
(606) 371-4036  
Sounds Around Town  
(606) 864-6487

## LOUISIANA

Stereo & Record Cent.  
(318) 861-2666  
Stereo & Record Cent.  
(318) 865-6223

## MARYLAND

Discerning Ear  
(301) 494-8990  
Myer-Emco  
(301) 468-2000  
Sound Studio  
(301) 546-3181

## MASSACHUSETTS

Taylor'd Sound  
(413) 499-1420  
The Music Store  
(413) 774-2836  
Audio Video Environ.  
(617) 864-8001  
Electric Gramophone  
(617) 443-3703  
Encore Audio  
(617) 236-4646  
High Fidelity House  
(617) 979-9737  
Nantucket Sound  
(617) 231-3161  
Nantucket Sound  
(617) 532-5777  
Nantucket Sound  
(617) 734-0700  
Nantucket Sound  
(617) 771-4434  
Nantucket Sound  
(617) 848-6622  
Nantucket Sound  
(617) 826-2344  
Sound II  
(617) 966-6454  
The Music Box  
(617) 235-5100  
The Music Forum  
(617) 343-9393  
The Music Forum  
(617) 632-0660  
The Music Forum  
(617) 534-4431  
Trolley Stereo  
(617) 484-7847  
Audio Concepts Inc.  
(619) 699-8819

## MICHIGAN

Stereo Center  
(313) 239-9474  
Video Alternative  
(313) 549-3100  
Vitec, Inc.  
(313) 689-5600  
Jemstone Audio  
(517) 322-1230  
Classic Stereo  
(616) 957-2130  
Classic Stereo  
(616) 381-6049  
Langlois Stores  
(616) 733-2528

## MINNESOTA

Team Electronics #163  
(218) 739-4443  
Amalgamated Audio  
(507) 286-1328  
Amalgamated Audio  
(507) 452-1965  
Midwest Satellite A & V  
(913) 278-2233  
Audio By Design  
(612) 475-1443  
First Tech  
(612) 377-9840  
Pacific Sound  
(701) 258-1032

## MISSISSIPPI

Automotive Audio  
(601) 556-8158

The Sound Circuit  
(601) 445-2377  
The Sound Circuit  
(601) 638-6033

## MISSOURI

Hi-Fi Fo-Fum  
(314) 647-3606  
Sound Central, Ltd.  
(314) 892-9988  
Wright's Sight & Sound  
(816) 685-7208

## MONTANA

Electronic Parts, Inc.  
(406) 543-3119  
Sound Pro  
(406) 449-4945  
Sound Pro  
(406) 453-4364

## NEVADA

Import Audio  
(702) 731-2000  
Import Audio  
(702) 731-4918

## NEW HAMPSHIRE

Audio Of New England  
(603) 225-3313  
Audio Of New England  
(603) 524-1532  
Cuomo's  
(603) 893-1904  
Lakeside Stereo  
(603) 524-1532  
Soundations  
(603) 778-1402

## NEW JERSEY

AC Audio Video  
(201) 526-1777  
Atlantic Stereo  
(201) 390-0780  
Entertainment  
Environments  
(201) 941-5329  
J S Audio  
(201) 292-2799  
Landes Audio  
(201) 879-6889  
Leonard Radio  
(201) 261-5525  
Monmouth Stereo  
(201) 842-6565  
Samm Sound  
(201) 575-8910  
Stereo City  
(201) 561-5577  
The Sounding Board  
(201) 445-5006  
Soundwaves  
(609) 751-1900  
Sound Waves  
(609) 645-1222

## NEW MEXICO

Sound Ideas  
(505) 292-1188  
The Sound Room  
(505) 524-7080

## NEW YORK

Audio Exchange  
(212) 964-4570  
Audio Exchange  
(212) 982-7191  
Audio Salon  
(212) 249-4104  
Clone Audio  
(212) 741-7370  
Custom Media Design  
(212) 689-5916  
Integrated Media Design  
(212) 645-0229  
Leonard Radio  
(212) 840-2025  
Music Masters  
(212) 840-1958  
New York Audio  
(212) 755-4640  
Park Avenue Audio  
(212) 685-8102  
Gordon Electronics  
(315) 446-9440  
Audio Exchange  
(516) 334-7077  
Audio Exchange  
(516) 295-2100

Designatron's Stereo  
(516) 822-5277  
Designatron's Stereo  
(516) 473-4242  
Sound Insights  
(516) 536-9160  
Video Breakthrough  
(516) 726-4411  
Audio Sound Systems  
(516) 783-0938  
Great Northern Stereo  
(518) 561-8909

## OHIO

Chemung Electronics  
(607) 962-4606  
Chemung Electronics  
(607) 733-5531  
Chemung Electronics  
(607) 272-2225  
Rowe Photo/Video  
(716) 442-8230  
Stereo Shop  
(716) 442-2879  
Stereo Shop  
(716) 621-4050  
Stereo Shop  
(716) 424-1820  
The Stereo Advantage  
(716) 632-8038  
Clone Audio  
(718) 987-2850  
Continental Sound  
(718) 459-7507  
Leonard Radio  
(718) 803-1111  
NYC Media Room  
(718) 783-2113  
Sounc On Wheels  
(914) 471-9880

## NORTH CAROLINA

Audiolaus  
(704) 256-6911  
Mac's TV  
(704) 437-2494  
Audio-Video Concepts  
(919) 725-1010  
Anderson Audio  
(919) 333-3611  
Microwave Audio World  
(919) 446-1200

## NORTH DAKOTA

Western Stereo  
(605) 332-5535  
Tennessee  
(701) 258-1032

## OHIO

B & B Appliance  
(216) 842-5600  
B & B Appliance  
(216) 261-5600  
Hammond Electronics  
(609) 497-0070  
Classic Stereo Of Ohio  
(419) 228-9422  
Sight In Sound  
(513) 474-4776  
Sight In Sound  
(513) 931-7601  
Sight In Sound  
(513) 772-6500  
Sight In Sound  
(513) 471-5602  
Sight In Sound  
(513) 248-1110  
Stereo On Wheels  
(513) 898-4590  
Stereo On Wheels  
(513) 866-4131  
Stereo On Wheels  
(513) 253-3113  
Hammond Electronics  
(614) 237-2504  
Hammond Electronics  
(614) 278-9292  
Hammond Electronics  
(614) 522-8467

## OKLAHOMA

Audio Midwest  
(405) 733-4567  
Contemporary Sounds  
(405) 755-0795

Sound Station  
(918) 336-2240  
The Phonograph  
(918) 665-6363

## OREGON

Focus Electronics  
(503) 364-3289  
Hawthorne Stereo  
(503) 234-9375  
Shekell's Stereo  
(503) 476-5282  
Shekell's Stereo  
(503) 773-7372  
Stereo Plant  
(503) 382-9062

## PENNSYLVANIA

Sassafras Audio  
(215) 776-1941  
Sassafras Audio  
(215) 527-3656  
Sassafras Audio  
(215) 357-7400  
Sassafras Audio  
(215) 884-0292  
Sassafras Audio  
(215) 627-2913  
Sassafras Audio  
(215) 362-2180  
Sound Shack  
(412) 224-7000  
The Listening Post  
(412) 443-6160  
The Listening Post  
(412) 681-8433  
The Listening Post  
(412) 856-1199  
Hi-Fi House  
(717) 564-7688  
Hi-Fi House  
(717) 737-7775  
M & M Stereo Equip.  
(717) 524-9182  
Summit Audio-Video  
(717) 283-2770

## SOUTH CAROLINA

Frawley Electronics  
(803) 771-7340

## SOUTH DAKOTA

Western Stereo  
(605) 332-5535

## TENNESSEE

Hi-Fi House  
(615) 693-4331  
Lindsey Ward  
(615) 331-4434  
Nicholson's Stereo  
(615) 327-4312  
The Sound Room  
(615) 928-9233  
New Car-New Wave  
Electronics  
(901) 386-9186  
New Wave Car Stereo  
(901) 668-6711

## TEXAS

Audio Video Designs  
(214) 437-9500  
Hillcrest High Fidelity  
(214) 528-0575  
Hillcrest High Fidelity  
(214) 352-9757  
Home Entertainment  
(214) 934-8585  
Preston Trails Audio  
(214) 248-9104  
Stereo & Record Ctr.  
(214) 757-3500  
Stereo & Record Ctr.  
(214) 297-1933  
Stereo & Record Ctr.  
(214) 938-9401  
Stereo & Record Ctr.  
(214) 561-7455  
Texarkana Audio Ctr.  
(214) 793-2866  
Audio Video  
(409) 696-5719

## VERMONT

Mountain Music  
(802) 775-2308

## VIRGINIA

Contemporary Sounds  
(703) 371-4815  
Excalibur  
(703) 548-3113  
Myer-Emco  
(703) 536-2900  
The Audio Center  
(703) 982-8793  
Digital Sound  
(804) 424-5850  
Sounds Unlimited  
(804) 792-6717

## WASHINGTON

Brown's  
(206) 457-4150  
Deco Electronics  
(206) 943-1393  
Sound Authority  
(206) 525-2202  
Sound Authority  
(206) 575-4544  
Sound Authority  
(206) 577-0900  
Home Entertainment  
(206) 881-1265

## WASHINGTON D.C.

Myer-Emco  
(202) 293-9100

## WEST VIRGINIA

Pied Piper  
(304) 733-2030  
Pied Piper  
(304) 529-3355  
Pied Piper  
(304) 255-0235

## WISCONSIN

General Electronics  
(414) 964-7660  
General Electronics  
(414) 281-6651  
Wisconsin Electronics  
(414) 921-5555  
Wisconsin Electronics  
(715) 423-2910

## WYOMING

Murphy Sight & Sound  
(307) 882-4771  
The New Music Box  
(307) 742-3774

# LUXMAN

# Product of the Year Awards



**O**ur second annual Product of the Year Awards are a little different this year. The purpose remains the same, but following record-industry precedent, two levels of commendation have been established. We are giving "gold" awards to those products which we feel embody the year's most significant innovations in consumer audio and video design. Furthermore, a "platinum" award is being given to the one product introduced in the past year that represents the greatest leap forward in high fidelity audio or video technology.

For example, had digital audio tape (DAT) decks and cassettes been officially introduced in the U.S. during the eligibility period (October 1986 to September 1987), they undoubtedly would have received a platinum award. Such a commendation would also be quite suitable for Yamaha's DSP-1 digital sound-field processor, last year's still unsurpassed Product of the Year. However, as if to compensate for the lack of a revolutionary audio product this year,

# ABOVE & BEYOND

we've been treated to the first high fidelity home-recording medium for video: Super VHS.

Aside from the gold and platinum awards, we are also singling out those recent products, design concepts, or processes that we find extremely intriguing, useful, or innovative (see Christopher J. Esse's wrap-up, p. 53). These "honorable mentions" represent technology and product genres that are worth keeping an eye on during the coming year.

Individual descriptions of the award recipients follow. Except for the platinum winner, which comes first, the order of the gold-award products follows their numbered photographs on the facing page. We have not attached any significance to this ordering, and neither should you. *All* the awards are being given for meritorious design above and beyond the call of high fidelity (and HIGH FIDELITY) duty.

## **PLATINUM AWARD: 1 JVC HR-S7000U Super VHS Hi-Fi VCR.**

Since the beginning of home video, the consumer has *not* enjoyed high fidelity pictures and sound with home-made or prerecorded videocassettes. Much of the problem stemmed from the persistence of older video-recording standards in the face of potentially useful improvements in signal processing and video-head and videotape technologies. Performance couldn't be improved without compromising compatibility between new tapes and old recorders and between old tapes and new recorders. Sony was the first to deviate from its own standard when it introduced the slightly Beta-incompatible Super Beta system. But it took JVC—the inventor of VHS, the leading format—to make a clean but not complete break with old standards. This step was essential for making substantial progress in video recording and perhaps could be made only by the market leader (although Sony has since followed suit with its ED Beta system). The only aspect of incompatibility between Super VHS and standard VHS recordings is that tapes made using the Super VHS mode cannot be successfully played on standard VHS decks.

What does the videophile gain from this loss of full compatibility? With a Super VHS deck—of which JVC's HR-S7000U is an excellent example, besides being the first—the videophile can finally make recordings that capture the full resolution (detail) available from our NTSC television broadcast system. Indeed, our lab and viewing tests (October) showed that the horizontal luminance resolution of the HR-S7000U slightly surpasses that possible from broadcast video sources—and at either SP or EP tape speeds. Since the video noise level was

**BY DAVID RANADA**

# Product of the Year Award

also very low, we can say that S-VHS—at least as embodied in the HR-S7000U—provides the best picture quality we have ever seen or measured in a home video deck. JVC apparently has also made improvements in the Hi-Fi audio recording system, since we found that the deck has a potential audio dynamic range exceeding that of the CD system and DAT, as well as a frequency response flatter than that of any home audio cassette deck. As the first of a new breed, few products have performed as well as the JVC HR-S7000U.

**GOLD AWARDS:** **2 Alpine 7902 Car Tuner/CD Player.** As the first single-chassis combination of a car CD player and an AM/FM tuner, the Alpine 7902 is selected as much for representing the importance of the product genre as it is for its performance, which is excellent overall. The unit's ease of use is proof alone of the careful attention paid to its design. As our July review stated, "The controls that really matter—meaning nearly all of them—are clearly differentiated, intelligently grouped, well illuminated, sized for adult human fingers, and attractive." Sonically, we were pleased with the FM section, which performed much better than average. That the CD caught our fancy goes almost without saying, except that the flawless road-test tracking performance of the 7902 gratified us as much as the digital sound quality. Now that car CD players of the 7902's performance and ease of hookup and use have arrived, cassettes for the car are definitely passé.

**Super VHS Videotape.** In a turnabout of recent trends, an American company has had a considerable influence on the development of a major consumer-electronics product genre—to be precise, on Super VHS. About two years ago, 3M chemists in St. Paul, Minnesota, developed—with no specific application in mind—a new magnetic coating formulation with exceptional signal-retention properties. Specifically, the magnetic particles were extremely small for a ferric oxide, the resulting coercivity was very high, and the particles formed very smooth tape surfaces. Thinking that it could be used in a high-quality videotape (since its magnetic properties already surpassed those of current videotape formulations), 3M sent samples to JVC and asked whether the coating would be suitable for use in VCRs. As it turned out, JVC was deep in the development of the S-VHS system, so the answer was a definite "yes."

3M then worked closely and intensely with JVC to make sure that the 3M videotape using the new magnetic coating was physically compatible with the heads and playback mechanism of VHS videocassette recorders, as well as electromagnetically compatible with the extended signal bandwidths of recorded S-VHS information (which are unrecordable on conventional videotape formulations). As a result, 3M was the first independent videotape manufacturer in the world to meet JVC's specifications for S-VHS tape performance, the first to publicly demonstrate an S-VHS tape, and the first to deliver S-VHS tape to stores (in Japan as well as America). As with the Philips/Sony collaboration on the Compact Disc system, this shows that cooperation can sometimes work to everyone's benefit. In this case, it is the videophile who comes out way ahead.

**4 Allison IC-20 Loudspeaker System.** In a radical departure from its previous designs, Allison has joined the handful of companies that are directly confronting the issue of loudspeaker radiation pattern and its effects on sound quality and imaging (which are considerable). Above the bass frequencies, each enclosure of an IC-20 system is essentially two loudspeakers in one cabinet: One panel is directed toward the left, the other toward the right. A wireless remote switches the output of the panels among three settings: left full/right reduced, both panels full on, and right full/left reduced. The three resulting radiation patterns for a pair of speakers are center-directed, forward-directed (hemispherical), and outwardly directed.

What the switching provides is considerable control of the sense of reverberant space *without* changing the apparent frequency balance (which, as always for Allison speakers, is very well judged) or the instruments' locations in the stereo image. Previous attempts to do this have resulted in speakers with comparatively restricted optimum listening positions, bizarre imaging effects on some program material, or additional signal-processing boxes that must be hooked into a system. And the previous results haven't been nearly as consistently pleasing.

To add frosting to the cake, the IC-20 also achieves astonishingly low distortion in the bass at high listening levels. This results from the push-pull differential operation of the two woofers in each enclosure, an arrangement that considerably reduces second-order distortion. And though an instruction manual is usually not considered a part of the product, the extraordinary completeness, precision, accuracy, fairness, and readability of the IC-20's manual illustrates how a few well-cho-

## 1987's Bright Ideas

We thought back on the extraordinary number of new products and features introduced in 1987 and came up with this list of standouts. Sometimes you have to wonder how designers keep coming up with new and useful ideas. Other times you might wonder why they've bothered at all, but that's another story. Here's our list, in no particular order:

**Wireless speakers:** Koss's JCK/5000 amplified speakers—an offshoot of the company's wireless headphone systems—are fed signals from an infrared transmitter attached to the headphone output of your stereo system. Recoton's WW-100 amplified speakers get power and audio signals through a wall socket. The signals are broadcast through your home's AC wiring by an adapter that connects to the headphone or line output of your stereo system. Both of these systems are a boon for surround-sound setups, eliminating the need to run wires to the back-channel speakers.

**CD singles:** We think these three-inch discs are a great idea; they hold as much as 20 minutes of music and can sell for as little as \$3. We hope record companies will fill all or most of that 20 minutes.

**100-minute audio cassettes:** Denon's HD-8/100 high-bias (Type 2) tape can record 50 minutes a side, enough to cover the extra track included on CD versions of many pop albums.

**"Lazy Susan" CD changer:** The Sony CDP-C5F is the only changer that doesn't use a separate disc magazine. Instead, you can place as many as five CDs into its large disc tray, which revolves like a carousel to select the discs. Easy!

**Bose Acoustimass speaker technology:** This refers to the innovative method of driver loading used in the single bass module that's part of Bose's AM-5 loudspeaker system (test report, June). You get a lot of bass from this small package, which can be hidden virtually anywhere in the listening room without severely compromising the stereo image. We expect to see the Acoustimass principle applied in other Bose products.

**Home samplers:** Casio has a number of affordable digital sampling mini-keyboards, starting with the under-\$100 SK-1. Besides including many of Casio's clever features to help beginners make music, these models digitally record short segments of sound through a built-in microphone and reproduce those sounds across the range of the keyboard. Casio manages to deliver a lot of technology without creating technophobia, probably because its products are so much fun.

**TV sound:** Proton's 203T cassette/receiver lets you listen to TV channels 2-13 while you're on the road. While this isn't quite new technology, it's a useful new idea that has caught the attention of TV advertisers.

