THE GREAT CARTRIDGE COMPETITION

ALSO TESTED:
SANSUI CD PLAYER
OHM SPEAKERS
SONY PREAMPLIFIER
...AND MORE
Only ComponentGuard protects product & performance

The ComponentGuard Product & Performance Guarantee Program

Serious audio and video enthusiasts choose their components on the basis of one factor alone—PERFORMANCE! And, protecting your equipment’s performance is what ComponentGuard is all about.

Through a select group of audio/video specialty dealers, we offer the ComponentGuard Product & Performance Program. When you purchase a piece of high quality equipment covered by ComponentGuard, we will guarantee all of its key performance specifications, plus extend the manufacturer's original warranty 3 additional years.

All important performance specs are protected, covering most consumer electronic products ranging from CD players and cassette decks to VCRs & MTS televisions. ComponentGuard is not available on every brand, only those that demonstrate superior quality and integrity in their manufacturing and design.

After being accepted in the ComponentGuard program, you’re issued our Gold GuardCard, honored at more than 500 service centers. If you’re concerned about your equipment not being up to spec during the coverage period, you can bring it in for a checkup on a periodic basis at absolutely no charge. And if the product should break (the ultimate non-performance spec), our extended warranty service plan takes over, and the equipment is repaired and tested absolutely free.

With the ComponentGuard program, your home entertainment system will always work as well as the day you bought it. That’s Product & Performance Protection you can count on.

If your dealer doesn’t offer ComponentGuard, call us toll free at 1-800-421-9820

ComponentGuard
Product & Performance Protection
928 Broadway New York, NY 10010
In New York, call 212-420-9820

CIRCLE NO. 38 ON READER SERVICE CARD

Because there are always a few people who will abuse a good thing, we must state the following Program acceptance subject to approval. Certain restrictions apply. Call or write for full details.
SONY PRO DAT IN U.S.

Sony shipped the first digital audio tape (DAT) recorder to the American market in November. The Model 2500, with professional-type connections, is priced at $4,995. It records at the standard DAT sampling rate of 48 kHz and at the compact disc rate of 44.1 kHz, so it can be used to make master tapes for CD's. Direct digital-to-digital copying of CD's is prevented by digital subcodes (the recorder does not have Copycode-detection circuits).

IN-STORE CD PRESSING

A compact disc pressing plant has been installed in the basement of the Virgin Megastore in London. Touted as the world's first CD plant to be set up in a record store, the installation has been designed so that shoppers can view the entire manufacturing process from behind a glass partition. Virgin figures that by pressing CD's for its own label onsite, at a rate of 1.5 million a year, they can be sold at retail for a good deal less than prevailing British CD prices.

PSYCHOACOUSTICS RESEARCH

KEF Electronics of England, Bang & Olufsen of Denmark, and the Acoustics Laboratory of the Danish Technical University have embarked on a joint research project to develop a loudspeaker whose sound quality will be independent of room placement. The main focus of the three-year, $3 million project, nicknamed Archimedes, is to determine the precise psychoacoustic effects of room reflections.

TAPES FOR TREKKIES

The Audio Publishing Division of Simon and Schuster is making Star Trek soundtracks available for the first time on audio cassettes, with narration by Leonard Nimoy (Mr. Spock) and George Takei (Navigator Sulu). Especially adapted for audio-only playback and featuring music originally composed for the successful television series, each 90-minute episode retails for a suggested $8.98.

MUSIC NOTES

Motown has released "The Original Soul of Michael Jackson," an album of recordings Jackson made during his formative years with the company. It includes a previously unreleased track titled Twenty-Five Miles... Tony Bennett has conceived his latest Columbia album, "Bennett/Berlin," as a tribute to Irving Berlin, who celebrates his one-hundredth birthday in May. The new album is Bennett's ninetieth for Columbia... Luciano Pavarotti's Carnegie Hall recital in November, his first at the hall in twelve years, was recorded by London Records... Cho-Liang Lin, the twenty-seven-year-old Taiwanese-born violinist, has been honored by the China Institute in New York for having furthered U.S./Chinese friendship and understanding... Sting has formed a record label of his own, Pangaea, which will be distributed in the U.S. by MCA through I.R.S Records.

DMM FOR CD'S

Teldec has begun Direct Metal Mastering of compact discs in its Hamburg, Germany, pressing plant. The new technique replaces the mastering laser of conventional CD manufacturing with a stylus that cuts pits in a metal master disc. The main advantage is that a "clean room" is not necessary, which cuts costs and may bring down the price of CD's.

HONOREES

Recording artists being inducted into the Rock and Roll Hall of Fame this month include the Beach Boys, the Beatles, the Drifters, and the Supremes. Also named is Berry Gordy, the founder and chairman of Motown.

TECH NOTES

Audio Research has introduced an upgrade of its SP11 preamplifier, the SP11 Mark II, priced at $4,995. The new model has different components and incorporates certain mechanical changes... Soundstream is now shipping its MC500 car power amp, rated for 600 watts total output (into 4 ohms) into four, three, or two channels. A circuit cuts power gradually if the amp overheats... Sharp has developed technology for programming a VCR over Touch Tone telephones. A synthetic voice answers the phone and prompts the caller, who programs the VCR by pushing the phone's buttons... MB Electronics products, including speakers and headphones, will be imported from Germany by MB Quart Electronics in Walpole, Massachusetts... Blaupunkt's Automatic Road Information (ARI) service is now available to 50 percent of the vehicles in major metropolitan areas of North America... Sota's first speaker, the Panorama ($1,295 a pair), is now being shipped. It is described as "a reclining truncated pyramid with rounded corners."

FRED AND FLORA IN SPOLETO

Plans have been announced for the Spoleto Festival in Charleston, South Carolina, from May 19 to June 5, 1988. Among the "firsts" offered by this year's festival will be performances of the opera Montezuma by Carl Heinrich Graun (1703-1759) in what is thought to be its professional premiere in the United States. In addition to its musical interest, the opera is noteworthy because it has a libretto by King Frederick the Great of Prussia.

His Majesty will have to share the Spoleto spotlight with a female named Flora. She is a baby elephant, the star of the one-ring Circus Flora, which was a big hit at the Festival in 1986.
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.

Send for Your FREE 1388 Catalog!
Mail to Radio Shack, Department 18-B-275
300 One Tandy Center, Fort Worth, TX 76102

Remote batteries extra. Price applies at participating Radio Shack stores and dealers.
EQUIPMENT

HIRSCH-HOUCK LABS EQUIPMENT TEST REPORTS
Sansui CD-X901 Compact Disc Player, page 29
Ohm Sound Cylinder Speaker System, page 39
Sony TA-E77ESD Digital Preamplifier, page 43
Sharp SA-CD800 CDVer, page 65
Pinnacle PN5+ Speaker System, page 69

FEELIN' GROOVY
Head-to-head lab and listening tests of five leading phono cartridges by Julian Hirsch

SYSTEMS
A prize-winning high-end car installation by William Wolfe

ACCESSORIES
Sound investments for your sound system by Gerald Seligman

THE SIGNAL PATH
Signal processors can help correct listening-room and recording deficiencies by Craig Stark

MUSIC

HOLLY NEAR
Her latest album is a set of upbeat love songs by Alanna Nash

HIT LIST
Keeping track of decades' worth of records by Ian G. Masters

BEST RECORDINGS OF THE MONTH
Sting, Sibelius's Symphony No. 5, Springsteen, Schumann's Piano Quintet and Quartet

Cover: Clockwise from top left. the Signet MR5 0ml, Ortofon XS-MC, Kiseki Purplehart, and Demon DL-160. center. Audio Technica AT160ML, see page 74.
Design by Sue Llewellyn, photo by Robert Butler.

