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5 LAB TESTS
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To go into all the reasons why the new Pioneer SD-P401 is the best projection monitor you can buy would require a great deal of engineering explanation...

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Radio Shack’s New High-Power Receiver With Infrared Remote

Powerhouse performance with the luxury of wireless remote operation! The all-new Realistic® STA-2700 has the power and features to serve as the heart of today’s sophisticated digital audio and video systems. Rated 100 watts per channel, minimum rms into 8 ohms from 20 to 20,000 Hz, with no more than 0.05% THD. The 18-key remote gives you total control from across the room. And the digitally synthesized tuning system features a fluorescent frequency display, a programmable memory for storage of six FM and six AM stations for instant recall, plus search and manual tuning modes. The tape control center puts you in command of 2-way dubbing and 2-deck monitoring. Upgrade your system and unleash the power of the STA-2700. Only $499.95, and only at Radio Shack.

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Once again, AR reshapes the future of high fidelity.

No longer do you need to live with components that look more at home in a power station than in your home. No longer need you sacrifice sound quality for some semblance of sound design.

AR, the company that revolutionized loudspeakers with the Acoustic Suspension design, now changes the face of stereo components forever. By combining world-class industrial and electronic design, AR has produced the first audio components as pleasing to the eye as they are to the ear.

The front fascias are gracefully angled, so controls fall readily to hand. Behind a hinged panel, infrequently-used controls are ready when you need them, out of sight when you don’t.

AR has reexamined the factors that really matter to sound quality. That’s why AR amplifiers produce high current output for outstanding dynamic headroom. Four-times oversampling gives the AR Compact Disc player absolute phase linearity. And AR’s unified remote control adds a final touch of elegance.

No one serious about stereo would buy equipment without listening. Now it’s no longer necessary to buy without looking.

We speak from experience.
The stage can be real, imaginary, or even surrealistic, but this is what we mean when we speak of stereo imaging. 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. and the separate tracks were only 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 reassess 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.

By Michael Riggs
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.

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 made available in the CD format?

Frederick S. Reinhart
Boca Raton, Fl.a

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 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, 823 7th Ave., New York, N.Y. 10019. All letters are subject to editing for brevity and clarity.
YOU'LL NEVER HAVE TO SIT THROUGH ANOTHER AMATEUR NIGHT AGAIN.

How can you really enjoy professional entertainment when your equipment isn't professional?

You can't. And dbx can prove it to you. Here and now. And with a dbx dealer demo later.

For over 15 years, the greatest moments in entertainment have come through us. Today, you'll find dbx professional equipment at work at most every important recording studio, broadcast facility and live performance in the world.

With 75 patents and a recent Emmy for co-developing stereo TV, our list of firsts and onlies puts us in a class all our own.

The results are ready for you to take home now. Professional equipment with all the clarity, impact, nuance and range you couldn't get before. Even in the most expensive amateur systems.

The differences you'll see and hear are audible, visible and phenomenal.

For example, our Soundfield psychoacoustic-imaging speaker systems sound spectacular in any room. Anywhere you sit in that room.

Our audio/video preamplifier incorporates Dolby® Pro Logic surround sound using dbx proprietary technology. For the most thrilling home-theater performance you can get.

Our incomparable configurable 2/3/4-channel amplifier provides over 800 watts per channel in actual use. With a flatter response than amateur amps costing twice as much.

Add to these one-of-a-kind components our FM/AM tuner with Schatz® noise reduction, uncanny clarity and a noise floor way below what you're probably listening to now.

And a CD player that's so good, Stereo Review's Julian Hirsch wrote: "Even without its special circuits [proprietary sonic enhancements], the dbx DX5 would rank as one of the best available."

Complete your home studio/theater with our superlative digital-processing VCR with VHS Hi-Fi and our own MTS stereo TV sound. And bring your video enjoyment up to where it should be.

A visit to your dbx dealer will convince you that your amateur days, and nights, are over.

dbx
Audio and Video
at its professional best.
Sleek Sound

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 develop, incidentally, by B&O. HX Pro lessens the chance that your CD dubs will

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 ±1/3 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 fine tuning 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.
THE EVOLUTION OF THE DISC.

Early records were scratchy and extremely fragile. Now, with compact discs, you can program the cuts you want to hear (in the order you want to hear them), sit back, relax, and enjoy hours of uninterrupted pleasure. We've certainly come a long way.