**Custom EQ:** Blaupunkt's PSA-108 Parametric Sound Amplifier has a plug-in equalizer module that—when used with the recommended Blaupunkt speakers—smooths out the peaks and dips in frequency response caused by the acoustics of a car's interior. Modules are available for 83 different car models. This is the start of something big in the after-market.

**Fast VCRs:** By keeping the tape partially threaded even at stop or during fast-wind, Akai's new Quick Start VCRs cue more accurately and take a lot less time to start playing than competing VHS models.

**Fast shutter-speed camcorders:** It is now possible to closely analyze a golf swing, a tennis stroke, a runner's stride, and other rapid motions. Instead of registering an image once every 60 seconds (the normal shutter speed), camcorders with high-

speed shutters can do it as often as 2,000 times a second. Slow-motion or still-frame playback will therefore be devoid of the blurring that normally obscures the action.

**VHS Index Search System (VISS):** This VCR feature enables you to electronically insert multiple index marks anywhere on a tape to make searching easier and faster. It's about time. Now you can take your eight-hour tape of *The Honeymooners* and mark where each episode starts. We hope that VISS finds its way into decks of all prices.

**NEC's video noise reduction:** The company's DX-5000 VHS Hi-Fi VCR (tested in this issue) features an improved version of the noise reduction (NR) system used in its DX-1000 and DX-2000 decks. The new model applies NR to the chrominance (color) as well as to the luminance (brightness) portions of the video signal. We may see more of this technology employed in other video products.

**VCR remotes with LCD readouts:** You can program many VCR timers using the remote and following on-screen instructions. Sharp, NEC, and Hitachi are three companies that are taking this a step further: You can load the timer settings directly into the remote—guided by instructions on its LCD display—and later transmit that information to the VCR with the push of a single button. This means, for instance, that you can take the remote and a TV schedule to another room (the "reading" room comes to mind) and proceed with the programming at your leisure.

**Automated video editing system:** In the March "Currents," we reported on the Videonics system, which is basically a microcomputer that you can program to do wipes, fades, title inserts, and much more. But here's the grabber: As long as the VCR you use for recording the final edit has a wireless remote control, the entire editing process will proceed automatically.

**No Noise system:** You can't buy a No Noise processor to clean up old tapes and records, but you can now buy CDs of once-noisy material remastered with this process ("Currents," July). Developed by Sonic Solutions and offered as a service to record companies, No Noise is a sophisticated digital signal-processing system that removes tape hiss and other low-level noise from analog master tapes without affecting the original sound. You'll be hearing a lot more, or should we say a lot less, thanks to No Noise.

**Programmable remotes:** We have an entire file drawer filled with press releases on programmable remote controls. Since General Electric developed the first one about two years ago, it's become the wine cooler of the consumer-electronics industry—everybody's got to make one. Unfortunately, sometimes it seems as though you're replacing two or more easy-to-use remotes with one that's hard to use. We don't need *more* buttons! But things may be changing. Before Christmas, Memorex will join CL9 (which makes the \$200 CORE model) with a programmable remote that can combine sequences of commands. For instance, pressing one button could turn on the TV set, the cable box, and the VCR and then select a favorite TV channel. Price? About \$100. *Christopher J. Esse*

sen words can enhance the value of even a \$4,900-per-pair loudspeaker. (For more details on the IC-20, see our test report on p. 34.)

**5** **Yamaha CDX-1100U Compact Disc Player.** Yamaha continues to surprise us with its mastery of digital audio technology. We were astounded by almost equally impressed by this

5

surprise us with its mastery of digital audio technology. We were astounded by almost equally impressed by this year's CDX-1100U Compact Disc player. By using a clever and proprietary technique for bypassing the lowest two bits in a digital-to-analog converter (when those bits are not necessary for correct reproduction), Yamaha's Hi-bit conversion system—employed in the CDX-1100U and a few other Yamaha models—reduces CD-player distortion and noise to nearly their theoretical limits. (The two least significant bits are responsible for much of the nonlinear behavior of a digital conversion system.)

Aiding in the quality of its conversion process are the oversampling digital output filters of the CDX-1100U. Although similar in principle to those used in many other CD players, the Hi-bit digital filters make their mathematical calculations with unprecedented precision: In fact, the outputs of the CDX-1100U's digital filters are 18-bit numbers, instead of the normal 16-bit data. Although this does *not* make the CDX-1100U an 18-bit player, it does show the lengths to which Yamaha is willing to go in order to get extremely good 16-bit performance (which is all you can expect from a 16-bit data-storage system like the Compact Disc, anyway). As our October test report shows, the CDX-1100U is exemplary in most respects: in sound, in measured performance, in construction, in simplicity of appearance, and in ease of use.

6

**6** **Pioneer SD-P501 Projection TV Monitor.** Most observers of the home video industry would rightly credit Pioneer with inventing the product genre of which the SD-P501 is the latest, and probably best, example: the high-performance rear-projection monitor. We were astonished on the first viewing of Pioneer's initial effort, the 40-inch SD-P40, when it was introduced in early 1986. It was the first projection set combining the picture quality of a high-resolution direct-view monitor with a large screen of unprecedented brightness.

This year's model, the 50-inch SD-P501, incorporates several innovative subcircuits that enable its picture quality (and size) to surpass that of the SD-P40. Two of these are dynamic black-level correction and dynamic gamma correction, processes that improve the apparent visual dynamic range (between bright and dark) and reduce "blooming," respectively. The unit uses dynamic focusing of its tube's electron beams to ensure consistent focusing over the entire picture, and a noise reduction circuit specifically for the color signals is included. As a full-feature monitor, the SD-P501 also incorporates a cable-ready stereo TV tuner, built-in convergence adjustments, several audio-video inputs and outputs, a 10-watt (10-dBW) stereo amplifier with speakers, and a wireless remote. But while these features make the SD-P501 versatile, it is the picture quality that really deserves all the accolades. (See this month's "Scan Lines" for more information on the innovations of the SD-P501.)

**7** **NAD 6300 Cassette Deck.** With the CD already upon us (and analog cassette recording is about to enter a long if analog cassettes are pushed aside by digital me-

7

**NAD 6300 Cassette Deck.** With the CD already upon us (and analog cassette recording is about to enter a long if analog cassettes are pushed aside by digital me- DAT almost, as we keep hoping), period of gradual decline. When and dia, the NAD 6300 should be remembered as one of the great decks of the golden age of analog cassette recording.

The 6300 contains a unique pairing of independently developed circuits that, as the saying goes, perform together here for the first time: HX Pro (developed by Dolby and B&O) and Dyneq (invented by Tandberg). Both circuits work to reduce high-frequency tape saturation and distortion and to extend high-frequency response. HX Pro does so by reducing the amount of bias added to the signal when recording high levels of high frequencies; Dyneq does it by reducing the recording pre-emphasis under the same conditions. HX Pro and Dyneq together enable the 6300 to make extraordinarily clean recordings of almost DAT-like quality.

Another superb-sounding innovation is the 6300's switchable compression circuit, one of the most effective and "musical" we have yet encountered. Originally intended to reduce the dynamic range on tapes made for playback in the car (its acronym is CAR, for Compensated Automobile Reproduction), we have found that it is useful in making tapes for a Walkman and in compressing music for late-night or background playback. Add to this the other important features of the 6300—like the NAD-originated play-trim control, a three-head transport with dual capstans, a bias fine-trim control, an easy-to-use front-panel layout, and a wireless remote control—and you have a winner all around. (See test report, August.) ■





Enough of  
Extravagant Claims!  
How Many Lines  
Of Resolution  
Do Video Monitors  
Really Have?

# ACROSS

By Carleton Sarver

Drivers often choose a car according to its horsepower, and audiophiles still select an amplifier by its "wattage" and an FM tuner for its sensitivity. So it was perhaps inevitable that a similar obsession would arise over a television monitor specification, with the craze being promoted by advertisements, video stores, and equipment reviews. Not so many years ago, *lines of horizontal resolution* for a monitor or television set hovered around 250. Gradually, the claims escalated: first, a modest jump to 350 lines, later to 375 lines. Some of today's high-end video monitors have resolution specs of around 600 lines!

Obviously, marketing executives have discovered that prospective monitor buyers are asking which models have the best resolution spec and are then taking that model home. Never mind that these buyers are acting on *claims*, not facts, and that they might be buying a set with a picture actually inferior to that of another brand with an equivalent or even poorer resolution spec. These erstwhile videophiles are being hooked by claims of high resolution—some of them suspiciously derived—while overlooking important factors affecting the amount of picture resolution actually obtained when using the set. The best way to avoid this fate is to know how to "read" a resolution spec.

"Resolution" is a measure of the amount of fine detail that can be visually discerned (resolved) in a picture. Resolution specs have nothing to do with color performance, because the finest picture details are portrayed only in black-and-white (see "True Colors," March). Resolution can be measured in any direction across a television screen, but to understand the spec under contention—lines of horizontal resolution—you must first start with *vertical* resolution.

A television image is formed of very thin glowing lines created by an electron beam sweeping over the light-emitting inner surface of a picture tube. These scan lines are repetitively traced from the top of the screen downward, always from left to right (as seen by the viewer). In the NTSC format used in most of the Americas and Japan, 525 of these horizontal scan lines are spun out during the  $\frac{1}{30}$ -second it takes to show a video frame. Of these, no more than 488 lines carry the actual image.

If our visual system were ideal, the vertical resolution for NTSC television would be as much as 488 lines. However, because of little-understood psychovisual effects, the perceived resolution is always somewhat less. Multiplying the number of actual scanning lines by the corrective "Kell factor" computes the number of effective

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Dr. Sidney Harman, Founder and Chairman of Harman Kardon.

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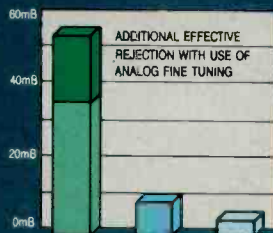
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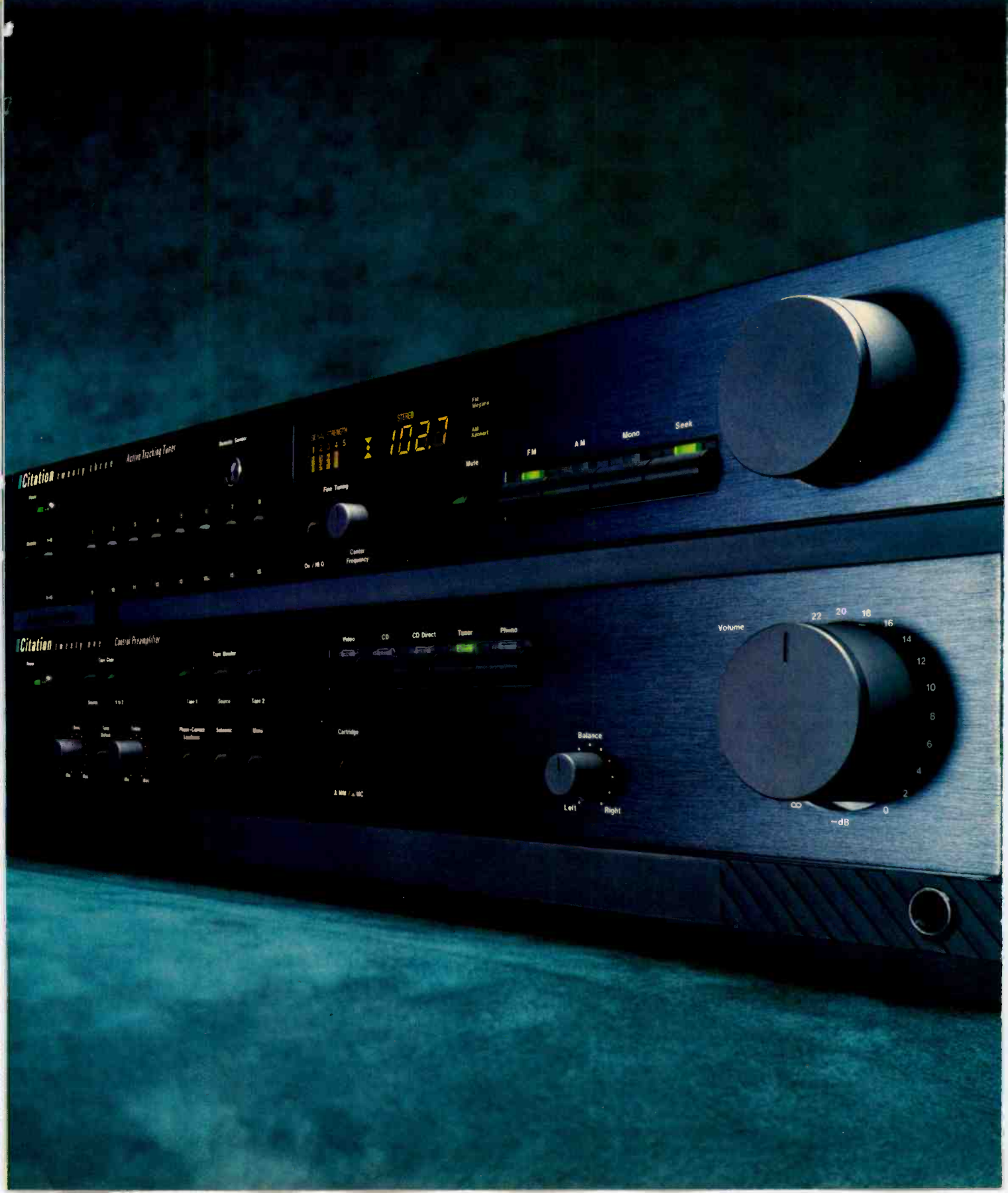
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\*20Hz-20kHz = 0.08% THD into 8 Ohms and into 4 Ohms

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lines of detail that can be resolved by the human eye. There is no universal agreement as to precisely what the Kell factor should be, but we'll use the generally accepted result: about 330 lines of vertical resolution. Therefore, the amount of detail we can see in a television picture is equivalent to the detail that would be seen if our vision were perfect and the picture were composed of 330 horizontal scan lines. Consequently, we see less detail in the vertical dimension than there is on the screen. Although some improvement may theoretically be possible, 330 effective lines remains the maximum possible vertical resolution—regardless of program source. A vertical resolution specification is the number of alternating white and black horizontal lines that can be resolved from the top of the picture to the bottom.

The vertical resolution of a monitor is best measured by having it display a set of horizontal black and white lines that continuously decrease in spacing. This is the classic "resolution wedge" that can be seen in some TV test patterns (see "Reading a Test Pattern," next page). The line spacing at which the viewer starts having difficulty distinguishing the white lines in the wedge from the black lines is the point of maximum vertical resolution. It is measured in effective horizontal scan lines (as shown by the calibrated numbers next to the wedge).

Similarly, a horizontal resolution spec is determined by counting the number of alternating vertical white and black lines that can be resolved across three fourths of the picture width. Why three fourths? Because the aspect ratio (width to height) of NTSC television is 4:3 (three fourths of the picture width equals the picture height). When this is factored in, the horizontal and vertical resolution figures can be compared directly. For example, if a picture's resolution measures 330 lines both vertically and horizontally, resolution is the same in both directions.

This is the case with NTSC television. A broadcast-TV source (antenna or cable) is limited—by law—to maximum vertical and horizontal resolutions of approxi-

mately 330 lines. This figure is no coincidence: The framers of the standard achieved this match deliberately by selection of the number of scanning lines, the number of frames per second, and the picture-signal bandwidth.

#### A FUZZY LINE

Considering vertical resolution is inherently limited to 330 lines, would you really want 600 lines of horizontal resolution, even if it were possible? Put into audio terms, would you be happy with a stereo system whose right channel had a different frequency response than the left?

And yet, 500, 560, and even 600 lines of horizontal resolution are often claimed for high-end monitors. You might logically assume that monitors with such high resolution specs produce a more finely detailed picture than monitors with lower claimed resolutions. Some do, but others may not. It is easy to truthfully claim improved resolution *without changing the monitor at all*. It's just a matter of choosing a more optimistic way of obtaining the resolution spec: Choose a lower contrast ratio between adjacent white and black lines as the measuring point when viewing a resolution test pattern. (In this case, contrast ratio is a measure of the relative brightness of the white and black lines; a ratio of 30:1 means that the white line is 30 times as bright as the black line—an excellent ratio for a TV picture.)

Say a monitor measures 330 lines with a high contrast ratio, meaning the lines in the wedge test pattern still appear to be white or black. Now suppose we obtain the resolution spec from the point in the wedge where the white and black test lines can just *barely* be differentiated—where the lines are, in fact, two slightly different shades of gray (see figure below). Voilà! We suddenly find the monitor has 400, 500, or more lines of horizontal resolution—all without any alteration to its design.

If you, as a manufacturer of VCRs, wish to improve the resolution specs of your products without making engineering changes, you can likewise choose a lower signal-level threshold for your lumi-

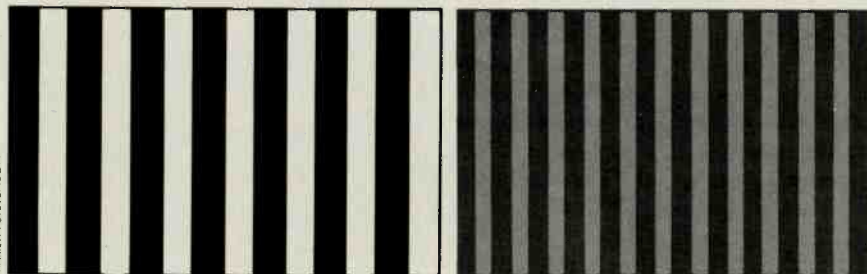
nance frequency response, which translates into resolution. For example, you can use the video response's -14-dB frequency, as some Japanese manufacturers do, instead of its -6-dB point, as is done in HIGH FIDELITY's test reports.

Does this mean that some monitor manufacturers are being dishonest in their astonishingly high horizontal-resolution claims? Absolutely not. They are simply measuring the resolution at an extremely low contrast ratio, perhaps as low as 1.1:1—a point at which the white of a test-pattern line becomes gray and the black only a slightly darker shade of gray. Are the manufacturers being misleading? Perhaps. After all, they seldom mention that the figures they claim can usually be obtained only by blackening the viewing room, adjusting your eyes to the darkness, and turning the set's black-level (brightness) and white-level (contrast) controls down until the picture is exceedingly dim. These measures are necessary to reduce the size of the luminous spot created by the picture tube's electron beam; the beam can then trace finer detail.