STEREO REVIEW BUYER POLL, SEE PAGE 129
Please fill in if you bought equipment in the past thirty days.
READER SERVICE INFORMATION CARD, FACING PAGE 129
Circle the items you want to know about.
In 1984, according to estimates from the Electronic Industries Association, a little over two hundred thousand compact disc players were sold in the United States. Sales rose to about a million the next year and to three million in 1986. By the end of 1987, the EIA projects, at least four million more people will have gone digital. Impressive figures—but they still add up to less than ten million so far.

It is not all that remarkable, then, that most of us know people who haven't yet added compact disc players to their audio systems.

My friend Harry is a case in point. Harry, who has been considering buying a CD player for a couple of years, has finally decided to go ahead, he told me the other day, now that he's bought a new turntable. First things first, he said. Not buying a CD player for a couple of exceptions—which he has taped together an impressive library of jazz and popular songs. Not only is he a J&R regular and a Tower habitué, he has haunted second-hand stores to find particular recordings, he has attended auctions and garage sales, he has gotten his name on the mailing lists of dozens of specialty dealers. His collection is not just a documentation of his youth, as Ian Masters describes his basement library in “Hit List” (page 88), but a virtual autobiography. He's not about to cart it off to the recycling center, either.

Even if he could eventually replace all his LP's with the same classic performances on CD's, which is highly unlikely, it is not worth the cost to him, nor the time. He figures that if he listened a couple of hours a day it would take him some years to get through a single playing of every record he owns, so, with some exceptions—which he has taped anyway, just in case—he's not likely to wear them out. And the records sound wonderful, he says, on his new turntable with his new cartridge. He keeps them clean, of course, and he's happily trying out a couple of new record-cleaning systems that he's read about in STEREO REVIEW. He is comparing cartridges, too, and he is going to be very interested in our cover story this month, Julian Hirsch's head-to-head tests (page 74).

Admittedly, Harry's case is not exactly typical. The point is, however, that anybody who has been collecting records for any time at all has the same kinds of reasons for investing in new record-playing equipment as Harry does. Moreover, far from being obsolete, the equipment has never been better—it has to compete with the dazzling sound of digital systems.

Nowadays, Harry is a contented man. Reassured about being able to play his jazz LP's well into the next century, he's seriously shopping for a CD player. The last time he went to the record store, he bought a couple of CD's. He just couldn't resist "Horowitz Plays Mozart," he said, and he had heard a Schubert recording on the radio that he just had to have. He thinks he's going to start a new collection.
INTRODUCING THE KEX-M700.
THE MOST PLEASURE-PACKED CAR STEREO EVER MADE.

Fantastic as it sounds, Pioneer's new KEX-M700 is the first stereo to combine an AM/FM tuner, a cassette deck, and the sounds of compact discs in one compact unit.

Turn on the radio. And enjoy Pioneer's famous Supertune III™ reception. Insert a cassette. Full logic auto-reverse, Dolby B and C, Music Search... of course.

Now slip in six discs. Using the same 6-disc magazine as Pioneer's home CD changers, the KEX-M700 trunk-mounted changer plays all six discs straight through, skips the songs you don't want, or even chooses selections at random.

Naturally, the KEX-M700 has a wireless remote to let you control all three formats at the touch of a button.

The KEX-M700 fits perfectly in your dash. And perfectly, in your head.

For the name of the Pioneer Premier Installation Specialist nearest you, call 1-800-421-1404.

System shown: KEX-M700 CDX-M100 trunk-mounted changer, JD-M100 6-disc magazine, wireless remote control.
©1987 Pioneer Electronics (USA) Inc Long Beach, CA Dolby is a registered trademark of Dolby Labs Inc.
Matthew Polk and his extraordinary new Signature Edition SDA 1C and SDA 2B.
“Matthew Polk Has a Passion for Perfection!”
Experience the Awesome Sonic Superiority of His New Signature Edition SDA 1C and SDA 2B.

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

“They truly represent a breakthrough.” Rolling Stone Magazine

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

Why SDAs Always Sound Better

Stereo Review confirmed the unqualified sonic superiority of Matthew Polk's revolutionary SDA Technology when they wrote, “These speakers always sounded different from conventional speakers — and in our view better — as a result of their SDA design. Without exaggeration, the design principals embodied in the SDAs make them the world's first true stereo speakers. The basic concept of speaker design was never modified to take into account the fundamental difference between a mono and stereo signal. The fundamental and basic concept of mono is that you have one signal (and speaker) meant to be heard by both ears at once. However, the fundamental and basic concept of stereo is that a much more lifelike three-dimensional sound is achieved by having 2 different signals, each played back through a separate speaker and each meant to be heard by only one ear apiece (L or R). So quite simply, a mono loudspeaker is designed to be heard by two ears at once while true stereo loudspeakers should each be heard by only one ear apiece (like headphones). The revolutionary Polk SDAs are the first TRUE STEREO speakers engineered to accomplish this and fully realize the astonishingly lifelike three-dimensional imaging capabilities of the stereophonic sound medium.

“A stunning achievement” Australian HiFi

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

“Literally a New Dimension in the Sound” Stereo Review Magazine

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

“Mindboggling, astounding, flabbergasting” High Fidelity Magazine

Words alone cannot fully describe how much more lifelike SDA TRUE STEREO reproduction is. Listeners, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved by Polk's TRUE STEREO technology. You will hear a huge sound stage which extends not only beyond the speakers, but beyond the walls of your listening room itself. The lifelike ambience revealed by the SDAs makes it sound as though you have been transported to the acoustic environment of the original 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.”

Where to buy Polk Speakers? For your nearest dealer, see page 169
Pristine Beatles

In the November issue you published a letter from David S. Thomas complaining that EMI “tampered” with the lyrics of the title song on the compact disc version of the Beatles’ “Please Please Me.” The lyric mistake Mr. Thomas mentioned most certainly does exist, but the reason it isn’t there on the CD is not because the tapes were tampered with! It’s because the CD came out in mono. The mistake appears on the stereo version of the song, but not on the mono one. The mono mix was totally different from the stereo one for almost all Beatles albums.

RICHARD ROGERS
Fairfax, VA

Many other alert readers also wrote to explain the discrepancy between the two versions of this Beatles song.

The Mighty Klipschorn

It was with great delight that I read Ralph Hodges’s November column on “The Mighty Klipschorn.” I was eighteen years old when I first heard the speaker that I would judge all others by. Eighteen years later, not having found a better-sounding speaker (for my money), I ordered a pair. When I look for a new house, it is imperative that the music room have suitable corners for the K-horns. Paul W. Klipsch was obviously well ahead of his time.

GREGG A. NEWSOM
Milford, MI

It took a long time to save the money for a pair of Klipschorns, the only speaker for me since I heard my first ones over fourteen years ago. Finally, on our sixteenth wedding anniversary, I gave my wife the right Klipschorn, and she gave me the left one. My only regret is that I waited so long.

Ralph Hodges is right; they are a rare find. We know of only one other pair in town, and the owners bought them after “feeling the music” at our home.

MATT PARKER III
La Grange, GA

An Antenna Solution

The box on pages 96-97 of the November issue (in Peter Mitchell’s article, “How to Buy a Tuner”) gives the usual options for FM reception, ranging from the simple ribbon-wire or “rabbit ears” dipole to the directional outdoor antenna. None of the options listed meets the need of the city dweller for an indoor antenna that gets stations from more than one direction without having to be retuned every time you change stations.