Discwasher has come quite a distance, too. And though our first product (the famous D4+ Record Cleaning System) is still the industry standard for cleaning LPs, our new Discwasher Compact Disc Cleaner has a style and design that's more than equal to the remarkable discs it protects.

For starters, our CD Cleaner uses a computer-aided design to deliver a true "radial" cleaning (that's what the manufacturers recommend). And Discwasher's CD-1 Cleaning Fluid is scientifically formulated to lift and suspend contaminants as our non-abrasive cleaning pad easily and safely removes the debris from the disc surface. The result is no audio drop-outs or playback skips to mar your enjoyment.

Best of all, both Discwasher's CD and LP Cleaning Systems are serious equipment—at a reasonable price. Good "insurance" to protect your priceless CDs and albums. Just the latest step in an exciting audio evolution.

AND THE DISCWASHER.

discwasher
4309 Transworld Road, Schiller Park, IL 60176
A Division of International Jensen, Inc.

The makers of the famous D4+ Record Cleaning System.
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

<table>
<thead>
<tr>
<th>AMPLIFIER SECTION</th>
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<tbody>
<tr>
<td>Rated minimum sine wave RMS power output, 20Hz-20kHz, both channels driven, 100W per channel (0.003% THD, 8 ohms).</td>
<td></td>
</tr>
<tr>
<td>DYNAMIC HEADROOM</td>
<td>1.2 dB (8 ohms).</td>
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| GRAPHIC EQUALIZER SECTION | Band level controls, +12 dB – 12 dB (2 dB steps), center frequencies, 63Hz, 160Hz, 400Hz, 1kHz, 2.5kHz, 6.3kHz, 12.5kHz. |

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 playback 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-119 integrateds. 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)
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, 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 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.

Technics
The science of sound
Matthew Polk and his extraordinary 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. The 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

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 overwhelmingly impressed 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 sound 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."
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?

Raneil 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.
ANNOUNCING THE CBS COMPACT DISC CLUB
ANY 3 COMPACT DISCS FOR $1.00
WITH MEMBERSHIP

CHOOSE STATE-OF-THE-ART SOUND
IN THE LATEST CD RELEASES.

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and mail the application—we'll send your CDs
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next 3 weeks (13 times a year) you'll receive the
Selection of the Month for your musical
interests, or none at all, fill in the
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ship will be billed at regular Club prices,
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It's a chance to get a fourth selection at a
super low price!

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- Billy Joel—The Stranger. (Columbia)
- Simon & Garfunkel—Half Time. (Columbia)
- Pachelbel Canon. (Choraline)
- The Police—Every Breath You Take. (A&M)
- The Eagles—Lop It Loose. (Epic)

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SEND ME THESE 3 CDs FOR ONLY $1.00

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Your membership is valid for the current year, unless you cancel
at any time. If you cancel your membership, you will have no further
obligation. If you wish to receive the Selection of the Month for your musical
interest, please check one box:

- ROCK/POP
- CLASSICAL
- Other (check one)

If you do not wish to receive the Selection of the Month, please check
"Other" and specify:

Address:
City:
State:
Zip:

Do you have a VCR? Yes No
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CBS COMPACT DISC CLUB: Terre Haute, IN 47811

Columbia House Clubhouse
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You 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 amplifier 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 waiting 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 3702 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 Yogi would say (of course), though.

**Component Installation Quality** (80 points): The judges listen for the delineation of sounds in the low, mid, and high frequencies at both soft and loud listening levels (with the tone-control settings fixed) is evaluated. 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, mid, and high frequencies, 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.
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 last 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 pre-shoot 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 bright 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.
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.
THINK OF IT AS THE WORLD'S SMALLEST DIGITAL PLAYER.

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.

With all this going for it, HX-S does more than step-up your pocket-sized player. It also acts like fuel injection for your car audio system. And it can turn a boombox into a portable music hall.

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

THE ART OF PERFORMANCE.

TDK is the world's leading manufacturer of audio & video cassettes and floppy disk products.
The 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 interviewee 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, lavaliars 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 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 Cecconi, 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.

'That's why we supply our Reference Series speakers with this 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.'
Sony, 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 premium, limited-production ES Series, while the D denotes that it is fitted with a digital data output. Obviously, Sony is preparing for the day—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
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 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 DRM30HX 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 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 DRM30HX

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

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 difficult types of music on the Denon DRM30HX. 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 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.