Claiming a particular resolution figure without mentioning the contrast ratio at which it is measured is akin to claiming a certain frequency response for an amplifier without specifying its tolerance in decibels. When high fidelity audio was young, this was acceptable behavior. Today, it is no longer tolerated by serious audiophiles. Just as audio manufacturers have standardized on the -3-dB points as the normal tolerance limits for audio bandwidth, it would be quite helpful if television and monitor manufacturers would agree on a specific contrast ratio—perhaps 30:1—and a realistic screen brightness at which resolution is to be measured. While convincing arguments can be made for measuring at both high and low contrast ratios (some detail is still visible at a low ratio), *standardization* of the procedure is most urgently needed. In the meantime, monitor manufacturers should at least start publishing the contrast ratio used to obtain their horizontal resolution specs—and they may do just that if you start telling them that their resolution claims are otherwise almost meaningless. Since you consult equipment reviewers in making informed buying decisions, you might also ask them to start indicating at least an approximate contrast ratio.

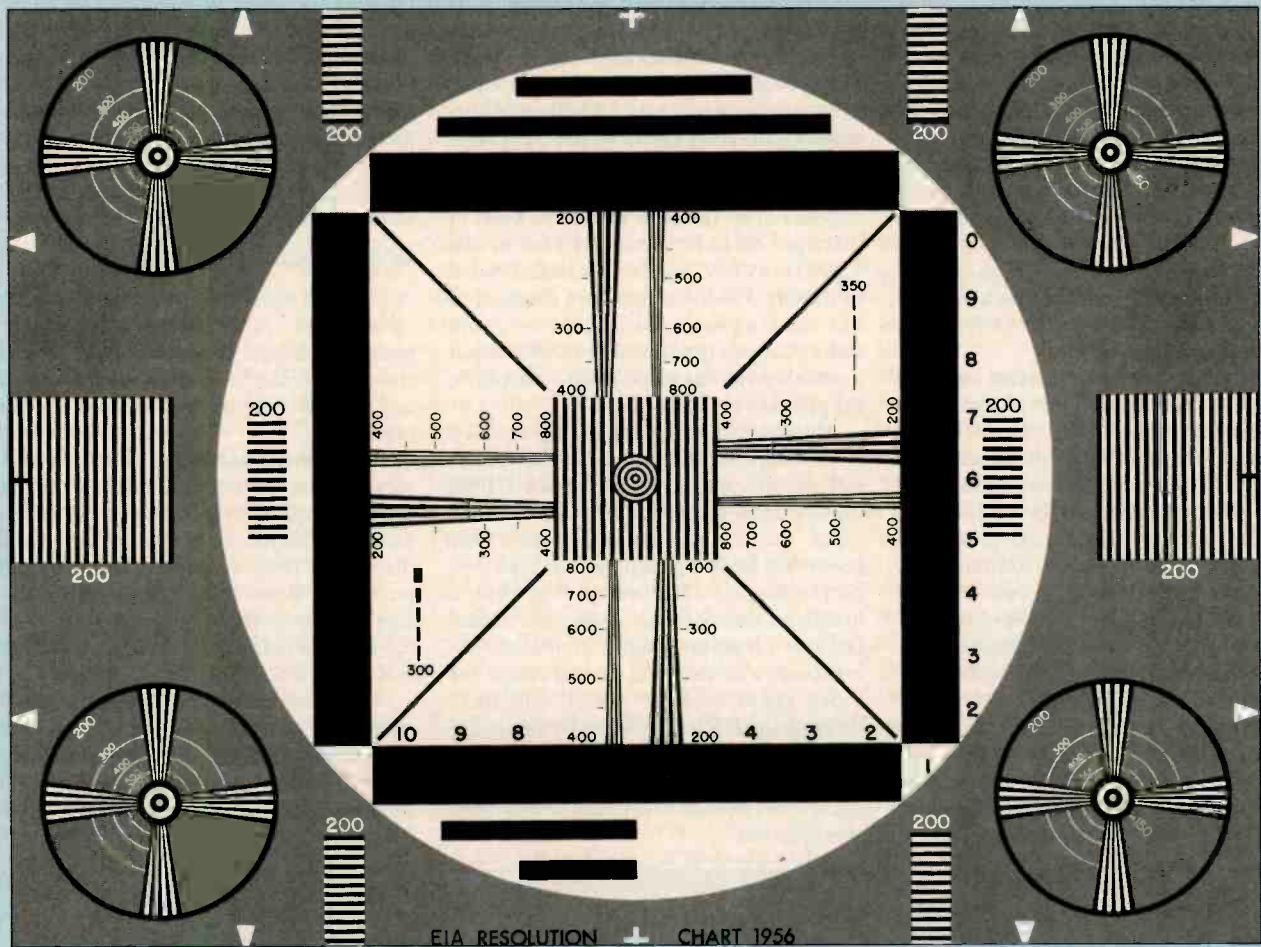
#### WHICH INPUT?

By definition, all monitor-receivers have both an RF (radio-frequency, or antenna) input and a direct video input (sometimes called a composite-video input). Some also offer an RGB connection—containing



The example on the left symbolizes 330 lines of resolution at high contrast. The one on the right exemplifies 560 lines with low contrast. Both pictures represent the resolution performance of the same screen.

## Reading a Test Pattern



The test pattern above contains many of the "signals" necessary to evaluate the luminance (black-and-white) performance of a piece of video equipment. While the luminance test patterns you may encounter on broadcast or cable TV can differ slightly from this one, the basic principles of how to use them are identical.

Measuring resolution is fairly easy using the sets of resolution "wedges" (within the large circle, these are the clumps of thin horizontal and vertical lines pointing toward the central square). While viewing the reproduced image, note where it starts to become difficult on each wedge to tell a white line from a black one. From the calibrations beside each wedge (running from 200 to 800 lines), it is easy to estimate resolution to within about 25 lines. For horizontal resolution, use the *vertical* wedges; for vertical resolution, use the *horizontal* wedges. Because of the bandwidth limitations of the NTSC system, a broadcast of this or a similar chart will, at best, show resolution of about 330 lines, both horizontally and vertically.

To measure resolution correctly, this test pattern must be picked up by a camera having resolution known to be greater than that of the component under test. And for proper scaling of the resolution wedges, the pattern must be aligned so that the eight white arrowheads around its border just touch the four edges of the picture. This alignment should be done while

viewing the pattern on a camera, not on a monitor screen. The latter may have excessive overscan, which will lead to incorrect measurements. Resolution at the corners of the screen as well as electron-beam focus and convergence can be evaluated using the wedges in the corner circles.

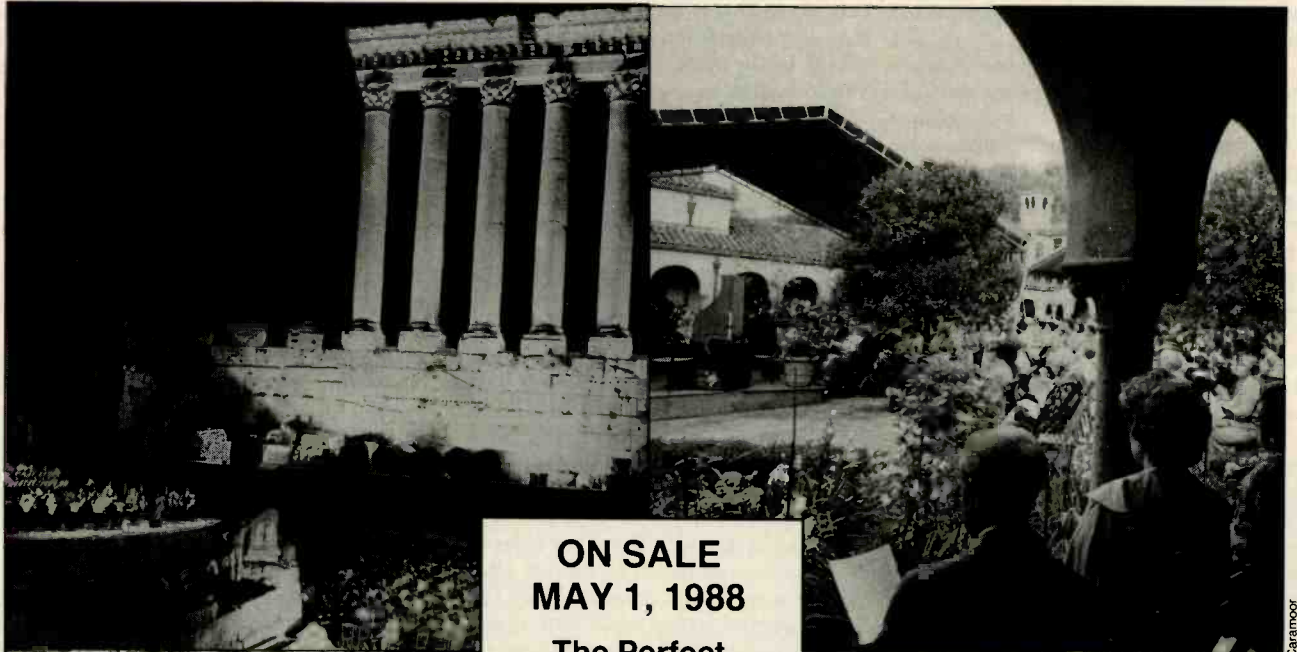
This image allows for several other tests. Streaking of the large black bars indicates low-frequency phase shift or poor DC performance. A jagged appearance of the four single diagonal lines pointing toward the center indicates poor interlacing by a video monitor of the two fields making up a video frame. The groups of five short vertical lines to the upper right and lower left of the central portion can be used to find resonances in the video chain. A strong resonance will create ghostlike "ringing" on the right of these lines. All the circles in this test pattern, by the way, should come out as such, and the gray background should be uniform. The relative size of the large central circle has been standardized, so you can use this or similar patterns to estimate the amount of overscan of your monitor. Simply note how much of the screen is taken up by the large circle. On a monitor with no overscan, the proportions will be as they are shown here. An official, full-size (9 by 12 inches) version of this chart is available, along with other useful test patterns, for \$55 from Hale Color Consultants, 1505 Phoenix Rd., Phoenix, Md. 21131. *David Ranada*

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**Edited by Ted Libbey  
and Ken Richardson**

## Things Are Looking Up

**T**his month, **HIGH FIDELITY**'s classical music section focuses on the influx of full-price and midprice Compact Disc reissues that is once again making the local record outlet an exciting place to be. Collectors who reluctantly put aside their LPs when the silver discs arrived on the scene five years ago can breathe easier: The best recordings of the vinyl era are being resurrected and will sound better than ever in the new format. The corner has been turned.

The rising tide of reissues and the arrival of midprice CDs will also spawn some changes in the industry itself. Just as the top teams in major-league ball—the “sharks”—rise from the depths of the standings in August and start swallowing up the rest of the pack, so too will the labels with the strongest catalogs begin to rise. In fact, one New York retailer who sells only CDs reports that this summer his sales of Angel EMI product exceeded his sales of Polygram product for the first time, owing to Angel's simultaneous release of a dozen Maria Callas titles. Now that Angel and RCA (the labels with the richest vaults) have unimpeded access to CD pressing plants, they can be expected to reissue vast amounts of material. The collector will benefit, and these labels may well regain some of their former dominance.

New partnerships between hardware producers and various labels are likely to bring about further changes. Sony's acquisition of CBS's record division—a \$2 billion deal rumored to be going through at the time of this writing—would dramatically change the face of the business. It would mean that the last of the major American classical labels would no longer be American-owned (RCA is already owned by the German publishing conglomerate Bertelsmann, AG), yet the fortunes of the classical wing, CBS Masterworks, might actually improve in light of Sony's demonstrated commitment to classical music.

Sponsorship of recording projects is another area in which hardware manufacturers have of late become more active. Virginia-based Conrad-Johnson Design, Inc., a high-end firm that produces tube amplifiers and preamps, among other components, recently provided funding for a Gershwin recording by the Royal Philharmonic Orchestra with pianist/conductor Andrew Litton. The connection? Litton is music director of the Virginia Chamber Orchestra. Conrad-Johnson is also involved in some joint projects with Nimbus. Cooperation between equipment manufacturers and record labels is an encouraging sign, particularly when one considers the cost of making records these days. Worthy projects that might have been tabled for lack of capital will now have a better chance of coming to fruition.

*Ted Libbey*

## Reggae: Death, Life

**T**he reggae world was shocked in September by the execution-style murder of Peter Tosh, who in 1963 formed the seminal Wailers with Bob Marley and Bunny Livingston. Survivors of the attack reported that Tosh laughed defiantly at his assailants when they demanded money from him in his Kingston, Jamaica, home. Peter, who survived beatings from the Jamaican police, was like that. “I'm like a stepping razor,” he once sang. “If you want to live/Treat me good. . . .” Just days before returning to Jamaica in early September, Tosh was in New York complaining to his record company that it hasn't properly promoted his new album, *No Nuclear War* (EMI America ELT 46700). He was right: No reggae album ever gets the support it deserves.

So it was surprising that Tosh did not appear at this year's Reggae Sunsplash, which took place about three weeks before his death. Forty of reggae's best artists performed at the five-day outdoor celebration, which not only marked the 10th anniversary of the international Montego Bay festival but also coincided with the 25th anniversary of Jamaican independence from British rule. What better platform for Tosh, one of the few remaining politically outspoken voices in reggae, to espouse his Rastafarian vision, not to mention promote his latest record?

Perhaps it had something to do with the real dichotomy going on in Jamaican reggae these days. The most popular sounds on the island are what the locals call dance hall. Similar to American rap, dance hall involves repetitive, syncopated rhythm tracks created by studio engineers, over which quick-tongued, non-singing kids with no detectable musical talent but some personality shoot off their mouths about mostly nonsense. Nevertheless, “Deejay Night” at Sunsplash drew 35,000 people, far more than the programs offering formidable talents of the Marley/Tosh school: Burning Spear, Steel Pulse, Third World, the I-Threes (featuring Marley's widow, Rita), and Bunny (Livingston) Wailer himself, who also has a record out, *Rootsman Skanking* (Shanachie 43043).

Despite the popularity of dance hall, Marley's oldest son, eighteen-year-old David “Ziggy” Marley, showed the Sunsplash crowd he is ready to pick up where his father left off. On stage and on his current *Hey World!* (EMI America ST 17234), self-assured Ziggy eerily evokes his father with songs like “Fight to Survive,” “Freedom Road,” “Police Brutality,” and “Reggae Revolution.” Tosh, despite eight uniformly excellent solo LPs since leaving the Wailers in 1973, never became reggae's international spokesman, probably because of his sometimes arrogant jealousy of Bob. Whether Ziggy can fill the role remains to be seen.

*Larry Jaffee*

# THE GOOD OLD DAYS ARE BACK



BY THEODORE W. LIBBEY, JR.

**T**he latest catchphrase in the music business is not DAT, but "audio crack." That's what serious record collectors are calling Compact Discs, less in tribute to the kicks that can be gotten from the medium than in acknowledgement of how much money people are starting to spend on their CD "habit." It has taken a mere five years for the silver discs to establish this hold on classical record buyers, and the craze is rapidly spreading to the pop side.

For the classical collector who started early and has become a hard-core CD user, it is time to celebrate: time to cheer the increasingly plentiful stocks of desirable reissues that are reaching dealers' shelves, time to welcome the arrival of midprice discs from the major labels (see "Midprice CDs Are Here, Part 1," p. 73), and time to applaud these labels' continuing efforts to reissue the most important historical recordings from their catalogs in





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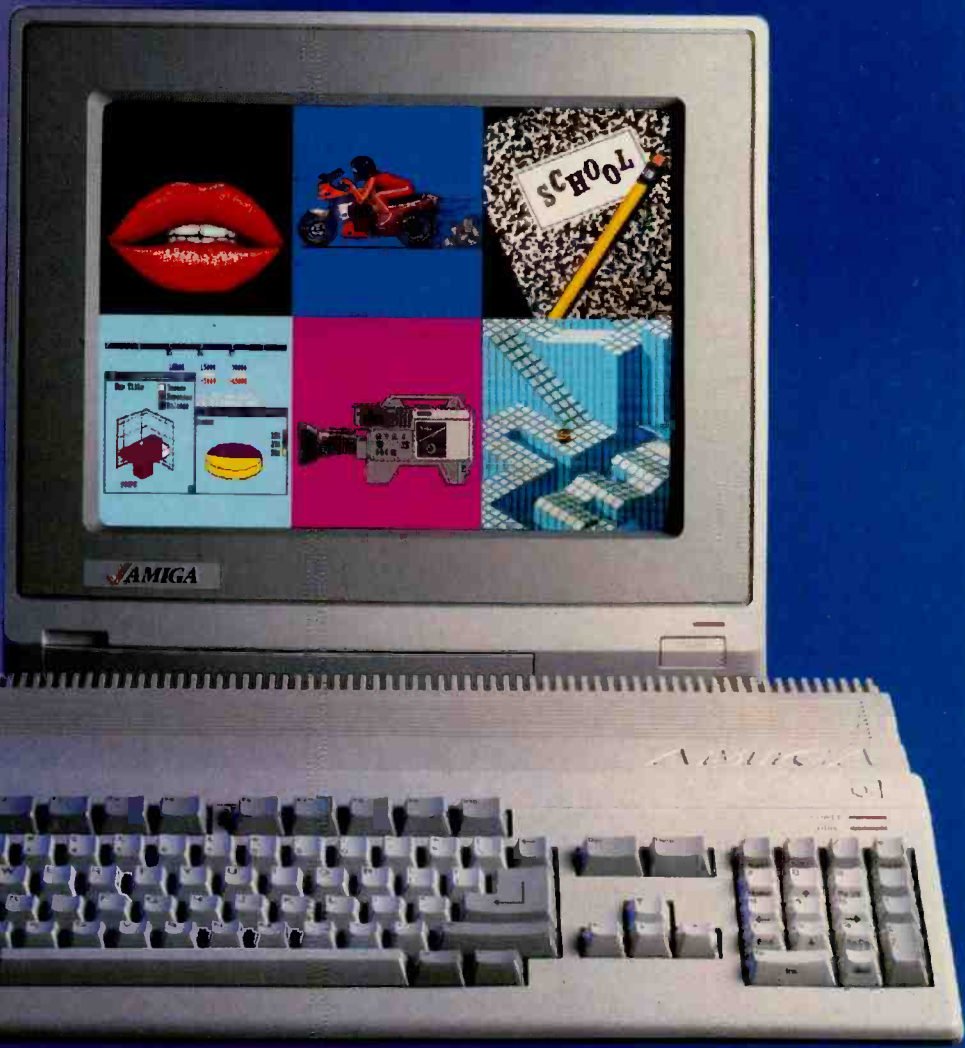
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the new format—even if most of these CDs are being offered at full price. Such developments point unequivocally to the medium's commercial success, a success that has come more quickly than the recording industry expected.