What works for me is an omnidirectional crossed-dipole outdoor antenna, which I use indoors in the corner between my tuner and my window. This inexpensive antenna supplies me with strong, clean signals from various directions and is a vital link in my high-end system.

KENNETH A. NAKDIMEN
New York, NY

Los Lobos in “La Bamba”

Being a great fan of Los Lobos, I was delighted to see Steve Simels acclaim their work in the soundtrack of La Bamba (November, page 172). But the band member pictured alongside Lou Diamond Phillips in the photo accompanying the review is not David Hidalgo but Cesar Rosas. While Hidalgo sings La Bamba, Rosas is the highlight of the video with his great guitar solo.

MITCHELL W. COHEN
State Island, NY

You’re right, and we regret the misidentification.

The Philips U.S. “Debut”

The November “Bulletin” says that two new CD players are “the first home audio components to carry the Philips brand name in the U.S.” Wasn’t there a popular Philips turntable with lighted solenoid-type controls? Did you somehow forget about it?

STEPHEN BARRY
Anaheim, CA

Afraid we did, and also about the other Philips components, including electronics and speakers, that were imported to the U.S. from 1973 to 1981.

Home Taping

Recording companies have been complaining for years about home taping on cassette decks. But if cassette decks did not exist, neither would the whole market for prerecorded tapes, a very considerable portion of the recording industry’s business. Car stereo would by and large not exist, and neither would portable stereo equipment. If LP’s and FM had remained the only sources of high-fidelity sound, the recording industry would be a lot smaller than it is today.

If the recording companies succeed in killing digital audio tape through Copycode or similar schemes, they will never sell a prerecorded DAT cassette. Why don’t they let DAT expand the audio market the way cassettes and CD’s have and cry all the way to the bank?

BRADLEY J. MEYER
Cambridge, MA

Something the record companies miss completely in their objection to home taping is that the vast majority of musicians depend on home taping to spread the word about their music. A large portion of my record and CD collection will never be played on the radio in my area. For example, four years ago a friend allowed me to tape his copy of R.E.M.’s “Murmur.” I listened to the tape for months, loved it, and went out to buy the group’s other album and EP. Since then I have purchased four R.E.M. LP’s and four CD’s (one of them the CD reissue of “Murmur”). I never would have heard a note of their music if it were not for home taping.

TOM KACHADURIAN
Royal Oak, MI

The CBS Connection

I had decided that STEREO REVIEW was the best audiophile magazine for me and to renew my subscription for another three years. I recently noticed, however, that your magazine is a subsidiary of CBS, the same people trying to tyrannize us consumers into buying CD’s that have been spoiled by the Copycode notch.

JAMES R. MEYER
Lenexa, KS

Please cancel my subscription. Until CBS Inc. stops pushing for Copycode protection on compact discs, I am going to discontinue buying any products of CBS and its affiliated companies, and I will encourage others to do likewise.

CRAIG WALKER
Escondido, CA

When I flipped to the table of contents of my first subscription issue of STEREO REVIEW, I saw something that made the hairs stand up on the back of my neck. How can a magazine supposedly written for people who enjoy music be published by a company interested in butchering the music?

BILL COWEN
Kirksville, MO

STEREO REVIEW was part of the CBS Magazines group from February 1985 to October 1987. We are now published by Diamandis Communications Inc., which is not associated with CBS Inc.

ADVERTISEMENT

The Carver material that appeared on pages 18-22 of the December issue was a paid advertisement. The word “Advertisement,” which should have appeared at the top of each of those pages, was inadvertently omitted.
Imagine a room that's bathed in sound. An environment you control with the touch of a button. Now imagine a singular, sophisticated machine that creates this theater environment. For maximum integration of sound and image, it's the NEC AVR-1000 Dolby Surround Sound Receiver. Certain things in life simply cannot be compromised.
"It's no trick to make a great speaker when price is no object."

Andy Petite, chief designer, Boston Acoustics

"It is a far greater engineering challenge for speaker designers to build a great-sounding speaker for $200 than $2000. When cost is no object, they can include whatever they need to get the quality they're looking for.

"However, that kind of quality doesn't always filter down through their product line. At Boston Acoustics, we take pride in designing every system to measure up to the highest standards. To show you what I mean, let's look at our newest model, the T830 tower system.

"We designed the T830 to deliver exceptional performance at a very reasonable price, and did it by making knowledgeable and intelligent choices. We custom-designed all three of its drivers: an 8" high-compliance woofer, 3½" midrange and 1" dome tweeter. No compromises here.

"The midrange and tweeter are ferrofluid cooled for greater power handling capacity. The diaphragms of all three drivers are made of copolymer. Although it is more costly than conventional materials, we used copolymer because of its structural uniformity and immunity to atmospheric changes.

"We make all these drivers under our own roof, using specialized machinery and jigs that we've designed or adapted ourselves. This helps us maintain consistent high quality, and save through efficiency.

"For the enclosure, we used the same dense, non-resonant structural material as in our highest-priced system. To keep the cost down we used wood-grain vinyl instead of costly wood veneer. It looks rich, and makes absolutely no difference in sound quality.

"More important than what we put into our systems is the quality of sound that comes out—and how that matches your expectations.

"From our very first product to our latest, audio critics have appreciated what we've accomplished—delivering demonstrably high performance at truly affordable prices. Here's what Julian Hirsch said about the T830 in Stereo Review:

‘In all measurable respects, the Boston Acoustics T830 delivered outstanding performance. Few speakers we have tested have had such a flat frequency response or such low distortion, for example, and most of those were considerably more expensive…we were enormously impressed.’

“When you compare the T830 against similarly-priced systems, you'll also find it sounds better in a number of ways. More musical, smoother, its imaging more precise. And it can play louder without distortion.

“What we've accomplished is no trick. It's knowing what to do, then doing it.

“If you'd like to know more about the T830 and other Boston Acoustics speakers, please write or call. We promise to reply promptly.”

Boston Acoustics

247 Lynnfield St., Dept. S, Peabody, MA 01960
(617) 532-2111
Nakamichi

The Nakamichi CR-3A cassette deck has three discrete heads, Dolby B and Dolby C noise reduction, and a defeatable FM-multiplex filter. Its asymmetrical dual-capstan transport with pressure-pad lifter is said to eliminate scrape flutter and modulation noise. The deck also features independent bias and EQ selection, thirteen-segment peak-level meters, and one-touch record/pause. Frequency response is rated as 20 to 20,000 Hz ±3 dB. Dimensions are 161/4 inches wide, 31/4 inches high, and 103/16 inches deep. Price: $750. A remote control is optional ($45). Nakamichi, Dept. SR, 19701 South Vermont Ave., Torrance, CA 90502.

Nelson-Reed

The Model 8-02 floor-standing speaker system from Nelson-Reed has an 8-inch long-throw woofer, a 4-inch midrange, and a ferrofluid-cooled 31/4-inch tweeter. A multislope crossover network is said to minimize phase shift. The drivers are protected from excessive current by 3-ampere fast-blow fuses. The speaker can be bi-amplified, and the bass loading is adjustable.

Rated frequency response is 32 to 20,000 Hz ±2 dB. Used with the optional Nelson-Reed Pro Woofer subwoofer, the -3-dB response point is extended to 16 Hz. Sensitivity is rated at 90 dB sound-pressure level at 1 meter with an input of 1 watt, and nominal impedance is 8 ohms. The wooden cabinets are finished in oiled oak, oiled walnut, or black lacquer. Dimensions are 12 inches wide, 36 inches high, and 143/4 inches deep. Price: $1,290 per pair. Nelson-Reed, Dept. SR, 15810 Blossom Hill Rd., Los Gatos, CA 95030.