* 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 programing, 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 test of a control scheme, the Sony 505 passed every lab test for data recovery. 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 programing, 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.

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B&W REVISES AN EQUATION.
THE RESULT IS UNBELIEVABLE.

B&W have taken the Matrix quantum leap a stage beyond. They challenged the view that only a sizeable and intrusive enclosure could possibly produce a sound of true monitor quality. That equation—between size and sound quality—is now rewritten by B&W in their Concept 90 series CMI/CM2 loudspeakers. Giving an incredible response to the wide dynamic range of today's compact discs.

At one end a rich and satisfying bass output. At the other, fastidious reproduction of the most delicate passages. Here is a loudspeaker whose mighty performance is at home in limited rooms—whose appearance is perfectly attuned to design-conscious living.

The Matrix revolution—an historic breakthrough in enclosure design—has lit the fuse. The honeycomb Matrix structure has virtually eliminated unwanted radiation characteristics. Setting you free to enjoy the pure, uncoloured sound of the drivers.

With one of the last great barriers to perfect sound reproduction lifted, B&W have undertaken an intensive development programme using the latest Computer Aided Design techniques. This has brought about a new generation, demonstrating B&W's sensitive shaping of audio for the rest of the century. It's called Concept 90. CMI and CM2 are the latest progeny of the state of B&W art.

THE MATRIX REVOLUTION.
SETTING SOUND FREE.

For the resolute perfectionist, Concept 90 reserves a further dimension. The supreme power and bass extension (a full 1/2 octaves more than the CM2) The CMI element crosses to the slender sub-bass module of CM2 at only 150Hz, leaving performance unimpaired and giving a fully omnidirectional pattern of sound radiation. Drivers are reflex loaded and deliver perfect optimisation of output and bass extension in CM2: the maximum sound pressure level is raised to 107dB with superlative accuracy and stereo imagery.

By moulding the CMI enclosure and Matrix in one piece and using a new glass fibre reinforced polyester material, B&W have drastically reduced cabinet thickness—normally 15mm—to just 5mm. The result: a gain of 45% internal volume and a bass output which completely belies the CMI's diminutive size.

Bass/midrange performance has been refined by the introduction of a new version of the woven Kevlar cone (used in B&W's celebrated 801 monitor). System sensitivity of 85dB. Maximum sound pressure level of 105dB (in 2,000 cu ft). The perfect expression of the Concept 90 philosophy.
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 Universal) 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 phone 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 programming 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...
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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 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 dB—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 international 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 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
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 heart of a performance-oriented audio-video system.
PHILIPS DISCOVERS AMERICA.
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 = 0.03%). Its CD Direct mode eliminates every avoidable source of noise and distortion.

American audio and videophiles will finally hear and see for themselves what they've so far only heard about. As one American publication reported, "Philips of the Netherlands is one of the largest electronics companies in the world."

More to the point, "It was the vast Philips research and development facility that invented the Compact Cassette, the [laser optical] video disc, and the Compact Disc."

In fact, "Most non-Japanese CD players, including most..."
This sophisticated 4-speaker stereo television receiver (27H326S51) provides 10 watts per channel with a 27" diagonal flat square black matrix picture tube and advanced digital features.

Of the 'high-end' audiophile machines... employ Philips chassis and circuits."

Our fame and technology have preceded us. Our products are now here. Products for people who demand the best.

For more information, and for your nearest Philips dealer, call 1-800-223-7772.
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 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 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-dia- phragm units incorporating silicone damping and cooling material. The midrange drivers are 31/2-inch convex-dia- phragm 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
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 rear-panel switch are provided for bi-way banana jacks. Extra terminals and a the bottom of the rear panel, are multi - replaced by self - resetting, current - sensing bi-

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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, 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 tion 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 intercabinet spacing, you'll find that the very high frequencies sound a bit muffled.

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,

**Test Reports**

![Room Response Characteristics](image)

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

90 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 continued or applied to the specific samples tested. High Fidelity and Diversified Science Laboratories assume no responsibility for product performance or quality.

**DECEMBER 1987**

**35**
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.

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.

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 co-polymer 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 piano is 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 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 Unison 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.)
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 1/2 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 19.9 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.