But for the dedicated discophile, it has seemed like an eternity. Until now, too many new recordings by second- or third-rate interpreters have appeared automatically on CD, while much that was first-rate has slumbered in the vaults, awaiting the remastering producer's magic touch. Now at last, there is a steady stream of vintage stereo and golden-age mono recordings appearing on the market, featuring some of the century's most formidable artists. And plenty more are in the pipeline. In short, the good old days—or, at least, what is left of them on record—are back.

Less than a year ago [see "A Little Less Noise," March], it was still possible to lament the seepage—and, in a few instances, the flood—of mediocrity into the CD catalog, while simultaneously bemoaning the absence of key recordings by the likes of Wilhelm Furtwängler, Arturo Toscanini, Serge Koussevitzky, Thomas Beecham, Herbert von Karajan, George Szell, István Kertész, John Barbirolli, and Jean Martinon. It was easy to find almost anything played or conducted by Vladimir Ashkenazy, little of it that good—but not a single disc of Van Cliburn or Sergei Rachmaninoff (or, for that matter, of William Kapell, Wilhelm Kempff, or Géza Anda). There was Domingo and Pavarotti aplenty, but no Björling; Hermann Baumann but no Dennis Brain; the Hagen Quartet but no Quartetto Italiano. All that has changed. It's hard to say whether this is because CD pressing capacity has increased dramatically in the past year or because executives at some of the major labels have taken this long to get their priorities straight. In all likelihood, it has to do with both, but the inescapable bottom-line fact is that artists like Maria Callas, Jascha Heifetz, and Fritz Reiner (and, in the pop and jazz fields, John Coltrane, Frank Sinatra, and the Beatles) are helping many record stores pay their rent. And the suppliers are finally recognizing what the consumer wants and are beginning to provide it.

Late-summer visits to Orpheus Remarkable Recordings and J&R Music World in New York, which both cater to serious CD buyers, confirmed that a number of important new releases, most of them reissues, were already on the shelves, with a great many others expected by the beginning of the holiday buying season. If last Christmas was the Christmas of the

CD player, this one promises to be that of the discs themselves—or, more precisely, the Christmas of the golden oldies.

Among the season's best greetings are a handful of classic opera recordings that have been newly remastered for CD. Leading the list is the celebrated Furtwängler *Tristan und Isolde* from 1952, which has at long last been issued domestically by Angel EMI (CDCD 47321, four CDs) after being available in Europe and Japan for more than a year. The cast—including Ludwig Suthaus as Tristan and Kirsten Flagstad as Isolde, both past their prime, and the young Dietrich Fischer-Dieskau as Kurwenal, just short of his—may not have been ideal, but it certainly sounds good by today's standards. More important, Furtwängler's pacing is superb and his grasp of Wagner's extraordinary musical architecture absolutely sure; his



Wilhelm Furtwängler's celebrated "*Tristan und Isolde*" was long overdue in the CD catalog.

conducting transmits the poignancy and profound emotion of the score as convincingly as has ever been managed on record. The sound is remarkably good, particularly in the naturalness of the orchestral balance. Still, some listeners may object to what appears to be a subtle rechanneling of the loudest passages to create the effect of an enhanced soundstage that, in places like the climax of the first-act prelude, verges on a stereo spread. While this may unsettle some listeners used to true mono, others may feel even more drawn into the experience. In any case, few recordings of any era capture the spirit of a work and reveal the artistry of great interpreters as consistently as this one does. For the perfect Wagnerite, this *Tristan* comes close to being the perfect gift.

On its heels, Angel EMI has released three sets that should bring joy to the hearts of all who love Strauss's operas. First is the classic mono *Der Rosenkava-*

*lier* conducted by Herbert von Karajan and featuring Elisabeth Schwarzkopf, Christa Ludwig, and Teresa Stich-Randall (CDCC 49354, three CDs). Accompanying it are the Schwarzkopf *Capriccio*, with Ludwig, Fischer-Dieskau, Nicolai Gedda, and Hans Hotter, conducted by Wolfgang Sawallisch (CDCB 49014, two CDs); and Karajan's magnificent stereo *Salome*, with Hildegard Behrens in the title role, joined by Agnes Baltsa, José Van Dam, and Wieslaw Ochman and accompanied by a fired-up Vienna Philharmonic (CDCB 49358, two CDs).

Another top operatic offering is Colin Davis's superb account of *Les Troyens* on Philips (416 432-2, four CDs), featuring Jon Vickers in the role of Aeneas. Davis's entire Berlioz cycle, one of the most significant recording projects of the stereo era, will be available on CD by the end of 1988; at present, titles reissued on CD include *La Damnation de Faust* (416 395-2, two CDs), *L'Enfance du Christ* (416 949-2, two CDs), the *Requiem* (416 283-2, two CDs), and *Béatrice et Bénédict* (416 952-2, two CDs), as well as *Les Troyens*. The sound on these recordings, most of which date from the late '60s and early '70s, is excellent, and Philips has provided full notes and texts for the operas (omitting, for unknown reasons, the cast of *Les Troyens*). For the Francophile and vocal enthusiast, any of these sets will make a welcome gift, especially *Les Troyens*.

Lovers of Puccini's *La Bohème* are faced with a difficult choice between two splendid accounts of the work, both brilliantly conducted, magically sung, and exceptionally well recorded. The classic Thomas Beecham performance on Angel EMI (CDCB 47235, two CDs), with Victoria De Los Angeles and Jussi Björling in the lead roles, is one of the most successful opera recordings in history and has been a treasure of the LP catalog for 30 years. It has stood up fairly well to remastering, though careful comparison of the LP and CD versions makes one suspect that there has been an unfortunate filtering of the high end in order to remove tape hiss. In contrast, Herbert von Karajan's 1972 *Bohème*—with Mirella Freni and Luciano Pavarotti the leads, backed by the Berlin Philharmonic—sounds better than ever; in fact, it sounds absolutely extraordinary, and Karajan and the Berlin are at their best. One of the recent releases in London's ADRM series (421 049-2, two CDs), it features newly written program notes and a handsomely produced libretto and is a model of how CD reissues ought to be handled.

Of the major labels, Angel EMI was

the slowest starter in the race to transfer important reissues onto CD, but the label has come up fast and may soon lead the field. Its top priority in the reissue area has been its Callas holdings, for which opera lovers and fans of that unique diva can indeed be grateful. Among the Callas opera recordings currently available on CD are her *Lucia* (Angel EMI CDCB 47439, two CDs), *La forza del destino* (CDCC 47581, three CDs), *Norma* (CDCC 47303, three CDs), *La sonnambula* (CDCB 47377, two CDs), *Tosca* (CDCB 47174, two CDs), *Carmen* (CDCC 47312, three CDs), *Un ballo in maschera* (CDCB 47498, two CDs), *La Bohème* (CDCB 47475, two CDs), *Manon Lescaut* (CDCB 47392, two CDs), *Madama Butterfly* (CDCB 47959, two CDs), and *Turandot* (CDCB 47971, two CDs). As interpretations, all are remarkable and worth owning, even if Callas's voice is not to your taste. The two Bellini operas and the recordings of *Tosca*, *Manon Lescaut*, and *Carmen* are vital to any serious collection.

A number of distinguished recordings of the symphonic repertory are also making their debut on CD. Those who remember István Kertész's glorious late-'60s cycle of the nine Dvořák symphonies with the London Symphony Orchestra on London will welcome the label's release of Nos. 4, 5, and 6 on CD—even though they are packaged separately and sold at full price (417 596, 597, 598-2). Kertész's accounts of Nos. 1-6 have yet to be bettered. The competition is keener with regard to the final three symphonies, but here, too, his readings remain among the best. London has decided to reissue the Ninth on its midprice Ovation line (with the *Scherzo capriccioso* and *Carnival Overture* as a coupling) and can be expected to bring out the Seventh and Eighth in the same way.

If you're planning to spend Christmas in Europe, you may want to take advantage of the opportunity to acquire several boxed sets that are not, and may not soon be, available domestically. Sir Georg Solti's highly acclaimed recordings of the Brahms symphonies, made in the early '70s with the Chicago Symphony Orchestra, is one such package (Decca 421 074-2, four CDs). By offering the cycle as a boxed set, the label fills a vacant niche in the marketplace, and it can be forgiven for putting the four symphonies on four CDs because it has issued the set as a midprice offering. On the same number of CDs, one can have Franz Schubert's eight symphonies in the spirited accounts Karl Böhm recorded for Deutsche Grammophon with the Berlin Philharmonic during the '60s and early '70s (DG 419 318-2, due for domestic mid-

price release in 1988). Other attractive cycles that have recently been reissued as boxed sets on both sides of the Atlantic and are recommended for Christmas gift-giving are Colin Davis's traversal of the Sibelius symphonies with the Boston Symphony (Philips 416 600-2, four CDs), which is preferable to Ashkenazy's with the Philharmonia Orchestra (Decca 421 069-2, four CDs, available domestically as single discs but not as a boxed set); and Lorin Maazel's insightful rendition of the

Rubinstein has already been made available on CD by RCA Red Seal. These reissues are all recommended, particularly the Heifetz discs, which remain the unassailable standard by which other violinists' recordings must be judged. More recently, Red Seal reissued Cliburn's brilliant accounts of the Tchaikovsky concerto, the Rachmaninoff Second and Third, and the Prokofiev Third (RCA 5912-2 and 6209-2), as well as Rachmaninoff's own authoritative performances of his Second and



Colin Davis's landmark Berlioz cycle, capped by a brilliant "Les Troyens," is being reissued on CD.

Rachmaninoff symphonies with the Berlin Philharmonic (Deutsche Grammophon 419 314-2, three CDs), which is preferable to Ashkenazy's readings with the Concertgebouw Orchestra (Decca 421 065-2, three CDs, also not available domestically as a boxed set).

Some of the finest concerto recordings of recent decades are now available on CD as well. The magnificent cycle of Beethoven's piano concertos, recorded by Leon Fleischer and George Szell in the early '60s, has finally made it into the catalog (CBS M3K 42445, three CDs, with Mozart's Piano Concerto No. 25 as filler) as a full-price boxed set—not as a series of single releases, the mistake made by Angel EMI in reissuing Szell's later version of the cycle with Emil Gilels. Angel has atoned for that misstep by reissuing Dennis Brain's magnificent accounts of Strauss's two horn concertos (recorded with Sawallisch and the Philharmonia Orchestra), coupled with his recording of the Hindemith concerto in which the composer conducts the same orchestra (CDC 47834). Much of Brain's work has yet to be reissued, including his rendition (with Karajan) of the Mozart concertos, but it is good to have the Strauss.

A substantial sampling of the concerto recordings of Jascha Heifetz and Artur

Third, recorded with the Philadelphia Orchestra (RCA 5997-2). Unfortunately, the remastering of the latter was unsatisfactory, and the disc has been withdrawn. Buyers should be on the lookout for the newly remastered copies, which should now be in shops.

Lovers of chamber music and solo instrumental repertory may have justifiably felt left behind by the CD revolution, but they finally have something to cheer about. The Quartetto Italiano's marvelous recordings of the Mozart and late Beethoven string quartets are at last available on CD in handsome boxed sets from Philips (416 419-2, eight CDs, and 416 638-2, four CDs, respectively), and CBS has been busily reissuing its Horowitz holdings, performances that are mostly superior to the pianist's latest efforts for Deutsche Grammophon. Rubinstein's peerless recordings of Chopin are available at regular intervals from Red Seal, which has also brought forth its first Fritz Kreisler CD (RCA 5910-2) and will soon have out a disc featuring William Kapell's performances of the Chopin Sonatas Nos. 2 and 3. With musical treasures like these on the shelf or on the way, the CD fancier's Christmas may last until next summer. Finally, there are real jewels to be found in those CD jewel boxes. ■



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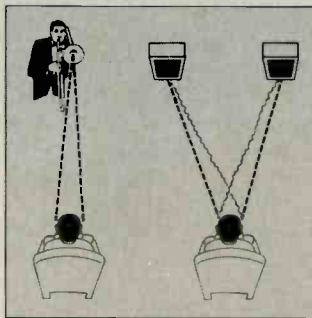
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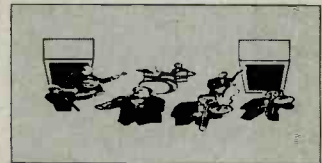
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R. Stereo playback of that sonic event results in four sound arrivals. Two per speaker per ear = four.

Conventional stereo tries to duplicate this process by using two speakers to send a different version of the same sound occurrence to each ear. In theory, this should "trick" your brain's psychoacoustic center into placing the musician on a limited sound stage between your speakers. If — and only if — each speaker can be only heard by one ear.



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The Sonic Hologram Generator in the Carver 4000t, C-9, C-1 and Carver Receiver 2000

solve this muddling of sound arrivals by actually creating another "sound." This special impulse cancels the objectionable second sound arrival, leaving only the original sound from each loudspeaker.

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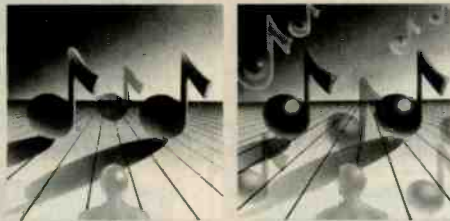
Any stereo source can be transformed from monochromatic flatness into vibrant three-dimensional reality with Sonic Holography.

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can take on an astonishing presence and dimension through Sonic Holography.

The new Carver TX-11a AM/FM tuner delivers AM stereo broadcasts with the same dynamics and fidelity as FM. A perfect source for the Sonic Hologram Generator. Think of it: AM can actually become a three-dimensional phenomenon through Carver Technology!



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More and more people are discovering what theaters discovered some time ago: Audio makes a huge contribution to the realism of video. Still, it has taken the incredible, near-digital quality of VHS and Beta Hi-Fi to make the marriage of audio and video truly rewarding. Now even rental movies fairly explode with wide frequency range, dynamic impact and conventional stereo imaging.

Add the steady emergence of stereo TV broadcasts by all three major networks of prime time programming and special broadcasts, and you have fertile ground for the added realism that only Sonic Holography can deliver.

Unlike so-called "surround sound" a Sonic Hologram Generator puts you into the middle of any stereo soundtrack, (stereo, Hi-Fi stereo, broadcast stereo or even simulcasts). It psychoacoustically expands the visual experience with life-like sound that envelops you in the action.

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Before you purchase any component, consider just how much more Carver can enrich your audio and video enjoyment. And then visit your nearest Carver dealer soon.



The Carver Sonic Holography quartet. Pictured from left to right is the 4000t Preamplifier, the C-9 sonic Hologram Generator, the Receiver 2000 with remote control and the C-1 Preamplifier.

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# Midprice CDs Are Here PART I

*The major labels have brought prices down by cutting corners.*

**By David Hurwitz**

**T**he arrival of midprice (\$10-\$12) Compact Discs should delight record collectors. With the pressing capacity of CD plants finally in balance with demand for the discs, it looks as though the treasures tucked away in record-company vaults are about to be revealed at last. The availability of what in many cases is artistically and sonically superior product at reduced price—with all of the advantages of Compact Disc convenience—is a welcome development, although it may upset some of the convenient assumptions of the classical music industry. Specifically, these releases, most of which were recorded using analog processes, graphically demonstrate that digital recordings are not necessarily superior.

All of the major labels have announced midprice CD lines; some, such as MCA Classics and the Moss Music Group, plan to offer budget-price product almost exclusively. Nevertheless, the industry majors—Angel EMI, CBS, RCA, and Polygram (which distributes Deutsche Grammophon, Philips, and London)—will set the tone for future policy. A brief survey of 14 releases in Deutsche Grammophon's Galleria series gives some indication of what we can expect.

The big news for many collectors will be DG's decision to release Herbert von Karajan's 1977 Beethoven symphony cycle with the Berlin Philharmonic. The nine symphonies and miscellaneous overtures occupy the same number of discs (six) as does Karajan's more recent digital cycle with the same orchestra; moreover, both the sound quality and the performances captured on these decade-old recordings are markedly superior to those on the newer set. The 1977 Ninth (415 832-2; playing time: 66:54) features outstanding work in the finale by soloists Anna Tomowa-Sintow, Agnes

Baltsa, Peter Schreier, and José van Dam. Karajan's characteristically overdriven *Pastorale* comes with three overtures: *Coriolan*, *The Creatures of Prometheus*, and *The Ruins of Athens* (415 833-2; playing time: 58:21). The CD containing both the Fifth and Eighth Symphonies (419 051-2; playing time: 62:05) still has room for a filler—the overture to *Fidelio*. The *Eroica* Symphony, coupled with the *Leonore* Overture No. 3, is the final release to date (419 049-2; playing time: 62:49). The remaining two discs, containing Symphonies Nos. 1, 2, 4, and 7, will be available by the time this article appears.

Whatever the rationale behind the decision to release these discs and place Karajan in competition with himself, it will now be possible to acquire his better Beethoven cycle at a substantial savings. The newer cycle retails for about \$100, which is \$30 more than the Galleria price. Unfortunately, this may mean that DG's finest set of Beethoven symphonies—Karl Böhm's performances with the Vienna Philharmonic—will continue to languish in the vaults. Karajan's unique art is even better represented on a Galleria disc pairing Schubert's *Unfinished* Symphony with Mendelssohn's *Italian* (415 848-2; playing time: 52:34)—lovely performances that are propulsive, lyrical, and very well recorded. On the debit side, Karajan's rendition of Rimsky-Korsakov's *Scheherazade*, coupled with Borodin's *Polovtsian Dances* (419 063-2; playing time: 60:44), possesses neither the refinement of the Thomas Beecham account (Angel EMI CDC 47717) nor the punch of Fritz Reiner's reading (RCA RCD1 7018). But the playing of the Berlin Philharmonic on all of these discs is uniformly excellent, a tribute to Karajan's high standard of orchestral execution.

Rafael Kubelik was in effect a house

conductor for DG during the 1960s and '70s, recording complete cycles of the Dvořák, Mahler, and Schumann symphonies and other things that neither Karajan nor Böhm found worthy of notice. In 1964, he recorded the Schumann and Grieg concertos with the Berlin Philharmonic and the underrated pianist Géza Anda, and these genial, vivacious performances (415 850-2; playing time: 63:10) are a welcome addition to the CD catalog. Kubelik's Dvořák is represented by the complete *Slavonic Dances* (419 056-2; playing time: 70:25)—a very exciting performance in which the Bavarian Radio Symphony Orchestra plays with fiery abandon at dangerously quick tempos.

century's preeminent Mozartians.