Revox

The Revox B 242 power amplifier has separate power supplies for each channel, including separate transformers, AC voltage selectors, primary fuses, DC voltage controls, electronic short-circuit protection, and temperature sensors to turn on the amplifier's rear cooling fan. It is rated for 200 watts per channel continuous into 8 ohms, with dynamic power ratings of 300 watts per channel into 8 ohms or 500 watts into 4 ohms. The rear panel has two XLR-type connectors to accept a balanced input signal. Input sensitivity can be calibrated to adjust the peak power output according to the maximum signal being received from the preamplifier. Frequency response is rated at 20 to 20,000 Hz ±0.3 dB. Price: $2,850. Studer Revox, Dept. SR, 1425 Elm Hill Pike, Nashville, TN 37210.

Custom Woodwork & Design

The Wall Mount System from Custom Woodwork & Design makes possible safe, easy hanging of any combination of CWD cabinets on any structurally secure wall. The system uses a specially designed European bracket that is fully adjustable. A minimum of four brackets per cabinet are hooked onto a pair of metal strips attached to the wall. Cabinets can be individually removed from the wall for replacement or repair. Shown are three 21-inch CWD Woodmore cabinets mounted in a row. Price: approximately $35 for hanging one cabinet, depending on the cabinet size. CWD, Dept. SR, 5200 W. 73 St., Bedford Park, IL 60638.
These anti-resonant chassis spacers are made with Kyocera's proprietary Fine Ceramics.

Fine Ceramics laser guide shafts hold their tolerances five times longer than other materials.

These are the CD features they'll be copying next.

3rd-order analog filters cause less phase shift than the 7th- and 9th-order designs that others use.

Since Day One, every Kyocera player has had true 16-bit oversampling.

While our supplied remote controls are great, this optional full system remote control lets you operate a complete Kyocera system from anywhere in the house!

The front fascia of all our players is brushed aluminum, not plastic.

Our real wood side panels help damp resonance. They also look good.
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.
Threshold

Threshold has upgraded all of its Stasis power amplifiers with a new optical bias control that completely isolates the bias circuitry from the power stages by the use of optically coupled components. The new circuitry is said to allow more accurate control of idle current by directly sensing the bias settings of the amplifier’s power stages.

The S/series amplifiers are now biased so that they operate in pure Class A up to about 20 percent of their maximum output. The S/500 (shown), rated for 250 watts per channel into 8 ohms, now operates in Class A up to about 50 watts output. Redesignated as Class A/AB amplifiers, the S/200, S/300, and S/500 are said to have had their maximum output current capability increased by about 50 percent and their slew rates and distortion levels improved by about 25 percent. The Class A Stasis SA/1 and SA/2, both mono amps, and the stereo SA/3 are said to have peak output currents in excess of 200 amperes and about a 25 percent improvement in distortion level and slew rate. Prices: SA/1, $3,950; SA/2, $2,650; SA/3, $2,650; S/200, $1,700; S/300, $2,550; S/500, $3,500. Threshold Corp., Dept. SR, 1945 Industrial Dr., Auburn, CA 95603.

Circle 124 on reader service card

Symmetric Sound Systems

The Symmetric Sound Systems PS-1 Audio Pulse Swallower is a scratch eliminator said to remove small ticks and pops during playback of vinyl discs. It functions by delaying the signal 46 microseconds (μs) with an electronic delay line. If the detection circuit senses a scratch, it activates the deletion circuit, which disconnects the offending signal until it has passed. The entire process is said to take less than 300 μs in most instances, making the deletions inaudible.

Frequency response is rated as 20,000 Hz ± 1 dB with .02 percent total harmonic distortion. The PS-1 is designed to be connected in a tape-monitor loop, which allows a tape to be recorded but not played back through the PS-1. Dimensions are 1¾ inches high, 4½ inches deep, and 10 inches wide. Price: kit, $79.95; assembled, $129.95. Symmetric Sound Systems, Dept. SR, 856 Lynn Rose Court, Santa Rosa, CA 95404.

Circle 126 on reader service card

Sansui

The Sansui CD-X310M remote-controlled CD changer plays up to thirty-two selections in any order from a maximum of six CD’s. Other features include forward and reverse track skip and manual search in both directions with audible programs. Frequency response is rated as 5 to 20,000 Hz, sensitivity as more than 93 dB, and 1,000-Hz harmonic distortion as 0.008 percent. The player measures 15⅝ inches wide, 3⅜ inches high, and 13 inches deep, and it weighs 11⅔ pounds. Price: $400. Sansui, Dept. SR, 1250 Valley Brook Ave., Lyndhurst, NJ 07071.

Circle 125 on reader service card
THE ADCOM GFP-555
PREAMPLIFIER

A remarkable combination of exceptional performance, flexibility and value.

The GFP-555's musical performance is outstanding—by any measurement or listening criterion. For example, *Stereophile* calls it "one of the most satisfying preamps around in terms of overall tonal balance... You can go back to it after a few weeks and still feel it to be basically right; it reveals most associated equipment as more colored than itself."

At the same time, the GFP-555 is surprisingly affordable. Again, from *Stereophile*: "It is unclear from close examination why it should cost only $500... it outperforms several competitors from the $2500 bracket."

Here are just a few examples of how we did it. The GFP-555's gain path includes the most innovative slate—of—the—art linear amplifiers ever used in high fidelity components, and is simple and direct from input to output.

The speed of the gain stages is almost fifty times faster than CD or LP signals. And the noise and distortion measurements are incredibly low. Direct coupling makes possible a frequency response from below 1 Hz to beyond 400,000 Hz.

Superb construction, incorporating regulated power supplies with large filter capacitors, provides superior performance no matter how widely the musical signal or AC line voltage may fluctuate.

As for flexibility, you can listen to any source while taping from another. There's an unusual number of inputs and outputs, plus adjustable phono gain and capacitance.

If you'd like the full story of this remarkable preamplifier and the review from *Stereophile*, please write. Of course, the fastest way to hear its demonstrably superior combination of sonic performance, flexibility and value is to visit your nearest Adcom dealer.