Harman 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 audio 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 Kardon 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 Otala. 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)
At last, you've found the perfect Partners.

For those of you who have wanted to listen to high quality sound both in and out of the listening room, your wait is over. AR's new Powered Partners™ stereo loudspeakers are unlike any portable or transportable speakers to date. They feature an individual powerful amplifier, a 4" woofer and 1" tweeter in each impact-resistant, black crackle, cast aluminum enclosure. They also feature individual volume and tone controls, inputs for anything from an FM or cassette Walkman™ or Stereo TV Receiver to the latest portable CD players. A battery pack, DC adaptor, and carrying case featuring Music Windows with Velcro™ closures, are optional touches of perfection.

Simply put, the Powered Partners deliver the best sound you can carry. No surprise. They come from AR, the company that's been making speakers sound great for 32 years.

For the name of the nearest authorized AR dealer call 1-800-345-8112
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 AAV405 Receiver. Instead of a paltry 35 or 40 watts per channel, the AAV405 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 AAV405 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.
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
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 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 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 shelf below 50 Hz and above 10 kHz, respectively, with maximum boost/cut ranges of approximately ±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.
The 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 1/4-, 1/2-, or 3/4-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 progress up to 6 1/2 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 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, reaveraged, 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-
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**Where to feel the Yamaha Digital Home Theatre**

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**Yamaha Digital Home Theatre**
"The most significant advance in the control of auditory space since stereo."

David Ramsay, Technical Editor
High Fidelity Magazine

"The ultimate audio and video sound experience."
"Produces an uncanny sense of being somewhere else listening to live music."
"Sound improvement ranged from substantial to mind-boggling."

The accolades are for Yamaha's DSP-1 Digital Soundfield Processor. Created by Yamaha, the DSP-1 is a truly unique component that digitally recreates the actual live acoustic properties of the world's great concert halls and performance venues right in your own living room.

So you can listen to any type of music in the very environment it is intended to be enjoyed in. A jazz ensemble in a small club. A choir in a cathedral. Rock in an outdoor stadium.

There are 16 pre-set acoustic environments on the DSP-1, including two Yamaha surround-sound modes and Dolby® Surround for incredible enhancement of movies on videotape or laser disc. In addition, you can modify any setting, and store it on any of 16 user program memories.

The DSP-1 is the heart of an experience called Yamaha Digital Home Theatre. A system of components that elevates home entertainment to a new, unparalleled level. Whether it's audio or video. Regardless of the format. No matter what the source.

The Yamaha DSP-1 Digital Soundfield Processor. Come feel a demonstration at a Yamaha dealer near you.
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-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 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 (noticiable mainly at the noise reduction's LEVEL II setting and, to a lesser extent, at LEVEL III), 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 8/5 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-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.

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 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 7/2 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% 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 1/2 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 1/4-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.
With a worldwide reputation for sonic excellence, the new Luxman Receivers also deliver more power than ever before.

For over 60 years, Luxman audio components have been internationally recognized for their superb sonic quality. However, the recent introduction of compact discs with wide dynamics and high-accuracy loudspeakers with low impedance ratings has created a need for receivers with "real" output power. With the tremendous dynamic power of the new Luxman receivers, our reputation for "Ultimate Fidelity" is likely to change to "Ultimate Power."
Product of the Year Award
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, 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: 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
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 fre-
quency 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: Alpine 7902 Car Tuner/CD Player. As the first 
nation of a car CD player and an AM/FM tuner, the Alpine 
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 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 
company has had a considerable influence on the development of a major 
electronics product genre—to be precise, on Super VHS. About twoyears 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 par-
ticles were extremely small for a ferric oxide, the resulting coercivity was very high, and the parti-
cles 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 demon-
strate an S-VHS tape, and the first to deliver S-VHS tape to stores (in Japan as well as Amer-
ica). As with the Philips/Sony collaboration on the Compact Disc system, this shows that co-
operation can sometimes work to everyone’s benefit. In this case, it is the videophile who 
comes out way ahead.

Allison IC-20 Loudspeaker System. In a radical 
departure from its 
that are directly con-
effects on sound quality 
operation from those 
are being considered 
the instruments’ locations in the stereo image. Previous attempts to do this have re-
sulted 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 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.