Abbado and the Vienna Philharmonic appear as accompanists on one other CD, backing soloist Nathan Milstein's superb renditions of the Tchaikovsky and Mendelssohn violin concertos—performances as good as any in the catalog (419 067-2; playing time: 58:08). With generous support from the London Symphony, Abbado takes a solo bow in colorful and distinctive interpretations of two Stravinsky favorites—*The Rite of Spring* and the 1919 suite from *The Firebird* (415 854-2; playing time: 55:12). While these accounts may not be as rhythmically charged as some other versions, the playing and recording are of uniformly high caliber. As these recordings show, DG seems to do much of its best work in London.

Moving across the English Channel to the French capital, Daniel Barenboim directs the Orchestre de Paris in three Saint-Saëns miniatures: the Bacchanale from *Samson et Dalila*, the Prelude to *Le Déluge*, and the ubiquitous *Danse Macabre*. DG has intelligently coupled these with Barenboim's superb account of Saint-Saëns's *Organ Symphony*, played to the hilt by the Chicago Symphony and sounding better than ever. Here is yet another instance of an analog predecessor that artistically and sonically surpasses its more recently recorded digital rival—in this case, Karajan's bloated digital statement of the *Organ Symphony*. Also for Francophiles, Seiji Ozawa's Ravel cycle with the Boston Symphony yields fine performances of *Boléro*, *La Valse*, *Alborada del gracioso*, *Pavane pour une infante défunte*, *Une barque sur l'océan*, and *Menuet antique* (415 845-2; playing time: 55:31). This cycle has always been underrated: Ozawa genuinely understands the music, the orchestra plays splendidly, and the recording is excellent.

Finally, a word about presentation. These releases were designed specifically for the American market—all of them come with English-only notes printed on a single, folded-page inner sleeve. The CD of Beethoven's Ninth does not include a text and translation, a typical record-company practice in releasing budget product. This is inexcusable. Ten to twelve dollars a disc is hardly "budget," and such cost-cutting measures reflect the persistence of a vinyl mentality that has no place in today's classical record scene. ■

*David Hurwitz has hosted numerous radio programs. He will survey other labels' midprice CD lines in upcoming issues.*



Deutsche Grammophon's enormous catalog of Mozart performances yields two distinguished compilations. Pianist Friedrich Gulda joins Claudio Abbado and the Vienna Philharmonic in fine renditions of Piano Concertos Nos. 20 and 21 (415 842-2; playing time: 62:37). Abbado has digitally re-recorded these works with the London Symphony and a somewhat creaky Rudolf Serkin but, as in the case of Karajan's Beethoven, the earlier versions are clearly superior. The other Mozart disc couples the two most popular serenades: *Eine kleine Nachtmusik* and the *Posthorn Serenade* (415 843-2; playing time: 60:48). Karl Böhm leads the Vienna Philharmonic in the former and the Berlin Philharmonic in the latter, all in performances that confirm his reputation as one of this

By Robert E. Benson, David Hurwitz, Christopher Manion, Robert R. Reilly, Christopher Rothko, and Terry Teachout


 **DVOŘÁK SYMPHONY NO. 8:  
CLEVELAND ORCHESTRA, SZELL**

This magnificent performance of Dvořák's warmly lyrical Symphony No. 8 has been superbly remastered. Only a slight hardness in the trumpet tone betrays the recording's analog origins. The sound overall is rich and burnished, with minimal hiss. There are many excellent performances of the Eighth on the market, but Szell and his Clevelanders in top form outshine them all. Two of the *Slavonic Dances* provide the filler—short measure, perhaps, but when it comes to music-making of this quality, who cares? Playing time: 48:34. (Angel EMI CDC 47618.) *D.H.*

 **WALTON WORKS:  
BIRMINGHAM, FRÉMAUX**


It might seem unlikely that a French conductor could direct the music of Sir William Walton so perceptively. But Louis Frémaux here offers a witty account of *Façade*, noble presentations of the *Gloria* and *Te Deum*, and dazzling readings of the two coronation marches, *Crown Imperial* and *Orb and Sceptre*, which receive better performances from the City of Birmingham Symphony Orchestra than those heard on André Previn's recent Telarc disc with the Royal Philharmonic. As of this writing, these are the only CD representations of *Façade*, the *Gloria*, and the *Te Deum*. If you enjoy Walton's choral masterpiece, *Belshazzar's Feast*, you'll derive much pleasure from the latter two works.

All of these are analog recordings dating from 1977, but aside from a touch of overloading in the loudest choral passages, the reproduction is superlative, with a broad, spacious sonic perspective and plenty of bite and sizzle from the percussion. Program notes are quite extensive, including complete texts for the two choral works. There are 15 cueing bands, mostly for the movements of *Façade*. Playing time: 67:02. (Angel EMI CDC 47512.) *R.E.B.*

 **SCHUBERT OCTET:  
ACADEMY CHAMBER ENSEMBLE**


Franz Schubert's delightful Octet, written in 1824, is modeled on Beethoven's Septet but is almost twice the length. It teems with lovely melodies and generally reflects the lighter side of life, although it flirts with dark drama in the startlingly omi-

nous string tremolos that open the last movement. The Octet's spirited invention and variety remain fresh in this excellent, characterful performance by the Academy of St. Martin-in-the-Fields Chamber Ensemble. Originally recorded in 1977, the digital reincarnation successfully presents a warm, natural sound. Playing time: 54:30. (Philips 416 497-2.) *R.R.R.*

 **MAGNARD SYMPHONY NO. 4:  
TOULOUSE, PLASSON**

On the evidence of both this symphony and his Third (once available in a performance by Ansermet on Decca), Albéric Magnard was arguably the greatest French symphonist before Roussel. Just listen to the opening bars: Uprushing woodwinds lead to passionate sighs on the violins, and trombones mutter a sepulchral phrase, groping toward the light. Suddenly, piccolo and harp announce the work's motto like a brilliant sunbeam breaking the gloom of a dark forest. That sunbeam explodes into dazzling luminescence in the finale before giving way to a grave and elegiac coda. Along the way, the scherzo provides a touch of almost Bartókian rusticity, and the slow movement emerges as one of the great symphonic utterances. This is, in sum, a masterpiece.


Michel Plasson and his Orchestre du Capitole de Toulouse give a worthy account of themselves and of the score. The recording is very natural, though not as clear as one would like. Magnard's textures tend to be thick—many would call his style Wagnerian, since Wagner wrote French music better than most of his French contemporaries. The coupling, *Chant Funèbre*, solemnly and nobly commemorates the composer's father. This is required listening for Francophiles. Others can explore at their leisure. But remember, it's not often that we uncover virtually unknown music of this quality. Playing time: 50:42. (Angel EMI CDC 47373.) *D.H.*

 **SIBELIUS SECOND:  
ROYAL, BARBIROLI**

This recording was originally issued in 1965 as part of *Treasury of Great Music*, a *Reader's Digest* 12-LP set that featured major conductors of the time leading the Royal Philharmonic Orchestra. Sir John Barbirolli's contribution was this perfor-

mance of Sibelius's Symphony No. 2, a work close to him that he had already recorded twice before. It was a traumatic time for Barbirolli—his mother died during the recording sessions—but he elected to finish the job. The performance is extraordinarily fine, challenged only by the reading by Pierre Monteux and the London Symphony that has yet to find its way onto CD.

HIGH FIDELITY's review of the original release (January 1966) stated that the "sonics—presided over by RCA's Charles Gerhardt—are splendid: spacious and finely etched. . . ." Indeed, the sound quality of this recording, wonderfully transferred to CD by Chesky Productions, is easily superior to the majority of modern digital orchestral recordings. For instance, you will hear details, particularly in the brass, that seem to elude today's engineers. It is unfortunate that this was Barbirolli's only *Reader's Digest* recording. Although the playing time is short, the performance and sonic quality of this CD are of the highest standard. Playing time: 43:54. (Chesky CD 3.) *R.E.B.*

 **SCHUBERT, MOZART QUARTETS:  
KREMER ET AL.**

This new CD of Schubert's String Quartet No. 15, Opus 161 (D. 887), and Mozart's Adagio and Fugue, K. 546, refutes the notion that a quartet must live and breathe together for a decade or two before it can play with the kind of cohesion that is demanded by these two masterpieces. In these live performances, Gidon Kremer, Daniel Phillips, Kim Kashkashian, and Yo-Yo Ma achieve a musical synergy that would be the envy of any big-name quartet. Whatever they may have done with their egos, one hears the sort of passionate music-making that comes from only one thing: love of Schubert and Mozart.

The sound on this CD, recorded in 1985 at the 92nd St. Y in New York, is superb, with the audience detectable only in the excitement its presence obviously generated. However, a loud burst of applause immediately after the last note of the Schubert is startling and unpleasant. There is no applause after the Mozart, and one wishes that at least a band had separated the final applause from the Schubert. Playing time: 60:55. (CBS MK 42134.)

*R.R.R.* ▶

**BRUCKNER SYMPHONIES:  
BERLIN, KARAJAN**

With these accounts of Bruckner's Symphonies Nos. 1, 2, 5, and 6 now reissued on CD, Herbert von Karajan's monumental traversal of the numbered canon stands complete. Something in Karajan responds intuitively to Bruckner's mystical and magisterial voice, while the Berlin Philharmonic musicians play as though the music was written for them. Karajan accepts some cuts in the Second Symphony, which though not too distressing, point to his uneasiness with early Bruckner; in general, Karajan's late-Bruckner approach to the first two symphonies deprives them of their lyrical freshness and droll humor. But no one acquiring these performances need worry about being disappointed. The Sixth is very fine (even if the scherzo at times sounds a bit too fast), and the Fifth is just plain magnificent.

The recorded sound is another story. Symphonies Nos. 1 and 2 were recorded in early digital and sound harsh, multimiked, and two-dimensional. Since Nos. 1 and 5 come economically coupled on two CDs (with timings of 71:45 and 60:06, respectively), the difference registers clearly: The digitally recorded First actually has more hiss than the analog Fifth. The Sixth is also analog and also sounds fine. Reservations notwithstanding, these are classic performances that will not soon be bettered. Playing time for Symphony No. 2: 59:68. (Deutsche Grammophon 415 998-2.) Playing time for No. 6: 57:36. (DG 415 194-2.) Playing time for Nos. 1 and 5: 131:51. (DG 415 985-2.) *D.H.*

**NIELSEN SYMPHONIES:  
LONDON SYMPHONY, SCHMIDT**

Aside from one minor blast of distortion at the end of the Fifth Symphony, Unicorn has managed a decent transfer of this excellent Nielsen cycle, fitting all six symphonies onto three CDs averaging about 70 minutes apiece. Although individual performances may be bettered here and there on other CDs, Ole Schmidt offers versions of Symphonies Nos. 4, 5, and 6 that are among the finest ever recorded. Nielsen's symphonies are only gradually coming into their own, but every one of them stands comparison with the best. This set is a sensible way to get acquainted with them. Playing time: 209:42. (Unicorn-Kanchana UK CD 2000/1/2.) *D.H.*

**"DAS LIED VON DER ERDE":  
CHICAGO SYMPHONY, REINER**

This 1959 recording of Mahler's *Das Lied von der Erde*, notable for its sensational orchestral playing and respectable singing, was eclipsed when the classic Bruno Walter/Vienna Philharmonic/Kathleen Ferrier performance was released on CD several years ago. But the Chicago Symphony

as heard here plays rings around the Vienna Philharmonic. Unfortunately, this recording places soloists Maureen Forrester and Richard Lewis too far forward, almost in a different acoustic, obscuring some of that magnificent orchestra. As a result, the first choice on CD remains the Klemperer on Angel EMI or the Giulini on Deutsche Grammophon. But Reiner's accomplishment certainly deserves more credit than it has hitherto been accorded. Playing time: 63:00. (RCA 5248-2.) *D.H.*

**GRIEG WORKS:  
GOTHENBURG, JÄRVI**

From time to time, the music of Edvard Grieg still needs defending against those who would dismiss it as lightweight or as just so much Norwegian musing. Unfortunately, this disc—containing his *Norwegian Dances*, Opus 35; *Symphonic Dances*, Opus 64; and *Lyric Suite*, Opus 54—doesn't help much. The music itself is pleasant enough, at times quietly pastoral but more often jaunty and muscular. What is missing from the performances by Neeme Järvi and the Gothenburg Symphony Orchestra is a real sense of the folk elements that are the basis of these works. Admittedly, Grieg did not quite get these pieces to dance the way Dvořák so effortlessly did in similar circumstances—although, in Grieg's defense, the *Lyric Suite* and *Norwegian Dances* work better in their original piano versions than in the orchestral form presented here.

Järvi secures fine playing from the Gothenburg Symphony Orchestra, and his readings are vigorous and exciting, if a bit undershaped in the slow movements. The sound is fine, but one only needs to hear what BIS can extract from this hall and orchestra to realize that something is missing. Playing time: 68:03. (Deutsche Grammophon 419 431-2.) *C.R.*

**BRAHMS PIANO PIECES:  
RUDY**

We sorely need a first-rate Compact Disc of Brahms's piano music, and perhaps one of these days RCA will get around to transferring Van Cliburn's memorable 1971 recital, which is still available on LP and cassette as *My Favorite Brahms* (RCA LSC 3240). In the meantime, one would like to welcome these performances of Opuses 116–119 by Mikhail Rudy with more enthusiasm, but they simply aren't very good. Rudy's dry, underpedaled tone and erratic rubato sound hopelessly wrong in this pensive, darkly autumnal music. Each piece is separately banded, but the liner notes fail to identify the individual pieces by key signature in Opuses 116, 118, and 119, making access difficult. André Tubeuf's pretentious liner notes are utterly useless. Playing time: 72:32. (Angel EMI CDC 47556.) *T.T.*

**LUDWIG GÜTTLER:  
THE BACH TRUMPET**

This baker's dozen of selections—drawn from 12 Bach cantatas, choruses, and arias, plus the Sinfonia from the *Easter Oratorio*—offers a free-flowing tribute to many of Leipzig's finest. First, to Johann Gottfried Reiche, whose brilliance as Bach's own trumpeter finds an apt reflection today in Ludwig Güttler. Second, to Leipzig's present-day Thomanerchor and Neue Bachisches Collegium, both of which display masterful strength and precision in their flawless support of Güttler's performances. The collection is crowned by two one-minute pearls, "*So fahr ich hin*," B.W.V. 31, and "*Was Gott tut, das ist wohlgetan*," B.W.V. 12, making this disc desirable for all Bach fans and indispensable for serious collectors. Playing time: 51:29. (Capriccio 10039.) *C.M.*

**VOLKMAN, D'ALBERT:  
WORKS FOR CELLO**

Robert Volkmann's Concerto for Cello and Orchestra, Opus 33 (1855), is a little gem written at the nexus of two ages, before Lisztian excesses demolished the architecture and balance of the Classical style. In its day, the concerto was considered one of the best works in its genre, and it certainly deserves revival. The solo part is most attractive, as one might expect, since Volkmann was himself a cellist. The whole work is characterized by lyricism, energy, and balance. Turnabout issued a respectable recording of this piece in the mid-1970s, and this Schwann release is just as respectable. But it is not all that one would hope for in terms of sound and orchestral perspective. The orchestra is a bit distant and the cello too far forward, at times giving the instrument a slightly cavernous sound. This should not, however, deter anyone from making the acquaintance of this delightful work.

The companion piece, Concerto for Cello and Orchestra in C, Opus 20, by Eugène d'Albert (1864–1932), is from the Lisztian side of the great Classical/Romantic divide. As such, it has a tendency to wander from melody to melody without any particular reason for doing so. Nonetheless, some of the melodies are quite appealing, and the piece has its charms.

Christoph Henkel and Jörg Baumann are the soloists in the d'Albert and Volkmann, respectively; both are fine cellists. The Berlin Radio Symphony Orchestra provides competent accompaniment, under Jiří Stárek in the Volkmann and Miltiades Caridis in the d'Albert. Better sound and balance—and another concerto to fill out the somewhat skimpy 42 minutes of music—might have made this CD indispensable. Playing time: 42:10. (Schwann CD 11628.) *R.R.R.*

Classical

**HAYDN:**

**Symphonies: No. 48, in C ("Maria Theresa"); No. 49, in F minor ("La Passione").**

Orpheus Chamber Orchestra. Steven Paul, prod. Deutsche Grammophon 419 607-2 (D). ©

During a recent visit to Esterháza at Eisenstadt, where Haydn served as Kapellmeister for three decades, I was puzzled by a guide's explanation that Haydn's orchestra played from the two balconies at either end of the large concert room, rather than from the stage at the front. How, I wondered, could anyone have synchronized the two parts?

One possible answer comes in the form of Deutsche Grammophon's new Compact Disc of Haydn's Symphonies Nos. 48 (*Maria Theresa*) and 49 (*La Passione*), played by the Orpheus Chamber Orchestra. Orpheus, which is composed of 26 New York musicians who have been together since 1972, plays with perfect ensemble and irresistible virtuosity and verve. And the musicians do so sans conductor, suggesting a possible solution to the riddle of the Haydn Salle. Perhaps Haydn was blessed with a similar group of musicians who did not need coordination.

In any case, these two finely contrasted symphonies, both written in 1768, are given full-blooded, finely shaded performances that are infectiously jubilant or somber (as the occasion demands) and so full of spirit that they make the halls of Esterháza ring for me far more than did my visit there. The sound is excellent. Playing time: 51:03. *Robert R. Reilly*

**HOLST:**

**"The Planets."**

Montreal Symphony Orchestra and Women's Chorus, Dutoit. Paul Myers, prod. London 417 553-2 (D). ©

*The Planets* is not as easy to bring off as many other orchestral showpieces, and until now no thoroughly recommended version of it had been issued on CD. However, those who have been waiting need wait no longer: This stunningly recorded account is the *Planets* of choice.

Not all of Charles Dutoit's recordings have lived up to the potential that was revealed in his now-classic treatment of Ravel's *Daphnis et Chloé*. His Stravinsky has been dull, his Berlioz faceless to the point of anonymity, and his recent rendi-



*Orpheus Chamber Orchestra: spirited Haydn symphonies, sans conductor*

tion of Tchaikovsky's *Festival Overture 1812*, with the score's sound effects produced on a digital synthesizer, proved an unmitigated monstrosity (London's choice of the supple, subtle Montreal Symphony for such brawny repertoire seemed more than a mite odd). But in this account of Gustav Holst's best-known piece, both the conducting and the playing are superlative. The trombones in "Mars" are fero-

cious and lacerating. "Venus" soothes, "Mercury" flashes by with unsurpassed lightness, and "Jupiter" for once really dances. In "Saturn," notice Dutoit's attention to the chimes, played with metal and soft beaters as Holst specifies. "Uranus" culminates in a magnificent organ glissando, and "Neptune" achieves a remarkable sense of mystery, its final fade-out perfectly gauged.