*Vol. 9 No. 7 (Nov. 1986)
Grateful Dead: In The Dark • Touch Of Grey • The Ballad Of A Soldier • Fainest From The Muddy River • etc. Arist DigiTAL
Rachmaninov: Piano Concertos Nos. 2 & 4 • Volga Song • Camel's back • London Digital
The Legendary Enrico Caruso • Vesti la gitarola • Cello e mar • darkness don't • RCA Digital •移动 17. more RCA. 134274
You Experienced. etc. Reprise
Jimi Hendrix: Kiss The Sky • Purple Haze. etc Warner Bros.
Hello. etc. Motown
Long. Penny Lover. Running With The Night. etc. Geffen Digital 164228
Andrew Lloyd Webber, Variations: more The Beginning. etc Geffen Digital 164228
Mystery Train etc. RCA
Good Rockin Tonight. Milkcow Blues Boogie. etc. RCA Digital
The Duke Ellington Orchestra: Digital Duke 163356
Dire Straits: Brothers In Arms • Money For Nothing. etc Warner Bros. Digital. 114734
Pops In Space • John Williams • The Boston Pops: Space Truckin' • Encounter in the Void. Superman. Star Wars. etc. Philips Digital 105382
L'album Originale Surround Sound • Louis Prima: Dona. La Bamba. more from Brian Setzer Bo Diddley. others Warner Sash
Kenny Rogers: The First No. 1's. more Capitol Digital
Kenny G: Duotones • Songbird • What Does It Take To Win Your Love? etc. Atlantic 144343
Rimsky-Korsakov: Scheherazade • Phil. Price: Philips Digital 115145
Bom Joni: Slippin' When Wet • You Give Love A Bad Name. etc. Mercury 143456
Tchaikovsky: 1812. Overture • Romeo & Juliet • Nutcracker Suite • Chicago Symphony Orchestra Solo. 125179
Strike Up The Band • The Canadian Brass • Playa Gershwin • Tiddle Song. Porky & Bess Suite more RCA Digital 160542
Crosby, Stills, Nash & Young: Greatest Hits (So Far) • Suite Judy Blue Eyes. Teach Your Children. Atlantic
Bach, Brandenburg Concertos Nos. 1-3 • The English Concert: Pinnock Archive Digital
Madonna: Who's That Girl (Soundtrack) • Title Song. Casing A Commotion. Can't Stop It. Others. Warner Bros. 134221
The Police: Every Breath You Take • The Single's Don't Stand So Close To Me. 168. The song. Message In A Bottle. etc. A&M
Jimmie Buffet: Songs You Know By Heart. Greatest Hits (plus) • Margaritaville. RCA Digital. 161349
Ozofak: Symphony No. 9 (New World) • Chicago Symphony Orchestra: Soli. Superbly good • Gramophone
Elcric Clapton: Time Pieces (The Best Of) • 1. Shot The Sheriff. All Midnight. Knockin' On Heaven's Door. etc. RSO 123385
Igthak Perlman: Mozart. Violin Concertos Nos. 3 & 5 • Vienna Philharmonic. Levine. Ravishing. • Gramophone
Whitesnake • Here I Go Again. One Of The Night. Give Me All Your Love. Crying In The Rain. Bad Boys. etc. Geffen
Galwya & Yashtamir • Italian Serenade • Flute & guitar works by Pagann, Cimanzia. Galiana. etc. RCA Digital 173824
Boston: Third Stage • Amanda. We're Ready. Can tcha Say (You Believe Me). Still In Love. Holy Are. etc. RCA Digital
Pops In Love • John Williams & The Boston Pops. Claire De Lune. Gymnopédies Nos. 1 & 2. Pachelbel Canon. more Philips Digital 125230
Whitney Houston: Whitney 152854
"The Ultimate In Sound. The"
date specified on the card. You will have at least 10 days to decide, or you may return your Featured Selection at our expense. Cancel your membership at any time after completing your membership agreement, simply by writing to us.

FREE 10-DAY TRIAL!
Listen to your 3 introductory selections for a full 10 days. If not satisfied, return them with no further obligation. You send no money now, so complete the coupon and mail it today.

SAVE 50% INSTANT HALF-PRICE BONUS PLAN
Unlike other clubs, you get a 50%-off Bonus Certificate with every CD you buy at regular Club prices, effective with your first full-price purchase!
Digital Equalization

Q When analog recordings are issued on compact disc, are they still equalized using the RIAA curve? If so, can I compensate for this with my own equalizer to end up with a flat signal?

A Theoretically, the frequency response of an analog master tape is flat as technology and the recording engineer's skill can make it right up to the point where a master disc is produced. At that point, the RIAA equalization curve is applied in order to compensate for some of the limitations inherent in the vinyl-record medium. A digital version of the same material would be mastered from the same nominally flat master tape or, preferably, from an earlier generation of it, so the RIAA curve would not be used.

But that's not to say that the tape is necessarily flat. Many recording engineers have regarded the RIAA standard as no more than a first step and have added extra equalization to their master tapes in an attempt to offset even further some of the problems of conventional records. Such equalization usually is on the master tape, so it shows up on the digital version as well unless steps are taken to remove it at the mastering stage. If it is not removed, the compact disc will probably sound "doctored" as it attempts to compensate for problems that do not exist in the digital format. In such cases—and they are distressingly common—you will have to make whatever adjustments you can while playing the final product. Since there are no standards for this sort of equalization, however, you will have to make your corrections entirely by ear.

Equipment Storage

Q As a member of the armed forces, I can't always travel with my stereo system. Could you give me some advice on long-term storage of my equipment and records?

A Storing your components basically follows the same rules as moving them. Put them back in their original cartons (you did keep them, I hope), making sure to tighten any transit screws on turntables and compact disc players. If the original boxes have disappeared, search out sturdy cartons big enough to hold each component with a little room to spare, and pack the equipment snugly with crumpled newspaper or old blankets. Either way, make sure that the system is stored in a location where it will not be subject to extremes of temperature or humidity, and if there is any risk of dust creeping into the boxes, seal them with masking tape.

Records should be similarly stored, preferably in boxes that fit them exactly so that the discs will neither rattle about inside nor warp because of too tight a fit. If there is a record manufacturer nearby, ask for some of the cartons they receive empty record sleeves in. These boxes are the perfect size and are normally thrown out. Pack the boxes tightly—but not too tightly—and store them so that the records are sitting on edge. If your last box is not quite full, make up the difference with pieces of cardboard roughly the size of a record.

Speaker Mounting

Q Why is it desirable to mount a speaker driver flush with the front panel rather than on the rear surface of the panel?

A With woofers it doesn't matter very much, but the acoustic performance of midrange drivers and, especially, tweeters can be affected dra-
matically by their immediate physical surroundings. Mounting a driver on the inside of a speaker's front panel creates two undesirable conditions. In the first place, it means that the acoustic output is fed into a cavity, where it can bounce around before emerging into the listening room. The higher a signal's frequency, the larger this cavity becomes compared with the audio wavelength. Just as low-frequency sounds can set up standing waves in a room, higher-frequency signals can suffer selective cancelation and reinforcement in such a cavity, resulting in frequency-response irregularities and coloration of the speaker's sound.

The sound can be further degraded as it emerges from the cavity by bending around the sharp edge of the hole. The amount of this diffraction varies with frequency, with the result that the treble response curve becomes even more irregular. The effect can be minimized by rounding the edges of the hole, but it can be eliminated altogether—as can the cavity problem—by mounting the driver flush with the front.
REDEFINITION.

THE CARVER RECEIVER

Redefines your expectations of receiver performance with the power you need for Digital Audio Discs plus virtually noise-free stereo FM reception. A receiver with astonishing performance incorporating two highly significant technological breakthroughs: Bob Carver's Magnetic Field Power Amplifier and his Asymmetrical Charge Coupled FM Detector.

ESSENTIAL POWER: Your system needs an abundance of power to reproduce, without distortion, the dynamic range of music on Digital Audio Discs and fine analog recordings.

The Magnetic Field Amplifier in the CARVER Receiver gives you 150 watts per channel (continuous sine-wave output) of pure, clean power with superbly defined, high fidelity reproduction.

Unlike conventional amplifiers which produce a constant, high voltage level at all times, irrespective of the demands of the ever-changing audio signal (Even when there is no audio signal in the circuit at all!), the Magnetic Field Amplifier's power supply is signal responsive. Highly efficient, it produces exactly and only the power needed to carry the signal with complete accuracy and fidelity.

The 150 watts-per-channel (continuous sine-wave output) CARVER Receiver is about the same size and weight of conventional receivers having merely 30 watts per channel!!

NOISE-FREE RECEPTION: The AM-FM CARVER Receiver gives you FM stereo performance unmatched by that of any other receiver.