**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 CLR (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.)

**Yamaha CDX-1100U Compact Disc Player.** Yamaha continues to surprise us with its mastery of digital audio technology. We were astounded by last year's award-winning DSP-1 processor and 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.

**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.)

**NAD 6300 Cassette Deck.** With the CD already upon us (and DAT almost, as we keep hoping), analog cassette recording is about to enter a long period of gradual decline. When and if analog cassettes are pushed aside by digital media, 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.)
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, then 375 lines, later to 440 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—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 1/60-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
Power Precision. Performance. The new generation of Citation separates goes far beyond its predecessors to create the ultimate listening experience. Designed and developed by Harman Kardon, one of the most respected names in audio, every generation of Citation has earned a reputation of excellence with audiophiles around the world. A true testing and proving ground for the most revolutionary audio concepts, Citation's innovations have ultimately been featured in all Harman Kardon components.

Steeped in audio breakthroughs and advanced designs, Harman Kardon's Citation division introduced the world's first Ultrawideband amplifier in 1963 - the Citation 2 vacuum tube amplifier. In 1972, the Citation 14, the first FM stereo tuner with Phase Locked Loop (PLL) MPX decoding, was introduced. In 1977, the 150-Watt-per-channel Citation 19 became the first power amplifier to feature low negative feedback. 1981 saw the introduction of the Citation XX. Its exclusive High instantaneous Current Capability (HCC) design provided the instantaneous current required to precisely drive and control any loudspeaker system.

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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 approximately 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 luminance 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
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.

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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, start swallowing up the rest of the pack, so too will 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 rumoried 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.

This 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.

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**Reggae: Death, Life**

The 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 wasn'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 Shanking* (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.
The Good Old Days Are Back

The 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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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, some of the century's most formidable artistry—soundingly and gloriously as has ever been managed on record.

The sound is remarkably good, particularly as has ever been managed on record. 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.

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

the good old days are back

Leading the list is the celebrated Furtwängler Tristan und Isolde from 1952, which has at long last been issued domestically by Angel EMI (CDCC 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 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 Rosenkavalier 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 (CDCC 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 (CDECC 47581, three CDs), Norma (CDECC 47303, three CDs), La sonnambula (CDECC 47377, two CDs), Tosca (CDECC 47174, two CDs), Carmen (CDECC 47312, three CDs), Un ballo in maschera (CDECC 47498, two CDs), La Bohème (CDECC 47475, two CDs), Manon Lescaut (CDECC 47392, two CDs), Madonna Butterfly (CDECC 47959, two CDs), and Turandot (CDECC 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 final three symphonies 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 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 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 Fleisher 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 Swallawisch and the Philharmonia Orchestra), coupled with his recording of the Hindemith concerto in which the composer conducts the same orchestra (CDECC 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 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 Ciburn’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 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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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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The major labels have brought prices down by cutting corners.

By David Hurwitz

The 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 characteristiclly 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.

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 century's preeminent Mozarteans.

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-Sæns 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-Sæns'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.
**MINI-REVIEWS OF THE LATEST COMPACT DISCS**

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

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**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 shine 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.

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**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 choral works. There are 15 cueing bands, mostly for the movements of Façade. Playing time: 67:02. (Angel EMI CDC 47512)  R.E.B.

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**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 ominous 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.

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**SIBELIUS SECOND: ROYAL, BARBIROLLI**

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 performance 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.

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**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 Plisson 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.

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**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 distasteful, 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: 59:48. (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.

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.

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 Klemerer 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.

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 Reichle, whose brilliance as Bach's own trumpet finder 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.

VOLKMANN, 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 Miltiadis 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.
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 Esterhaza 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 Esterhaza ring for me far more than did my visit there. The sound is excellent. Playing time: 51:03.

ROBERT R. REILLY

HOLST:
"The Planets."
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 Chloë. His Stravinsky has been dull, his Berlioz faceless to the point of anonymity, and his recent rendi-

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 spectacle," with the two gentle Ravel orchestral 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 muzzy 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. The ending of Boléro is congested, and the large tam-tam heard at the conclusion of Pictures has no metallic sound whatever.


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


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

This recording is a model of what the recording 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 lift: con grazia, as Bernstein's is a controversial Pathétique. (Continued on page 82)
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Portable Compact Disc Player
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JVC RX-9VBK Remote Digital Stereo Receiver
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- 120 watts per channel 32 presets 7 band graphic equalizer 2-color display 24-presets 3-band EQ
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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 been known to take liberties in his recordings, and while this can be both exciting and controversial, it 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
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 "Cesti leste Aida" at the touch of a key. Playing time: 71:55.