Blockbuster treatments of *The Planets* have been considered the norm for so long that Holst's exquisitely worked-out structure usually goes unrecognized. With "Jupiter" serving as the fulcrum, the movements of the suite are, in fact, arrayed in complementary pairs: "Mars" (5/4 time) is inexorable movement and rhythm, while "Neptune" (also 5/4) represents total stasis; "Venus" is sublime, "Uranus" vulgar; "Mercury" scampers lightly, while "Saturn" trudges heavily. The scheme is as carefully weighted as that of any Classical symphony, and it lends the music a sense of purpose and unity. Very few performers realize this pattern of long-term tension and release; in general, the score's best interpreters have been those who, like Adrian Boult, Bernard Haitink, and Alexander Gibson, prefer to highlight the structural aspects of a work rather than settle for flashy effects. Dutoit now joins that select company. *David Hurwitz* ▶



*Dutoit: Planets of choice*

**MUSSORGSKY (orch. Ravel):****"Pictures at an Exhibition."****RAVEL:****"Boléro."****DEBUSSY (orch. Ravel):****Sarabande; Danse.**

Amsterdam Concertgebouw Orchestra,  
 Chailly. Christopher Raeburn, prod. London 417 611-2 (D). ©

This recording by the Concertgebouw Orchestra is clearly intended as a "sonic spectacular," with the two gentle Ravel orchestrations of Debussy miniatures separating two blockbuster showpieces. It is conducted by Riccardo Chailly, who was recently named the orchestra's principal conductor. Judging from the prosaic music-making on this Compact Disc, as well as from what is to be heard on most of Chailly's other recordings, the appointment seems premature. Chailly races through *Boléro* in 14:28, making this one of the fastest and least sensitive of all recordings of the work. *Pictures at an Exhibition* is well played, but there is little intensity to the interpretation. The only distinctive moment comes toward the end of "The Old Castle," when the alto-saxophone solo links the two last notes with a glissando. This effect was called for in Ravel's orchestration but has not, to my knowledge, been heard in any other recording, not even Koussevitzky's 1930 RCA recording with the Boston Symphony (and it was Koussevitzky who commissioned the transcription from Ravel). The most successful performances on this CD are those of the two brief Debussy pieces.

On the whole, the recorded sound is disappointing: coarse in the strings and rather undefined and murky in the bass. The ending of *Boléro* is congested, and the large tam-tam heard at the conclusion of *Pictures* has no metallic sound whatever. London's Concertgebouw recordings made 30 years ago were far more successful in capturing the sound of this magnificent ensemble. Playing time: 58:18.

Robert E. Benson

**SCHUBERT:****Sonata in B flat, Op. Posth. (D. 960).**

Afanassiev. Manfred Eicher and Gidon  
 Kremer, prods. ECM 829539-2 (D). ©

**SCHUBERT:****Sonata in B flat, Op. Posth. (D. 960).**

Bishop-Kovacevich. Andrew Keener,  
 prod. Hyperion CDA 66004 (D). © KA 66004.

At the Lockenhaus Festival in July 1985, Valery Afanassiev gave a controversial performance of Schubert's Piano Sonata in B flat, D. 960, that is now brightly preserved on this new ECM Compact Disc. In his liner notes, Afanassiev begs the listener's pardon for whatever shortcomings his interpretation may have acquired due to his "inborn sentimentality." Indeed, his

account is very indulgent, especially with regard to tempos (it is the second slowest on record), but it is also inspired. Afanassiev's excesses are not mere display; they are clearly motivated by a desire to express the experience behind the music.

During his last days, when this sonata was written, Schubert supposedly said, "Somehow I feel that I no longer belong to this world." Afanassiev communicates a deep sense of what Schubert may have meant by this valedictory remark. The intensity and concentration of his slow-motion performance are remarkable, particularly the use of silence. No matter how exaggerated are Afanassiev's pauses, the music resumes with the singing line unbroken; the playing stops, but the music doesn't.

In comparison, Stephen Bishop-Kovacevich, in a new Hyperion release, does not get much below the surface of this great work. Despite some beautiful playing, Bishop-Kovacevich's performance fails to fully convey the lyricism and special poignancy of the piece. His tempos are close to traditional (his account is about seven minutes faster than Afanassiev's), but his playing is often choppy. More important, Bishop does not convey the experience of music reaching beyond its limits, as Afanassiev does.

For a live concert recording, the ECM disc sounds excellent; it successfully captures Afanassiev's wonderful shading and delicate pianissimo. Only a few coughs and the final applause betray its origin. The Hyperion recording is also excellent.

I plan to keep my records of Wilhelm Kempff and Clifford Curzon playing the sonata, and hope that Sviatoslav Richter's interpretation is someday available on Compact Disc. But I will often return to Afanassiev's strange and deeply moving rendition. I trust that anyone who loves this music will not fail to hear and experience something new in it. Playing time for Afanassiev: 48:18. Playing time for Bishop-Kovacevich: 41:45.

Robert R. Reilly



Bernstein's is a controversial *Pathétique*.

**TCHAIKOVSKY:****Symphony No. 6, in B minor, Op. 74 ("Pathétique").**

New York Philharmonic, Bernstein. Han-  
 no Rinke, prod. Deutsche Grammophon  
 419 604-2 (D). ©

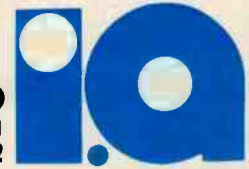
This recording is a model of what the record industry should be doing. Leonard Bernstein's *Pathétique* with the New York Philharmonic offers a mature, considered interpretation recorded only after it had been honed to perfection on tour. In fact, it's already controversial. One concert rendition prompted Los Angeles critic Martin Bernheimer to an outpouring of such vituperative excess that Bernstein actually felt obliged to respond in kind. Now we have the object of their heated exchange on record, tape, and CD. But the performance itself provides much more than a subject for musical controversy.

Bernstein has clearly taken Mahler's dictum ("Tradition is slovenliness!") to heart. He has completely rethought his approach to the *Pathétique*, with new and surprising results. At 58:31, this is easily the slowest performance of the symphony ever recorded. The finale accounts for much, but not all, of the difference, for even the third-movement march proceeds at a measured, unfrenzied pace. Paradoxically, this is one of the most intensely exciting readings of the score ever recorded.

Bernstein's treatment of the first movement reveals how he accomplishes this dual feat. After the dark introduction, the allegro begins at a very moderate tempo, gradually quickening until the full brass section literally explodes into action. This sudden eruption is all the more surprising since the initial allegro lacks some of its usual agitation. The glorious second subject gets plenty of rubato and is expressively phrased, but not in the way you might expect. Despite Bernstein's reputation for billowing excesses of passion, he shapes the music reticently, emphasizing the consoling initial phrases and hastening a bit at the climactic points. This relative shyness sets off the development, which crashes in with a cataclysmic force that's all the more tremendous for not being rushed.

When the great tune returns in the recapitulation, it seems to have gathered some measure of determination in the face of adversity, for Bernstein plays it much more strictly. It's a classic example of long-range musical planning, one that belies Bernstein's reputation for promoting spontaneity over structure. Both the first and the second subjects acquire independent personalities in Bernstein's hands. Think of them as two characters thrust into a fateful maelstrom of existence. One succumbs, while the other perseveres.

The second movement proceeds with exactly the proper lilt: *con grazia*, as  
 (Continued on page 82)

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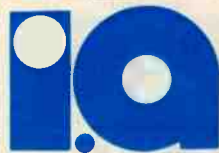
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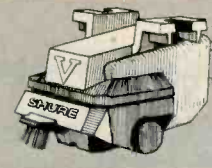


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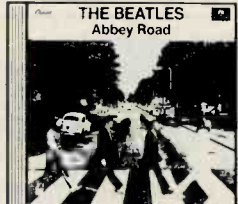
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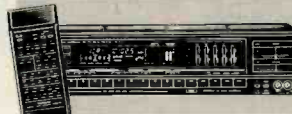
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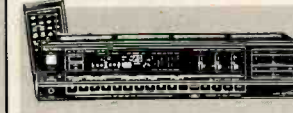
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(Continued from page 78)

Tchaikovsky specifies. Carefully shaped string phrasing adds a touch of nostalgic mannerism to this waltz in 5/4 time. It all seems slightly unreal, like the "happy recollection" second movement of Mahler's *Resurrection* Symphony.

The third movement of the *Pathétique* usually begins at a frantic pace that seldom anticipates the march to come. But Bernstein has his sights fixed on that march from the very first bar, and his phrasing is clipped and carefully articulated. When the march finally arrives, the effect is overwhelming, especially as the tempo broadens subtly toward the end. The movement's triumph is undermined by a feeling of portentous pomposity, much as in the finale of Shostakovich's Fifth.

With a timing of 17:12, the finale takes nearly twice as long here as on any other recording. The orchestra sustains the tempo superbly; indeed, the whole movement is notable for its inexorable steadiness of pulse. After the high drama of the first movement, the lyrical intermezzo of the second, and the impersonal grandeur of the third, Bernstein at last allows the pent-up emotion to break out in an ecstasy of grief and despair. For once, this sounds like a genuine finale, an emotional and musical summit rather than a petulant whimper. The pianissimo tam-tam stroke that announces the coda will chill your heart, and the movement's end is utter blackness. Could anyone doubt after hearing this that Tchaikovsky took his own life?

While this is precisely the sort of interpretation that justifies yet another recording of a repertory standard, it's very likely that many will dismiss it on grounds that it's simply too personal and extreme to serve as a reference edition for regular listening. This sort of comment has often been applied to Bernstein's work. He has suffered from a reputation for interpretive eccentricity. But beware. It's easy to listen superficially, hearing only what a Bernstein performance supposedly does rather than what actually occurs. Contrary to popular expectation, this new *Pathétique* is noteworthy for its rhythmic solidity and dramatic poise, and for the way the emotional intensity of the finale balances the turbulence of the first movement, producing a welcome sense of unity across the symphony's entire span.

The recording combines excellent sound with superlative playing, and it is a totally fresh and relevant look at an inexhaustible masterpiece. Don't be intimidated by the slow finale: Listen to it and then see if all other renditions don't sound positively glib in comparison. Like the symphony it recreates, this performance is a classic.

David Hurwitz



The master remastered: classic Caruso

## RECITALS AND MISCELLANY

### ENRICO CARUSO:

#### Arias.

Caruso; studio orchestra, Pasternack, Rogers. Thomas G. Stockham, Jr., prod. RCA 5911-2 (A).

LEONCAVALLO: I Pagliacci, Vesti la giubba. PUCCINI: Tosca, E lucevan le stelle; Recondita armonia. VERDI: Rigoletto, Questa o quella; La donna e mobile. MEYERBEER: L'Africana; O paradiso. HALEVY: La Juive; Rachel, quand du Seigneur. PUCCINI: La Bohème, Che gelida manina. VERDI: Aida, Celeste Aida. GIORDANO: Andrea Chenier, Come un bel di di maggio. DONIZETTI: La Favorita, Spirto gentil. VERDI: La Forza del Destino, O tu che in seno agli angeli. VERDI: Otello, Ora e per sempre addio. BIZET: Les Pecheurs de Perles, Je crois entendre encore. PONCHIELLI: La Gioconda, Cielo e mar! BIZET: Carmen, La fleur que tu m'avais jetée. GOUNOD: Faust, Salut, demeure. DONIZETTI: L'Elisir d'Amore, Una furtiva lagrima. FLOTOW: Martha, M'appari. HANDEL: Serse, Ombra mai fu. VERDI: Il Trovatore, Di quella pira.

This Enrico Caruso sampler is a classic example of RCA at its most boneheaded. Twenty-one familiar aria recordings. No alternate takes. None of the early solos with piano. No duets, no ensembles, no chronological order. The bare minimum of discographical information. Uninformative notes. In short, Caruso for beginners, and one inevitably wonders just how many beginners are likely to shell out 15 dollars for the glorious low-fi sound of a Caruso Compact Disc, Thomas Stockham's computerized reprocessing notwithstanding. Not that veteran collectors should necessarily sniff at the chance to have these important recordings available in so handy a format. Though one hopes for more imaginative Caruso anthologies in the not-too-distant future, it is still an

unalloyed pleasure to be able to pick and choose from so rich a selection of classic performances, to be able to choose the 1907 "*Vesti la giubba*" or the 1911 "*Celeste Aida*" at the touch of a key. Playing time: 71:55. *Terry Teachout*

**SHURA CHERKASSKY:**

**In Concert 1984, Vol. 1.**

① Cherkassky. Nimbus NIM 5020 (D).  
SCHUMANN: Symphonic Etudes, Op. 13. BRAHMS: Variations on a Theme by Paganini, in A minor, Op. 35, Books I and II. HOFMANN: "Kaleidoskop," Op. 40. CHASINS: "Rush Hour in Hong Kong" (from "Three Chinese Pieces").

**In Concert 1984, Vol. 2.**

① Cherkassky. Nimbus NIM 5021 (D).  
J. S. BACH (arr. BUSONI): Chaconne (from Partita No. 2, in D minor, for Violin, B.W.V. 1004). BERG: Sonata, Op. 1. LISZT: "Funérailles" (from "Harmonies poétiques et religieuses"). BEETHOVEN: Sonata No. 13, in E flat, Op. 27, No. 1.

What is remarkable and unequalled in Shura Cherkassky's playing is his ability to produce seemingly infinite gradations of tone and volume by seemingly infinite varieties and combinations of touch and pedalling. For example, he can cause even a quiet melodic line to stand out with metallic brightness over a texture of muted accompanying chords. And he can get a

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- Ⓛ LP
- Ⓜ Cassette
- Ⓢ Compact Disc
- Ⓥ Videocassette
- Ⓢ Videodisc
- Ⓢ Open reel

**RECORDING INFORMATION**

(A) analog original

(D) digital original

Large symbol beneath title indicates reviewed format. Small symbols following catalog number of reviewed format indicate other available formats (if any).

Catalog numbers of all formats of a particular recording usually are identical except for differing prefixes or suffixes. Catalog numbers of formats other than the reviewed format are printed only if their basic numbers differ substantially from that of the reviewed format.

Arabic numeral in parentheses indicates number of items in multi-item set. Unless otherwise indicated, all multi-LP sets are in manual sequence.

mellow sound even in fortissimo, which is hard to account for, since the louder one plays, the more one penetrates to the hammer's hard interior. Moreover, in a hall, Cherkassky's tone is delicately radiant.

Consequently, those who have admired his playing in concert may be disap-

pointed by the cold, lusterless sound of the piano in these studio performances. Notwithstanding Nimbus' proclamation of its philosophy that "technology must be used for communicating a musical experience" along with its "tonal qualities"—let alone the liner-note writer's description of the "colour of breathtaking beauty" in Schumann's *Symphonic Etudes*, which is not to be heard on this record—this is a pale reflection of what Cherkassky's playing sounds like.

One could accept the recording had Cherkassky's playing been interesting for anything but the sounds he produces. However, since his playing exhibits no feeling for writing that is essentially vocal by nature, it makes him inadequate to most of the music on this disc even without the eccentricities that serve only to excite enthusiasts of 19th-century piano showmanship (the liner notes take pains to put down purists "whose musical nascence occurred after 1945"). Beethoven's Sonata No. 13 in E flat, Op. 27, No. 1, sounds especially incomprehensible here. Most satisfying is Busoni's arrangement of Bach's Chaconne in D minor.

I did not listen to Liszt's *Funérailles* or to the pieces by Josef Hofmann and Abram Chasins. Playing time for Vol. 1: 58:44. Playing time for Vol. 2: 56:45.

*Thomas Hathaway*

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Taylor (left), Buchanan:  
Queen of the Blues, wayfaring veteran



## Independent label Alligator is now the big kid on the Chicago block.

WEDNESDAY NIGHT. In Streeterville Studios near the Chicago lakefront, guitarist Roy Buchanan stands behind double-paned glass listening to Kanika Kress lay down a vocal track for Buchanan's latest release, *Hot Wires*, his third album for Alligator Records. Behind the 24-track Solid State Logic console are the guiding but laissez-faire hands of Alligator founder and president Bruce Iglauer, his longtime friend and coproducer Dick Shurman, and Streeterville engineer Justin Niebank.

Shurman, who owns one of the world's best post-World War II blues collections, speaks through the intercom. "Kanika, I don't want you to scream it, but I need a little more intensity. I need a little bit of raspy." Kress is aware that Iglauer and company are aiming for a Stax-like sound on this cut, Otis Redding's "These Arms of Mine." Buchanan listens intently as Kress digs for another take.

"Nice moaning at the end," says Shurman, satisfied after the umpteenth attempt and playback. "That was cool," echoes Niebank. Buchanan likes it, too. "I used to be embarrassed by some of my records," says the guitarist, a performer since 1959 who would tell people he didn't have any albums in print. "I didn't meet half the musicians I should have been playing with. I'm not out there to become a superstar: I want to get a good sound, and the Alligator people bring it out in me."

THURSDAY MORNING. The dozen full-time Alligator employees, including Iglauer, are at work in the company's three-floor Rogers Park flat. It's quite a change from three years ago, when Iglauer, logging 20-hour days, operated Alligator out of his house with only one full-time assistant. Many of his current staff members arrived in the last 18 months in the midst of the blues explosion. Most are in their twenties, have little record-company experience, and knew nothing about Alligator or its president before being hired. Though all try, no one keeps up with Iglauer.

It was 1971 when Iglauer, then twenty-four, hustled \$2,500 to secure his first recording date: a session with the grittiest of the gritty guitarists, Hound Dog Taylor, which became *Hound Dog Taylor and the Houserockers* (Alligator AL 4701). At forty, Iglauer still pushes "to get the music out." A self-proclaimed "proselytizer of the blues," he is in fact a blues junkie whose company thrives not only on wayfaring veterans like Buchanan, Lonnie Mack, and Johnny Winter but also on new and little-known players such as Li'l Ed and the Blues Imperials and tried-and-true talent like guitarist Albert Collins and singer Koko Taylor, both of whom have won Grammy Awards. There are some leftover but quality reggae titles in the catalog, too, but Iglauer, who likes the music, cut short his reggae offshoot. Too many of

the bands, he says, didn't work hard enough, go out on tour, invite interviews, sell their records on the road, and play for less if they had to—all musts for Iglauer. The heart and soul of Alligator remains contemporary blues: Collins and Taylor, for example, as well as ex-Muddy Waters harmonica king James Cotton, Big Twist and the Mellow Fellows, and guitarists Lonnie Brooks, Fenton Robinson, and Jimmy Johnson.