As it is transmitted from the station, the stereo FM signal is extremely vulnerable to distortion, noise, hiss and multipath interference. However, when you engage CARVER's Asymmetrical Charge Coupled FM Detector circuit, the stereo signal arrives at your ears virtually noise-free. You hear fully separated stereo with space, depth and ambience!

The Asymmetrical Charge Coupled FM Detector was first introduced in CARVER's TX-11 Stereo Tuner, receiving unparalleled critical acclaim:

"A major advance...its noise reduction for stereo reception ranged from appreciable to tremendous. It makes the majority of stereo signals sound virtually as quiet as mono signals, yet it does not dilute the stereo effect."

Julian D. Hirsch, STEREO REVIEW

"Separation was still there; only the background noise had been diminished, and with it, much of the sibilance and hissy edginess so characteristic of multipath interference."

Leonard Feldman, AUDIO

"What distinguishes the TX-11 is its ability to pull clean, noise-free sound out of weak or multipath ridden signals that would have you lunging for the mono switch on any other tuner we know of!"

HIGH FIDELITY

"The Carver Receiver is, without question, one of the finest products of its kind I have ever tested and used."

Leonard Feldman, AUDIO

The CARVER Receiver has been designed for fidelity, accuracy and musicality. You will want to visit your CARVER dealer for a personal audition of this remarkable instrument.

SPECIFICATIONS: 150 watts per channel RMS into 8 ohms, 20 Hz to 20 kHz with no more than 0.05% total harmonic distortion.

CARVER

P.O. Box 1237 Lynnwood, WA 98046

CIRCLE NO. 49 ON READER SERVICE CARD

ACCURATE
Announcing the Fourth Annual

RODRIGUES CARTOON
CAPTION CONTEST

THE Fourth Annual Rodrigues Cartoon Caption Contest is hereby declared officially open to all readers of Stereo Review! Your chance to win fame and valuable prizes!!

Once again, endlessly inventive, devilishly clever, slightly perverse cartoonist Charles Rodrigues has supplied a drawing. We want to know who can supply the funniest caption.

The winner will receive the original signed drawing shown here, a cash prize of $100, and the glory of seeing his or her name published in this magazine along with the winning caption when the results of the contest are announced.

Anyone may enter, and there is no limit to the number of times you may enter, but each caption submitted must be on a separate sheet of paper that also contains the clearly legible name and address of the person who enters it. Entries with more than one caption per page will be disqualified. All entries must be received by Stereo Review no later than March 1, 1988.

The panel of judges will include members of the editorial staff of Stereo Review and Rodrigues himself as well as Thomas Briggle, Michael Binyon, and Bruce Barstow, the winners of the previous contests. Entries will be judged on the basis of originality, appropriateness, and humor. The decision of the judges will be final. We refuse to speculate on the probability that this year's winner, like Briggle, Binyon, and Barstow, will be a male systems programmer whose surname begins with the letter "B."

The winning caption (and a selection of the runners up) will be published in the June or July issue. Last year's entries were the best so far, and we are consumed with curiosity to know what you think of that stuffed person in the window.

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

Rodrigues Cartoon
STEREO REVIEW
1515 Broadway
New York, NY 10036

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

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

Stereo Review will arrange the delivery of the prizes; any tax on it will be the responsibility of the winner. The judges have every intention of reaching a decision in time for the publication of the results in the June 1988 issue, but Stereo Review reserves the right to delay the announcement until July if the response is as overwhelming as last year.
Contrary to popular belief, lots of amplifier power isn’t necessarily the solution to getting lots of dynamic range from your system.

Fact is, amplifier power alone has little effect on the dynamic range we hear in compact discs and other modern recordings. Your speakers have far more effect on dynamic range than the amplifier or any other component in your system.

We compared a KLIPSCH® Loudspeaker with four other models from various makers. (The KLIPSCH model was not the most expensive.) Doubling, even tripling the power to the speakers had little effect on their dynamic range.

Compared to the KLIPSCH model, the other speakers required at least 30 times more power to achieve a normal listening level. And regardless of the total power consumed by the other speakers, the KLIPSCH model still had 20 dB higher output.

Are we suggesting KLIPSCH Loudspeakers have the widest dynamic range in the industry? You bet. In most cases, the addition of KLIPSCH Loudspeakers will be the most effective and efficient way to widen the dynamic range of your system. Our special compression drivers are the reason why. They give you more controlled imaging, greater clarity and wider dynamic range.

As these characteristics become higher priorities to your musical taste, we encourage you to compare KLIPSCH to any other speaker mated to any size amplifier. Decide for yourself what gives you the most for your money.

For your nearest KLIPSCH dealer, look in the Yellow Pages. Or call toll free, 1-800-223-3527.
Bass vs. Space

It's an old dilemma: To tolerate those large, room-dominating loudspeakers for the sake of true bass. Or sacrifice bass for the sake of more living space?

The classic solution to this problem—a solution that allows even efficiency-dwellers ample bass and space—is the satellite/subwoofer speaker system. Simply put, the mid-range and high frequencies are delegated to a pair of small satellite loudspeakers, placed for optimum stereo imaging. The bass is handled by a single large subwoofer unit, which can be hidden virtually anywhere in a room. (How? Frequencies under 100 hz are nondirectional; the ears can't tell where they're coming from. So one subwoofer suffices.)

The most common kind of satellite/subwoofer system is "passive" (externally powered), such as the Canton Plus C.

**Active Advantages**

The Canton Plus Beta subwoofer looks much like the Plus C, but does the job quite differently. That's because it's "active" (internally powered).

Three advanced power amplifiers are built in, one custom-designed for the subwoofer and one each for the satellites. The active crossover network has three selectable crossover frequencies, allowing unparalleled flexibility in matching the Plus Beta with satellites. There is also an input sensitivity control and a bass level control. Consequently, the Plus Beta can be used with a wide variety of satellites. For example, Canton's affordable and very compact Plus S or the high-performance Karat 100. If desired, the Plus Beta can accommodate two pairs of satellites. By way of driving the Plus Beta, virtually any preamp or receiver will do, whether a high-end unit such as the Canton EC-P1 or a more modest design.

Where space is at a premium, but the awesome dynamic range of digital program sources can't be missed, there's no better option than an active subwoofer such as the Canton Plus Beta.

Find out more about the entire Canton product line by visiting an Authorized Canton Dealer and picking up Canton's 1986/1987 40-page loudspeaker Journal.

Leading Edge Technology + Esthetics

Canton North America, Inc. 254 First Avenue North Minneapolis, MN 55401 Telephone (612) 333-1150

CIRCLE NO. 33 ON READER SERVICE CARD
minimize the table or shelf area occupied by the system. Some manufacturers caution against this practice, but most ignore it beyond a warning not to obstruct ventilation holes or slots. A few companies, notably a/d/s and Adcom, manufacture components that are specifically designed, from an aesthetic standpoint as well as a functional one, to be stackable. In general, a component designed for stacking will not have an extensively perforated top cover but will rely on holes in its sides or radiation from its entire surface to get rid of internally generated heat.

Suppose you must resort to stacking and do not have components designed specifically for that arrangement. In what order should the components be placed in the stack? What happens if you choose a different sequence? What should not be stacked under any circumstances?