Terry Teachout

SHURA CHERKAJSKY:
   HOFMANN: "Kaleidoskop," Op. 40. CHA-SINS: "Rush Hour in Hong Kong" (from "Three Chinese Pieces").
   In Concert 1984, Vol. 2.
   J. S. BACH (arr. BUSONI): Chaconne (from Partita No. 2, in D minor, for Violin, B.W.V. 1004). BERG: Sonata, Op. 1. LISZT: "Funerailles" (from "Harmonies poetiques et religieuses"). BEETHOVEN: Sonata No. 13, in E flat, Op. 27, No. 1. What is remarkable and unequalled in Cherkassky's playing is his ability to produce seemingly infinite gradations of tone and volume by seemingly infinite varieties and combinations of touch and pedaling. 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 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 disappointed 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 "color 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 point out purists "whose musical na-scence occurred after 1945"). Beethoven's Sonata No. 13 in E flat, Op. 27, No. 1, sounds essentially incomprehensible here. Most satisfying is Busoni's arrangement of Bach's Chaconne in D minor.


Thomas Hathaway

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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."

By Jonathan W. Poses

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

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:
Levi's "501" jeans campaign, NBC's shot-in-Chicago 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 stops 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 sits 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 Buchanan 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 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 road. 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.)
These anti-resonant chassis spacers are made with Kyocera's proprietary Fine Ceramics.

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In May of 1983, Kyocera introduced a CD player with true 16-bit digital filters. Today, the competition's calling this circuit “the latest thing.” Years ago we had four-times oversampling. This year every high-end player worth mentioning has a similar design. In September, 1984 Kyocera raised some eyebrows with the world's first Fine Ceramics anti-resonant CD chassis. Now the stores are full of flimsy imitations.

How did all these innovations happen to come from Kyocera, and not some household name? Perhaps because Kyocera's knowledge of digital circuitry comes from years of building computers for some of the best-known names in electronics. Perhaps because Kyocera is a world leader in Fine Ceramics, the technology used to house circuitry in aerospace and other advanced applications. Or perhaps because some top-rated CD players from other brands were actually made by Kyocera.

Now Kyocera has four world-beating Compact Disc Players, ranging in suggested retail price from $350 to the $800 model DA-710CX shown here. Each boasts technology so advanced, it's a preview of what the competition will be selling in 1989. After all, history does repeat itself.
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 Misterreater"). 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 band members will improve on record, but this debut will please a lot of Southern music fans just the way it is.

John Mortland

THE ROLLING STONES:

Got Live If You Want It!

○ Abico 7493-2.

○ More Hot Rocks. Abico 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 origins 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

HOOVERS:

○ 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 Cher toff 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:


These guys used to be such an unpretentious band. But when you spend four years making an album, it had better at least sound 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 Shot gun" 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 jubilant) 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

MARIANNE FAITHFULL:

○ Strange Weather. Island 90613.

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 titanic cut. Faithfull also adds traditional folk material to her drama: On "Sign of Judge-
JOHN HIATT:
Bring the Family.

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 wittiness, 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

MICHAEL JACKSON:
Bad.

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...
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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 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. The Complete Sun Sessions (2).

The Memphis Record.

Chips Moman, prod. RCA 6221-2. The Number One Hits. (2)

The Top Ten Hits.

RCA 6382-2. (2)

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

JOHN COUGAR MELLENCAMP:

The Lonesome Jubilee.

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

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-lau- reates 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 72 1/2-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) without annotation at all, not even songwriting credits. Recommended only for completists or for those who have very little E.P. on CD.

Jeff Nesin

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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 lumpheaded "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, prod.  
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 obsessions 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 anemic "Touch of Grey" (with touches of "Scarlet Begonias," "Rubin and Cherry," 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 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 climaxizes 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 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

FORMAT KEY

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O BST 84083.  
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Gol!  
Alfred Lion, prod. Blue Note CDP 46094.  
O BST 84112.  
M DN 84112.

'Thround 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 pronunciation 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 doing 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 releases, 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 fingerbender 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 rocketfuel 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 rhythmates 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.
The NAD 6000 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 unusual-ly 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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