Alligator—which got its name because Iglauer's teeth supposedly chatter when a band excites him—continues to be an industry anomaly, a homegrown, independent Windy City company, distributed in turn by 17 independents worldwide. Alligator's catalog includes more than 80 titles—all available as LPs, most as cassettes, and 22 as Compact Discs. The company now releases about a dozen titles annually, most of which break even or better, and expects to gross \$2 million by the end of this year, with sales divided evenly between national and international markets. In short, Alligator is "no longer the blues underdog," as Shurman puts it. No label so enraptured with and dedicated to the blues has balanced such financial and artistic success, let alone attained such longevity.

Iglauer knows he has been helped by the recent rediscovery of the blues and the subsequent commercial use of the music:

# Our Blues

Levi's "501" jeans campaign, NBC's shot-in-Chi-town *Crime Story*. Collins's appearance in *Adventures in Babysitting*, for which he was filmed at Fitzgerald's, the renowned Chicago club, resulted in a guest spot on one of Bruce Willis's ads for Seagram's wine coolers. Meanwhile, the immense popularity of Robert Cray hasn't hurt either. Cray plays with Collins and fellow guitarist Johnny Copeland on *Showdown!* (4743); currently Alligator's most popular release, it has sold close to 100,000 copies, all formats.

The Grammy Award for *Showdown!* is displayed on the mantel inside Iglauer's office, along with additional Grammy nominations. Alligator has earned a total of 17 Grammy nominations, many of which hang in the narrow second-floor hallway that leads from receptionist Beverly Zeldin's corner to Iglauer's office. Concert posters, larger-than-life record jackets, and black-and-white photographs of blues greats line the company's walls. Papers, messages, and albums are everywhere in Iglauer's office, which, like all other rooms in the building, seems to be overflowing.

Once the phone starts ringing, it doesn't stop; Zeldin handles all six lines. Cotton's agent calls. He wants to make a third album and offers to send a tape. Iglauer declines. "Where does this one go where the others haven't?" he asks, the others being *High Compression* (4737) and *Live from Chicago. Mr. Superharp Himself!* (4746). Pause. "I don't see it. . . . I want to be straight with you." Son Seals steps in to buy some records to sell on the road. One of Alligator's early gems, Seals made five albums for the label—*The Son Seals Blues Band* (4703), *Midnight Son* (4708), *Live and Burning* (4712), *Chicago Fire* (4720), and *Bad Axe* (4738)—before leaving in a huff. (Ironically, he felt he wasn't receiving enough attention.) "You should talk to Son," Iglauer says to me, Seals sitting six feet to my right. "He's the only one who has left." Seals offers a half-smile; like Iglauer, he wants the wounds to heal.

Iglauer handpicks his artists based on whether they "move" him. "Then I find out whether I can work with them personally and whether they are salable." In some instances, as was the case with Bu-

chanan and Winter, Shurman brings people to the label and suggests material. Alligator's success makes demands on Iglauer's time, and he regrets that he doesn't get out enough to scout new talent. At times, it has hurt. He had three opportunities to sign Cray, passing each time. "Something wasn't right," he explains, adding in jest, "You think someone was trying to tell me something?" He also blew the chance to sign Stevie Ray Vaughan. Iglauer's most recent miss was Joe Ely. "It's not blues, but his music has integrity," Iglauer admits. "I don't really go after that many artists, but I would have liked to have had him." Then he retaliates: "Why should I record people doing Robert Johnson when he did it best a half-century ago?"

THURSDAY NIGHT. Iglauer and Buchanan are back at Streeterville to work on *Hot Wires* (4756). Buchanan is scheduled to overdub; vocalist Johnny Sayles must redo a few lines for "25 Miles," the Edwin Starr hit that's covered on the album; guitarist Donald Kinsey needs to add a rhythm track. There are a few more changes planned; unexpectedly, they will last into early morning. Nevertheless, mixdown of the ten tracks is set for the weekend. "It used to take nine months to get out one of my albums," says Buchanan. "These guys have it in the stores in two or three."

FRIDAY AND SATURDAY NIGHTS. Alligator artists seem to be everywhere. While Iglauer, Shurman, and Niebank meticulously fine-tune Buchanan's record, a half-dozen labelmates perform at area clubs. Kinsey, who appears on *The New Bluebloods: The Next Generation of Chicago Blues* (7707), plays Blue Chicago on Friday and Saturday with Big Daddy Kinsey and the Kinsey Report. Brooks and Cotton split the weekend at popular Biddy Mulligan's. Dion Payton and the 43rd Street Blues Band and Valerie Wellington, both contributors to *The New Bluebloods*, alternate sets at Kingston Mines, the two-stage Lincoln Park club that boasts music

until 4 a.m. Up the street, yet another *Blueblood* act, Professor's Blues Review with Gloria Hardiman, performs at Wise Fools.

SUNDAY NIGHT. Most everyone takes time to appear at a private party honoring the 32nd wedding anniversary of Taylor and her husband, "Pops." Taylor has just



SUSAN MANTIS

Donald Kinsey (left) and the Kinsey Report: next generation

released her fifth Alligator session, *Live from Chicago* (4754). But tonight, it's no press, just relaxation in one of Northwestern University's ballrooms on Michigan Avenue. Brooks plays a set with Taylor's band, the Blues Machine; the Kinsey Report takes the makeshift stage for a few numbers.

Iglauer, whose T-shirt and jeans have been traded for a shirt with collar, a sports jacket, and slacks, hangs in the back of the room. A woman who represents musicians approaches him. "Mr. Iglauer, have you met . . . ?" "Since when is it 'Mr. Iglauer'?" he interrupts. Several more people approach him neo-reverently; he is uncomfortable and adjusts his glasses more than usual, which is often. Iglauer does not schmooze well. This is not how he finds musicians; his teeth are not chattering. He stays awhile, but not too long. It is late Sunday night. There is work to do. ■

Jonathan W. Poses is a free-lance writer based in Columbia, Missouri. No stranger to these pages, he also has been published in *Down Beat* and *The New York Times*.

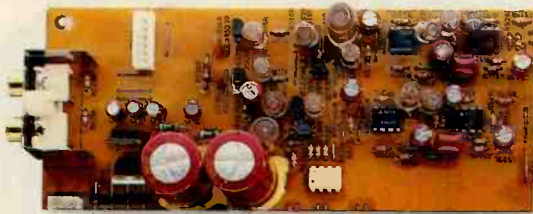


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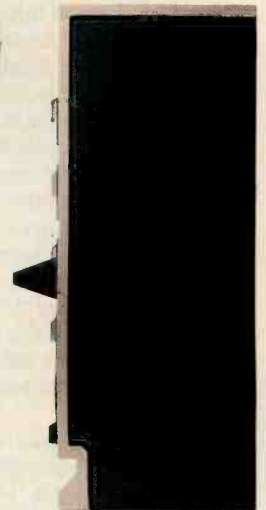
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### THE ANGELA STREHLI BAND:

⊙ **Soul Shake.** Antone's ANT 0006.  
Though thin next to the powerhouse live show, this is an effective enough introduction to the best-kept secret on the Austin, Texas, blues and r&b scene. Angela Strehli has a smoky, smoldering Southern voice that can croon ("In Spite of What You Do"), get sassy ("Your Sweetness"), or flat-out bellow ("Mean Mistreater"). It's a measure of her abilities as an interpreter that she sounds best with some of the most familiar old songs ("It Hurts Me, Too"). She can also turn a pretty nifty phrase on her own with double-edged originals like "Take It from Me." Her band is at its most menacing when it hits a Chicago groove and all the instruments blend into one roar, as on "Tough Times." The bandmembers will improve on record, but this debut will please a lot of Southern music fans just the way it is. *John Morthland*

### THE ROLLING STONES:

⊙ **Got Live If You Want It!**  
Abkco 7493-2.  
⊙ **More Hot Rocks.** Abkco 6267-2 (2).  
As a testimonial to the adolescent rite of screaming at rock stars, 1966's *Got Live If You Want It!* is shockingly accurate, but as a testimonial to the Rolling Stones' potency as a live band, it has always been an embarrassment. For the CD version, considerable cleanup has been done: On "Under My Thumb," you can now make out the tinny chords and schematic riffs of Keith Richards and Brian Jones backing up Mick Jagger as he forces himself to be heard over what sounds like a girls' locker room under siege by Huns. But the clarification is too minor and often to no good purpose, so that although "Time Is on My Side" has fuller ensemble presence, it's now obvious that Jagger is annoyingly out-of-tune with the rest of the band.

*More Hot Rocks (Big Hits and Fazed Cookies)* is a double-set grab-bag of hits and oddities, the latter being of prime interest. The moody "Child of the Moon" (B-side of "Jumping Jack Flash") and the sides of the cacophonous Summer of Love single "Dandelion"/"We Love You" have a depth and an intimacy that suit their layered production: nice harpsichord, even nice jail doors. And the eight British studio cuts that close out the set, from "Fortune Teller" to "Long Long While," are a loving condensation of the band's commitment to r&b. The light haze of tape hiss barely detracts from the guitar punch or the wild vocal slurs. Not essential, but not bad. *Mark Moses*

### SPHERE:

⊙ **Four for All.** Verve 831 674-1.  
Sphere has evolved to the point where the quartet is exploring and preserving not just the repertoire of Thelonious Sphere Monk but also the tenets of the acoustic postbop mainstream. The group's originals give the improvisers meaty structures to chew on, particularly in the case of the low-key tension of pianist Kenny Barron's "Lunacy" and tenor saxophonist Charlie Rouse's aptly named "Bittersweet." For their namesake tribute, they've dug up the rarely heard "San Francisco Holiday (Worry Later)," a typically Monkian mix of repetition and odd accents that inspires Barron to attempt an antic approximation of the master's style. No surprises here, just the pleasure of hearing music played with an easeful authority that can't be faked. And being veterans allows these guys to be fashionably neoconservative without seeming the least bit opportunistic. They're just doing what, by now, comes naturally. *Richard C. Walls*

### L.L. COOL J:

⊙ **Bigger and Deffer.**  
Def Jam/Columbia FC 40793.  
**UTFO:**  
⊙ **Lethal.** Select SEL 21619.  
Imitation is something both L.L. Cool J and UTFO know a little about: L.L.'s debut album was so copied that one rapper had to advise other MCs, "Instead of trying to take out L.L., you ought to take homeboys off the crack," and UTFO's "Roxanne Roxanne" spawned about 20 answer singles. Last year's favorite rap flavor was the hard, lean sound first dished up by L.L.'s producer, Rick Rubin. This year, everyone—including L.L. and UTFO—is copying a still minimal but more fertile sound, with longer and more obvious samples and scratched passages. *Bigger and Deffer* and *Lethal* are brilliant examples, not only because of their witty narratives but also because of the sheer artistry in their selection and use of pilfered bits. *Havelock Nelson*

### MARIANNE FAITHFULL:

⊙ **Strange Weather.** Island 90613-1.  
When Marianne Faithfull wrenches through the schmaltzy violins on "Boulevard of Broken Dreams," she's planting herself firmly in Edith Piaf's turf. But *Strange Weather* isn't just '30s torch songs: The aching mood runs through modern works as well, like Tom Waits's title cut. Faithfull also adds traditional folk material to her drama: On "Sign of Judge-

ment," guitarist Bill Frisell recalls Libba Cotten's picking, and Faithfull conjures a smoky Mary Travers. Two highlights are the definitive reading of Bob Dylan's "I'll Keep It with Mine" and a new arrangement of Faithfull's signature song, "As Tears Go By," rendered even more poignant by this older woman, who has been through drug hell and back. And though the mood doesn't lift, the tempo does pick up on "Love, Life, and Money." The varied pieces of *Strange Weather* mesh because Faithfull stamps each distinctively with her throaty voice. *Kate Walter*

### HOOTERS:

⊙ **One Way Home.** Columbia OC 40659.  
Home for the Hooters is a peculiar place, with dual guitar leads and mandolin melodies opening up on a grand vista of unadulterated rock. From the reggae-influenced title track and the moving ballad "Washington's Day" to the guitar ravers "Engine 999" and "Hard Rockin' Summer," the band relies on solid songwriting rather than studio glitter. Producer Rick Chertoff does provide a clean sound but leaves the edge intact. Five guys from Philly and some music shot full o' hooks: Now there's something to hoot about. *John Everson*

### DEF LEPPARD:

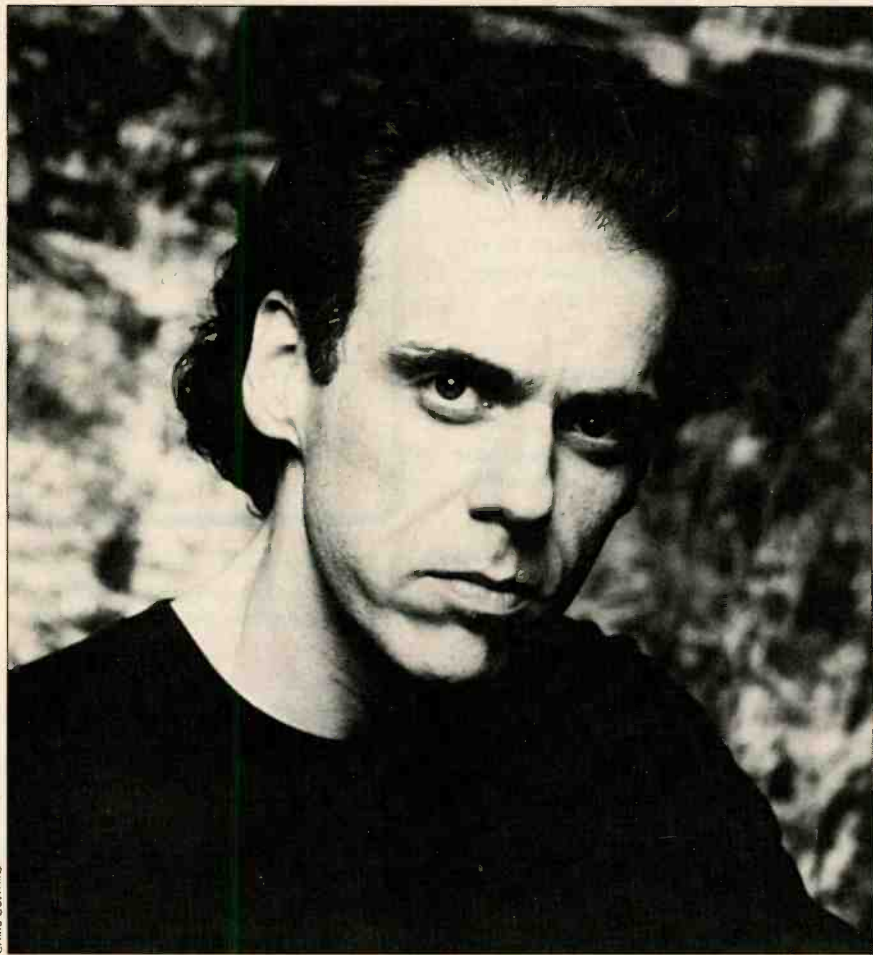
⊙ **Hysteria.** Mercury 830 675-2.  
These guys used to be such an unpretentious band. But when you spend four years making an album, it had better at least sound this good. Problem is, despite the high gloss and the hour-plus running time (in all formats), the dozen tunes here tend to become musically monolithic. Vocal harmonies are surprisingly tight, though, and the band borrows from everyone, including Aerosmith on "Don't Shoot Shotgun" and Laurie Anderson in the background of "Love Bites." Pretty eclectic stuff for a hard rock band, and that's only the A's. *Hank Bordowitz*

### EMMYLOU HARRIS:

⊙ **Angel Band.** Warner Bros. 25585-1.  
Emmylou Harris steadfastly refuses to conform to the pop-ballad style of today's c&w: Her latest offering is an all-gospel album, albeit in a reflective (rather than a jubilee) mood. With its sweet harmonies and sparse use of fiddle, Dobro, and mandolin, it's most appropriate for end-of-day meditation—and will sound perfectly nuts (if not unlistenable) played in your car during the morning rush. If you do have a few quiet moments, you'll be well rewarded. *Joe Blum*



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Hiatt: The writer is now an equally powerful singer, spurred on by a remarkable band.

**JOHN HIATT:**  
**Bring the Family.**

① John Chelew, prod. A&M CD 5158. ⓄⓂ A mid-thirties veteran with well over a decade in the biz and only a small, serious audience (the infamous "cult following") to show for half a life, John Hiatt has gotten to this, his fourth label, on his thoroughly deserved reputation as a writer's writer. "She Loves the Jerk," etching a frozen, miserable triangle, and "Riding with the King," the title track of an '83 LP and perhaps the most sinister Elvis song yet, reveal an ability to depict—with art, economy, and deadly accuracy—the darker, more difficult aspects of life. But Hiatt's career has had no particular continuity, and his albums no independent existence: They were only as good as the songs (which were never quite equally excellent) and the production (which varied widely). So far, so-so.

Having survived several harrowing personal crises, Hiatt has gotten both

broader and more directly personal in his work, and his luck has begun to change. *Bring the Family* reflects this fully: Starting with the best studio band in recent memory (guitarist Ry Cooder, drummer Jim Keltner, and bassist Nick Lowe, Hiatt fans all) and ten very strong tunes, producer John Chelew got vital, live takes on tape quickly and unfussily. Hiatt's singing, never a strong point, seems inspired by the remarkable supporting cast and is especially powerful here, ranging from the witty, Willie Mitchell-grooved "Memphis in the Meantime" and the gritty tenderness of "Thank You Girl" to an unglamorous crawl through the lower depths on "Alone in the Dark." And I'm captured by "Stood Up," the six-minute tale of a man humbled and yet heartened, a perfect mix of the writer's craft and the singer's resonance. It's getting to be list-making time, and *Bring the Family* will be on a lot of year's-best ballots—and right near the top of mine.

Jeff Nesin

# BEST NOT-SO-NEW ARTIST

**MICHAEL JACKSON:**  
**Bad.**

① Quincy Jones, prod. Epic EK 40600. ⓄⓂ Various public-relations fiascos—most notably his attempt to buy the Elephant Man's bones and his leasing of the Beatles' catalog to commercial scavengers—have tainted our memories of Michael Jackson as the most dynamic unifying force in popular culture. Five years after the monumental commercial success and historic musical significance of *Thriller*, with Jackson plagued by reports of his multiple plastic surgeries and dismissed by cultural nationalists as a lame, brainwashed dope, the merits of his music are going almost undiscussed. That's shameful, because there are some excellent moments on *Bad*.