There are four possible modes of interaction between the parts of a music system: thermal, magnetic, electrical, and mechanical/acoustical. Anyone who remembers the vacuum-tube audio products that still arouse nostalgic feelings in some audiophiles will recall that they ran hot. Tubes are inefficient, and most of the power supplied to them must be dissipated in the form of heat. Most semiconductors—transistors and integrated circuits—are highly efficient and normally operate at a much lower temperature than tubes, so they require correspondingly smaller and cooler-running power supplies. Nevertheless, they must also dissipate unused energy as heat. The fact that the generated heat is usually much less than that of comparable vacuum-tube components makes it easy to overlook ventilation requirements, but they still exist.

The hottest component of a system, as a rule, is the power amplifier. Most amplifiers with power ratings up to 60 watts or so run quite cool in normal use. You can judge this for yourself by placing the palm of your hand on the top cover of your amplifier after it has been running for a while at your usual listening levels. If the temperature allows you to keep your hand over the transistor heat sinks (on the perforated part of the metal cover) for extended periods, you have no problems with heat dissipation. This test is valid for any electronic component; occasionally a tuner or preamplifier will run hot, and the same precautions apply.

If your amplifier is rated at 100 watts or more, you should expect to find a warmer top cover—and sometimes warmer sides if the power transistors are positioned against them. An amplifier’s ability to deliver hundreds of watts has little to do with its operating temperature because the average power level in a home music system (which can affect the amplifier’s operating temperature) is rarely more than a watt or so. The operating temperature is determined principally by the idling current of the output transistors—the current they draw in the absence of a signal—and that is a function of the circuit design.

Most amplifiers operate hottest when delivering about one-third of their maximum power. That is why the FTC requires amplifier ratings to be established after an hour of one-third-power operation, which can cause even low-power units to run uncomfortably hot. Under such conditions, the effectiveness of any heat dissipation system can be measured by this test:

If you cannot hold your palm on a metal surface—other than a heat-sink fin—for more than a few seconds, it is too hot! This test is valid for any electronic component.
347577. Peter Gabriel—So. (Geffen)
348866. Jim Croce—Photographs And Memories—His Greatest Hits. (Columbia)
334391. Whitney Houston—(Arista)
334443. Neil Diamond—12 Greatest Hits, Vol. 2. (Columbia)
334582. Van Halen—Fair Warning. (EMI America)
326629. Bruce Springsteen—Born In The U.S.A. (Columbia)
342979. Barbra Streisand—The Broadway Album. (Columbia)
291477. Simon & Garfunkel—The Greatest Hits. (A&M)
348649. Rachael Yamagata—Others Digital Delights—Toronto Chamber Orch. (Digital—Farrell)
353771. Ballinga/Rompal Suite #2 Flute & Piano Trio (Digital—CBS)
348318. The Police—Every Breath You Take—The Singles (A&M)
346312. Billy Joel—We Are The World. (Warner Bros.)
335163. Dire Straits—Brothers In Arms. (Warner Bros.)
349979. 304999. Steve Wonder’s Original Musiquarium I. (Tamla)
348987. 304987. Linda Ronstadt—Round Midnight (Asylum)
353789. Sly & The Family Stone—Greatest Hits. (Epic)
352122. Europe—The Final Countdown. (Digital—CBS)
346544. Kenny G—Duotones. (Arista)
Now it's easy to add the best of yesterday and today to your CD collection. As a special introduction to the CBS Compact Disc Club, you can pick any six CDs for $1.00. All you do is fill in and mail the form below. You simply agree to buy four more CDs (at regular Club prices) in the next two years—and you may then cancel your membership anytime after doing so.

How the Club works. About every four weeks (13 times a year) you'll receive the CBS Compact Disc Club's newsletter. It's a chance to get a seventh selection at a discount off regular Club prices, for a total of up to 19 buying opportunities.

AIW 1 -10 Day Free Trial: We'll send details of the Club's operation with your introductory shipment. After completing your enrollment agreement you may cancel membership at any time, if you decide to continue as a member, you'll be eligible for our money-saving bonus plan. It lets you buy one CD at half price for each CD you buy at regular Club prices.

10 -Day Free Trial: We'll send details of the Club's operation with your introductory shipment. If you are not satisfied with any reason whatsoever, just return everything within 10 days and you will have no further obligation. So why not choose 6 CDs for $1 right now? ADVANCE BONUS OFFER: As a special offer to new members, take one additional Compact Disc right now and pay only $6.95! It's a chance to get a seventh selection at a super low price!...plus many exciting alternates. In addition, up to six times a year, you may receive offers of Special Selections, usually at a discount off regular Club prices, for a total of up to 19 buying opportunities. If you wish to receive the Selection of the Month, you need do nothing—it will be shipped automatically. If you prefer an alternate selection, or none at all, fill in the response card always provided and mail it by the date specified. You will always have at least 10 days in which to make your decision. If you ever receive any Selection without having 10 days to decide, you may return it at our expense.

The CDs you order during your membership will be billed at regular Club prices. If you later cancel your membership at any time after doing so, your selections at regular Club prices in the next two years—and may cancel your membership at any time after doing so.

How the Club works. About every four weeks (13 times a year) you'll receive the CBS Compact Disc Club's newsletter. It's a chance to get a seventh selection at a discount off regular Club prices, for a total of up to 19 buying opportunities. If you wish to receive the Selection of the Month, you need do nothing—it will be shipped automatically. If you prefer an alternate selection, or none at all, fill in the response card always provided and mail it by the date specified. You will always have at least 10 days in which to make your decision. If you ever receive any Selection without having 10 days to decide, you may return it at our expense.

The CDs you order during your membership will be billed at regular Club prices. If you later cancel your membership at any time after doing so, your selections at regular Club prices in the next two years—and may cancel your membership at any time after doing so.

Please accept my membership under the terms outlined in this advertisement. Send me the 6 Compact Discs listed here and bill me $6.95, which will be billed to me.

Selections with two numbers contain 2 CDs and counts as 2—so write in both numbers. ©1988 Columbia House

CBS COMPACT DISC CLUB
B. Terre Haute, IN 47811

Mr. Mrs. Ms.
Printed Name Initial Last Name
Address Apt.
City State
Zip

Do you have a VCR? (Check one) Yes No
Do you have a credit card? (Check one) Yes No

ADVANCE BONUS OFFER: Also send me a seventh CD right now at the super low price of just $5.95, which will be billed to me.

This offer is not available in APO, FPO, Alaska, Hawaii, Puerto Rico. Please write for details of alternative offer. Cancellation notices will be sent to subscribed members.

Select one category:
[ ] ROCK/POP
[ ] CLASSICAL

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

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

State

Do you have a VCR? (Check one) Yes No
Do you have a credit card? (Check one) Yes No

ADVANCE BONUS OFFER: Also send me a seventh CD right now at the super low price of just $5.95, which will be billed to me.

This offer is not available in APO, FPO, Alaska, Hawaii, Puerto Rico. Please write for details of alternative offer. Cancellation notices will be sent to subscribed members.

Select one category:
[ ] ROCK/POP
[ ] CLASSICAL

My main musical interest is (check one). (But I may always choose from either category)
conditions, any obstruction of the ventilation openings invites expensive amplifier damage.

The most likely scenario for sustained home operation at one-third power would appear to be the playing of heavy rock music at high levels with a fairly low-powered amplifier (say, 20 to 50 watts). Paradoxically, the heat rise is likely to be lower if the amplifier is rated at 200 watts per channel, because continuous operation of a 200-watt amp at a one-third-power level would be injurious to one's hearing, speakers, and family good will.

From a thermal standpoint, a power amplifier should be located at the top of a stack, but that often impedes access to the controls of the lower components and tends to make the assembly look top-heavy. Also, a heavy and powerful amplifier may place an excessive burden on the mechanical structure of the lower components.