Most important, the new album offers a vivid portrait of Jackson the composer, who wrote nine of the CD's 11 tracks. "Bad" expresses a fierce alienation that the slick, glossy video subverts with its

(Continued on page 93)

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(Continued from page 89)

overblown, good-kid-rejects-bad-scene motif. And though Jackson may have a sexless public image, such songs as "Dirty Diana," "The Way You Make Me Feel," and "Liberian Girl" contain enough suggestive scenarios and, at times, almost lewd references to indicate that Jackson is no pristine eunuch.

As expected with a Quincy Jones production, the arrangements are tight and beautifully crafted. "Man in the Mirror" smoothly hooks the Winans and the Andrae Crouch Choir underneath Jackson without disturbing either his vocal movements or the song's pace. The bouncy beat and wavy sections of "Another Part of Me" are linked by Jackson's squiggly voice, and "Bad" is reinforced by solos from Jimmy Smith's torrid organ and Greg Phillinganes's clipped synthesizer. Still, though the music impresses, it doesn't overwhelm: No single moment grabs you the way Eddie Van Halen's guitar solo on "Beat It" transformed that song into an anthem. "Speed Demon" and bonus CD track "Leave Me Alone" do add another variation on the Jackson technique, however: the use of a vocal synthesizer for special impact.

There's no way that Michael Jackson could ever follow *Thriller*. *Bad* isn't great, but it doesn't deserve to be dismissed as putrid trash. We really shouldn't expect much more than immaculate centrist music from Jackson now anyway, and that's what he delivers.

Ron Wynn

#### ELVIS PRESLEY:

##### The Sun Sessions CD.

Sam C. Phillips, prod. RCA 6414-2. Ⓞ  
① "The Complete Sun Sessions" (2). ☐

##### The Memphis Record.

Chips Moman, prod. RCA 6221-2. Ⓞ (2).  
① ☐

##### The Number One Hits.

① RCA 6382-2. Ⓞ ☐

##### The Top Ten Hits.

① RCA 6383-2 (2). Ⓞ (2). ☐

The unalloyed blessings first, out of respect for the King: *The Sun Sessions CD* is the most significant product of Elvisology to date, a carefully restored and remastered compilation of Elvis Presley's earliest efforts, the purest representation of his achievement that I ever hoped to hear. With astonishing fidelity, it brings back a nineteen-year-old Presley who had never recorded or performed professionally. These extremely important works of both intuitive and conscious synthesis were the product of only one year (July '54 to July '55) of intense collaboration with co-laureates Scotty Moore (guitar) and Bill Black (bass), under the strict supervision of Memphis lab director Dr. Sam Phillips. ("Don't make it too damn complicated," he instructs here before one experimental

outtake.) This 72½-minute disc collects all the final takes and many outtakes and alternates previously unavailable or found piecemeal (and scratchy) on rare bootlegs, now sounding as if you were sitting in the tiny Sun studio. With Gregg Geller's chronology and Peter Guralnick's enthused and informed essay, this is a new standard for historical packages.

The rest of these "Elvis Presley Commemorative Issues" are, inevitably, less compelling. *The Memphis Record* is a thoughtful and earnest regrouping of his last Memphis sessions (January and February, 1969), 15 years, 31 movies, and endless lifetimes later. This was, I think, Presley's final attempt at serious record-making, and I find it depressing: The players are terrific and so is the sound, but the Mac Davis material points right at his portly period dead-ahead. The sessions yielded a spurt of hits, but he just rode 'em back to the desert. Finally, the two chart compilations, *The Number One Hits* and *The Top Ten Hits*, a single package and a double, respectively, cover a lot of available material (and each other's tracks as well) with no annotation at all, not even songwriting credits. Recommended only for completists or for those who have very little E.P. on CD.

Jeff Nesin

#### JOHN COUGAR MELLENCAMP:

##### The Lonesome Jubilee.

Ⓞ John Mellencamp and Don Gehman, prods. Mercury 832 465-1. ☐

The impressive thing about John Cougar Mellencamp's follow-up to *Scarecrow* isn't its rich, austere mixture of bullwhip rock band and all folk instruments common to Poco records. No, what's truly amazing is that it's possible to listen to *The Lonesome Jubilee* without breaking out in hysterics every other song. In "Hotdogs and Hamburgers," John tells of picking up a hitchhiking Indian girl who resists his advances and instead teaches him about her heritage. "I felt ashamed of my actions," he concludes, "and the way the West was really won." And let's not forget the quote from Ecclesiastes inside the gatefold.

While all that may make even the staunchest Mellencamp fan groan out loud, we should have seen it coming. *Scarecrow*, one of 1985's finest albums, was a statement of purpose that came completely out of left field: No one expected this bluff-and-bluster Midwestern rocker to come up with such a hard-hitting chronicle of adult concerns and somber social messages. *The Lonesome Jubilee* continues in that vein and lays it on thick—but powerfully. Here are heartfelt



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songs about the demoralized national mood ("Down and Out in Paradise"), wasted lives ("The Real Life," "Paper in Fire"), Merle Haggard-like despair ("Empty Hands"), and nostalgia ("Cherry Bomb," which improves on *Scarecrow's* lunkheaded "R.O.C.K. in the U.S.A."). Most of those songs can be found on Side 1, adding up to a vigorous suite of mainstream American rock. Although the themes and melodies start to repeat during the album's second half—a song like "Hard Times for an Honest Man" says as much in its title as it does in its lyrics—Mellencamp's delivery and writing never waver.

Just as Mellencamp's ambitions have grown, so has his band, expanding from a basic five-piece to include two female backup singers and fiddler Lisa Germano. Sometimes these arrangements get too "authentic" for their own good: "Paper in Fire" crams in electric and acoustic guitars, accordion, fiddle, banjo, Dobro, harmonica, and tambourine, not all of which are necessary. But in spite of all that overdressing, the entire ensemble attains a limberness that usually escapes the more clubfooted E Street Band, and the combination of Mellencamp's group and Germano's double-tracked violins (in particular on "The Real Life" and "Check It Out") recalls the splendor of Rod Stewart's classic early-1970s solo albums. In the wake of the trend toward self-conscious, "working class" American bands, we'll doubtless be seeing plenty of records as overambitious and occasionally overdone as this one. But it's unlikely that any of them will leave as much of a mark—or kick as much butt.

David Browne

#### GRATEFUL DEAD:

##### In the Dark.

Ⓞ Jerry Garcia and John Cutler, prods.  
Arista AL 8452. ⓂⓄ

Why is the Grateful Dead's first studio album in seven years also its first Top Ten record? Is it a belated embrace of post-comatose Jerry Garcia? Or merely an extension of the media's anniversary obsession with the Summer of Love and all things Sixties? It's not as if the music has changed very much. Sure, *In the Dark* is pretty good as Dead albums go, but the songs are relatively typical—and lest we forget, the group's strength has never been as a studio band.

Most of these "new" compositions have been done live for several years. The anthemic "Touch of Grey" (with touches of "Scarlet Begonias," "Rubin and Cherise," and "Bertha") is among the oldest, but the chorus of "I will survive" has taken on new meaning since Garcia's brush with death. A testament to its own lyrics, the song has become what that other anthem, "Truckin'," could never be: an AM

## FORMAT KEY

- Ⓞ LP/EP
- ⓂⓄ Cassette
- Ⓞ Compact Disc
- Ⓜ Videocassette
- Ⓞ Videodisc

Large symbol beneath title indicates reviewed format. Small symbols following catalog number of reviewed format indicate other available formats (if any).

Catalog numbers of all formats of a particular recording usually are identical except for differing prefixes or suffixes. Catalog numbers of formats other than the reviewed format are printed only if their basic numbers differ substantially from that of the reviewed format.

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radio hit. The other tracks co-written by Garcia and Robert Hunter also recall older efforts. For instance, "Black Muddy River," the low-key finale, is a mournful echo of "Brokedown Palace" (right down to the ragged harmonies). Only now Garcia sounds authentically weary.

Bob Weir's songs are better here, perhaps because he has always been more comfortable in the studio. The album climaxes with his "Throwing Stones," a tribal dance of antinuclear protest and the finest hour of a longtime collaboration with lyricist John Barlow. And "Tons of Steel" is Brent Mydland's most listenable writing contribution to date, even if it doesn't sound like a Grateful Dead song.

Garcia's fluid guitar is highlighted throughout, an essential element that some past producers have unwisely neglected. Weir's bursts of rhythm guitar and macho vocals provide the yang to Garcia's yin, and Mydland's keyboards add subtle spice. Phil Lesh's bass is once again lost in the mix, but I'm sure he's doing great things down there somewhere. Meanwhile, rhythm devils Bill Kreutzmann and Mickey Hart mostly clip-clop along, but they do come to life on Weir's numbers, including the non-LP "My Brother Esau" (which completists can find on the cassette and the B-side of the "Touch of Grey" single).

Mainstream attention isn't likely to ruin the band's magic for too many Deadheads. But I wouldn't be surprised if more than a few mainstreamers found themselves "on the bus" long after the media whirlwind has gone by.

Andrew Nash

#### TINA TURNER:

##### Break Every Rule, Starring Tina Turner.

Ⓞ David Mallet, dir.; John Hudson, recording prod. Pioneer Artists PA 87-197.  
Ⓜ HBO Video 9940 (Beta and VHS).

*Break Every Rule* is more than just an ordinary concert video: After all, this is Tina Turner. But director David Mallet also

merits much credit for this superb program, in which 13 cameramen film the magnificent artist from every imaginable angle, as well as capture reactions from an obviously well-chosen, if not rehearsed, audience. And the digital sound of this videodisc, clarified by the CX noise-reduction system, not only renders Turner's voice in all its richness but picks up each and every volume gradation in crowd response when she steps onto a platform above her fans.

The performance takes place in a Parisian bistro packed to the rafters. First comes a mini-set of songs from Turner's *Break Every Rule* LP, marked by fast-paced but steady editing that evokes the room's intimacy while providing breathtaking views of the tightly corseted Tina. About halfway through the hour-long program, she decides to take the audience "back to when I got started," and with a snap of the fingers, the picture goes grainy black-and-white and Turner is seen in a sparkling '60s miniskirt, go-go girls dancing behind her, as she sings the autobiographical "Overnight Sensation."

Returning to the present, Turner brings out guitarist Robert Cray for Sam Cooke's gospel classic "A Change Is Gonna Come," then lets loose with "Admitted to Love" and three Wilson Pickett favorites, "In the Midnight Hour," "634-5789," and "Land of 1,000 Dances." Closing with "Paradise Is Here" and "Girls," the video reverses the opening sequence that showed Turner walking from her apartment to the nightclub through beautifully conceptualized streets. Back home, Turner deserves her champagne nightcap.

Jim Bessman

## JAZZ

#### DEXTER GORDON:

##### Our Man in Paris.

Ⓞ Francis Wolff, prod. Blue Note CDP  
Ⓞ 46394. Ⓜ BST 84146. Ⓜ 4BN 84146.

##### Dexter Calling . . .

Ⓞ Alfred Lion, prod. Blue Note CDP 46544.  
Ⓞ BST 84083. Ⓜ 4BN 84083.

##### Go!

Ⓞ Alfred Lion, prod. Blue Note CDP 46094.  
Ⓞ BST 84112. Ⓜ 4BN 84112.

*'Round Midnight* is a moving, elegiac, and important film with something very bogus at its heart. Dexter Gordon, one of the great tenor saxophonists in jazz history, plays Dale Turner, an alcoholic musician trying to keep it all together in Paris as his strength and will desert him. As an actor, Gordon is magnificent: World-weariness never seemed so majestic. He also plays his horn, recorded live for the film. After Gordon/Turner's first number, the adoring Frenchman who follows him around makes a pronouncement that lingers

throughout the course of the film: "He played like a god." The spectator is supposed to swallow this whole: Though Turner may be wasting away, his musicianship miraculously remains intact.

As much as I would love to be swept up in that aesthetic fantasy, my ears won't let me: Gordon just doesn't sound that hot in *'Round Midnight*. His tone is weak, his facility faulty, and his ideas serviceable yet never soaring. Like the character he plays, Gordon was indeed in ill health during the shooting (though not alcohol-related), and time itself has a nasty way of diminishing even a great musician's abilities. This is nothing to be ashamed of. I only wish the filmmakers could have acknowledged it and used it. How much more bittersweet the drama had it involved a musician confronting the loss of the skills that made up the very core of his identity. More disturbing is the thought that viewers unfamiliar with Gordon—or jazz to begin with—are fed this great misconception about his playing. For all the mythologizing, Gordon is ultimately done a disservice.

The three Compact Discs reviewed here, on the other hand, are the genuine article: Gordon at the rip-snorting apex of his career. This is where new fans should start, though the impact of a fully healthy,

inspired, foot-to-the-pedal Gordon may shock them. The most recent of these reissues, 1963's *Our Man in Paris*, has the strongest ties to *'Round Midnight*. Dale Turner is an acknowledged composite of Lester Young, the magisterial sax pioneer, and Bud Powell, the major pianist of the bop era, himself based in Paris from 1958 to 1963. Powell is behind the keyboard here, alongside another bop progenitor and expatriate, drummer Kenny Clarke.

The session could well have turned into a disaster. At the time, Powell's mental health was hit or miss: lucid one day, vague and severely depressed the next. His appearance on the date was also unexpected: Kenny Drew, the first choice, canceled, and the new Gordon compositions to be recorded were scratched. But some bop standards were pulled out, and a near classic session ensued. Powell, no longer the frenetic fingerbuster he was in the late Forties, is relaxed and on target; he sounds more human and expressive than in his superchops days. Driven by Clarke's rocket-fuel swing, Gordon climbs, his energy matched only by his full-blooded tone. Gordon had been doing his share of listening to the new master, John Coltrane, and he employs Trane-style runs to grand effect, sounding modern but never faddish.

And his ballads are special things of beauty, high sentiment balanced by passion.

The 1961 *Dexter Calling . . .* is the second of four Blue Note albums Gordon cut before relocating to Europe. The Fifties had been a lean time for Gordon recordings; with the new decade, he was back to hold his own with a new generation's heroes. *Dexter Calling . . .* features Kenny Drew, obviously a Gordon favorite, and the "twins separated at birth" interplay of rhythmmates Paul Chambers and Philly Joe Jones. Unsurprisingly, this date is all motion, with Gordon's intense, classically constructed solos bolstered by this riveting support group.

*Go!*, recorded a little more than a year later, is Gordon's masterpiece, a perfectly integrated work that defines his grand achievements. Again, the boys in the band add immeasurably: Pianist Sonny Clark and drummer Billy Higgins bear down on Gordon and never let him loose. Gordon's sense of detail and structure, his subtle rhythmic twists and witty use of appropriate quotations, are utterly distinctive and timeless. *Go!* is a measuring stick for future generations of saxophonists. Its release in lustrous CD form is all the compensation Gordon needs for losing out on his Oscar.

Steve Futterman

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# C U R R E N T S



The NAD 7600 receiver includes semiparametric tone controls and FM noise reduction.

(Continued from page 10)

7600 can be bridged for mono operation with 8-ohm rated outputs of 500 watts (27 dBW) continuous and 1,200 watts (30.8 dBW) dynamic.

The preamp section has a typical complement of line-level audio inputs (one labeled for video sound), plus separate circuit paths for the moving-coil (MC) and fixed-coil (MM) phono inputs. The Bass EQ function should not be confused with loudness compensation: It is designed to add a narrow band of deep bass (+3 dB at 55 Hz, +6 dB at 36 Hz) to counteract the roll-off of a typical loudspeaker in that range. The two tone controls are unusually flexible: Each is semiparametric, with a choice of three center frequencies covering a fixed bandwidth. The bass control can be set at 50, 120, or 250 Hz, while the treble options are 3, 6, or 12 kHz.

The tuner section features NAD's FM noise-reduction circuit, which is said to dramatically improve the listenability of weak stereo FM signals. One nice touch is the use of a weighted tuning knob, as opposed to up and down pushbuttons, to run through the frequencies. There are presets, and the station numbers are displayed on an LED readout. For more information, contact NAD (USA), Inc., 675 Canton St., Norwood, Mass. 02062.

## Upper Crust

The A-91D (\$1,500) integrated amplifier is the newest member of Pioneer's Elite line. It is also the company's first model with built-in digital-to-analog converters (four-times oversampling) for decoding the digital outputs from appropriately equipped CD players and DAT decks.

The amp is rated at 120 watts (20.8 dBW) per channel. Great care has been taken to keep extraneous noise from interfering with the music signal. For instance, the power lines that feed the digital circuits, the tone controls, and the phono preamp are turned off when not in use. Also, a Line Direct mode bypasses all circuits except the volume control, thereby sending the signal directly to the output stage. Furthermore, honeycomb construction of the chassis parts is said to prevent any sonic degradation that might be caused by physical resonances.

The A-91D includes no fewer than six digital inputs and three digital outputs. Two of the inputs and one output are via fiber-optic cable. Pioneer must be thinking of more than just CD players and DAT decks for these extra digital connections. For more information, contact Pioneer Electronics, P.O. Box 1720, Long Beach, Calif. 90801.



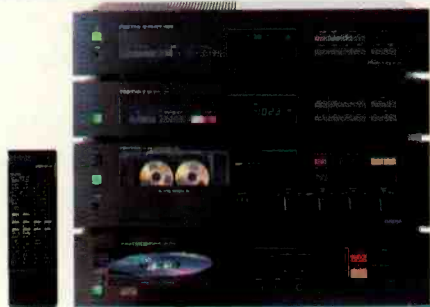
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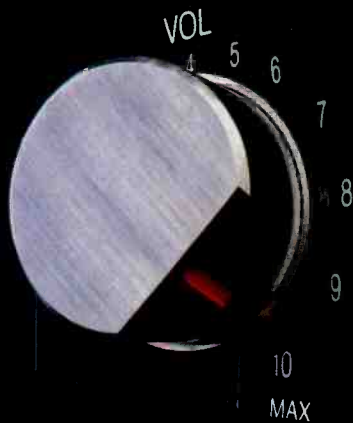
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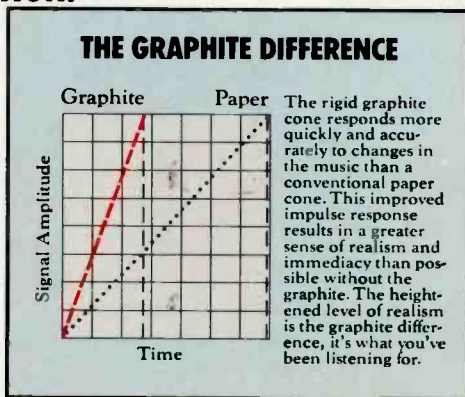
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