Some high-power amplifiers have external heat-sink fins on the mechanical structure of the lower components. Some high-power amplifiers have heat-sink fins on the rear or sides of the case, and it may be possible to block top-cover ventilation holes without causing excessive internal temperatures. In some cases, the heat dissipated from the cooling fins can be transferred to the upper components by convection or radiation, but let your hand be your guide. If you cannot hold your palm on a metal surface — other than a heat-sink fin — for more than a few seconds, it is too hot!

Other components are unlikely to have heat problems unless they are heated by another part of the system (such as the power amplifier). Purely electronic components, tuners and preamplifiers, rarely generate much internal heat and are unlikely to be affected by external heating. Formerly, some FM tuners drifted badly when they were heated, but today's frequency-synthesis tuners are immune to this problem. Most CD players run quite cool thanks to their use of low-power signal-processing circuitry and low number of heat-producing parts.

Magnetic compatibility can be a serious consideration if your system includes a cassette deck or a record player, especially one with a moving-magnet cartridge. Few record players are suitable for stacking on a group of components (any except one of the few front-loading models would have to be on the top of the stack), but if yours is so mounted, you should be aware of the external 60-hz hum field that surrounds the power transformers of all components. Especially in the case of a power amplifier, this field can induce a strong hum signal into the heads of a tape deck or the magnetic cartridge of a record player.

If there's hum from your phono cartridge or cassette deck, try moving the component around relative to nearby electronic components — even a few inches can eliminate it.

If you have an audible hum from your phono cartridge or your cassette deck, try moving the component around relative to nearby electronic components. You may find that the hum appears only in a few critical locations and that moving something a few inches can eliminate it. Some of the better, and more expensive, power amplifiers and receivers have shielded toroidal power transformers whose external magnetic fields are inherently very weak, but at lower price points simple uncased power transformers are common.

Electrical (rather than magnetic) interference in a music system is usually the result of ground loops between components, not their physical placement. The subject is too involved to be treated here other than to point out that the interference is caused by multiple ground connections between a system's various components, whose chassis grounds may not be at the same potential for any of several reasons. When a ground loop occurs, a 60-hz power-line current flows through the ground path, or shield, of the signal cables and appears as an addition to the signal itself. The result is hum.

One of the most familiar examples of ground-loop hum occurs between record players and preamplifiers. Many record players provide a separate grounding wire in addition to the two shielded signal cables, but their installation instructions usually suggest operating the system both with and without the wire connected to see which gives less hum. (Reversing the AC plug can help as well.) The correct configuration is quite unpredictable for any particular combination of components.

The remaining system interaction mode is physical vibration or shock. In general, this applies only to the record player, but CD players are also subject to shock effects to some degree. The best prevention in either case is to isolate the component from its surroundings as much as possible. For a record player, this means installing it on a heavy shelf or table, located where it will not be vibrated by the output of the speakers or jarred by any activity in the room, such as dancing.

It is perhaps unfortunate that most record players are too large to rest on top of a component stack, which could provide an excellent source of mass to decouple the turntable and tonearm from the room surfaces. For practical reasons, however, a record player will usually have to be located on its own piece of real estate. A CD player is much less susceptible to external vibration and can be stacked as you wish — unless it is a top-loading model, of course.

Now that we have covered a few of the pitfalls of component placement, and assuming that you still wish to stack your system, is there an optimum order of stacking? There is plenty of room for individual taste here, but my own preference is to have the power amplifier at the bottom, followed in order by the preamplifier, tuner, CD player, and cassette deck. The record player usually requires separate support. I know that this configuration seems to contradict some of the things I said earlier about power-amplifier heat dissipation, but I don't play rock music or listen at high volume levels for extended periods, and I prefer to use efficient (but powerful) amplifiers that have never given me any problems with overheating. Your listening habits and the efficiency of your amplifier may dictate a different solution.
How a 77-year-old became the first name in digital audio.

Denon has been involved in every phase of music reproduction since the days of wind-up record players. So after seven decades of breakthroughs in studio recording, disc pressing, home audio and professional recording equipment, we were uniquely prepared to take the next step. A tape recorder so fundamentally different, it would obsolete every previously accepted notion of how good recorded sound could be.

In 1972, Denon researchers achieved their goal. The world's first digital recorder worthy of commercial record production, the legendary Denon DN-023R. We quickly put our digital innovation to use, producing digital processors, digital editors, digital mixers, and the world's first digitally-recorded LPs.

Today, Compact Disc players, regardless of brand, reflect the influence of the original Denon DN-023R. But this heritage runs strongest in CD players from Denon. Because the same engineers who design Denon pro machines design Denon home audio. And the same ears that guide Denon recording sessions evaluate the sound of Denon playback components.

“One of the most finely engineered pieces of audio gear on the planet.”

Ken Pahlmann
Digital Audio, on the DCD-3300

For example, the digital-to-analog converter found in every Denon CD player comes directly from Denon studio recorders. Unlike conventional designs, Denon's Super Linear Converter detects and corrects D/A transfer distortion.

Perhaps that's why each succeeding generation of Denon CD players is eagerly anticipated by the world's audio critics. And why they've variously hailed our CD players as "a winner on every count," "the player I recommend most highly," "superlatives have to be used," and "in several respects, the best I've ever heard."

Reactions which simply demonstrate one point. It's a lot easier to make audio sound like music when you really know what music sounds like.

A look into the interior of this player reveals that Denon engineers were not taking any shortcuts whatsoever.

Germany's Hi-Fi Vision, on the DCD-1500

OUR NEW SPEAKERS KEEP ROCK GROUPS FROM BREAKING UP.

They'll also keep jazz trios, classical quartets, and the Mormon Tabernacle Choir together. Because in our AT Series Loudspeakers we've virtually eliminated audible levels of distortion (also known as break-up). Meaning, you'll hear the music and nothing but the music. Unless, of course, you're listening to the news.

Either way, you'll hear the brilliance of our new dome tweeters. Which not only play clean, but loud.

In fact, a pair of AT-15s can reach 127 decibels. As loud as a live concert. With smooth frequency response over a wider listening area, precise stereo imaging, and no compression of dynamic range.

What's more, our new woofers are ribbed for durability and have magnets that weigh as much as 7 pounds. All of which can change the course of musical history. Because with Cerwin-Vega AT Series Loudspeakers, even the Beatles won't break up.

Cerwin-Vega!
SANSUI CD-X901 CD PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

SANSUI'S CD-X901 compact disc player is part of its high-end Vintage series, which features premium-quality circuit components and mechanical construction intended to achieve the highest practical level of sonic performance.

The copper-clad steel chassis of the CD-X901 and separate copper-clad player mechanism, suspended from the main chassis on vibration isolators, are said to minimize mechanical resonances. A brushless and slotless motor and a new disc-centering system are claimed to provide additional vibration damping and an improved signal-to-noise ratio (S/N). The disc tray itself is made of a hard, precision-finished bulk molding compound. Even the two power transformers, one for the digital circuits and one for the analog circuits, are mounted on a separate, vibration-isolated copper-plated chassis. Additional noise reduction is provided by the use of three separate power supplies and optical-coupler isolation of the digital circuits from the analog sections.

The CD-X901 uses a single master clock system for the timing of its digital, servo, and control circuits, minimizing leakage of spurious signals into the outputs. Quadruple-oversampling (176.4-kHz) digital filters provide a smooth, ripple-free frequency response, and separate 16-bit digital-to-analog (D/A) converters maximize channel separation and eliminate phase shifts that would be caused by interchannel time delays.

The audio circuits use discrete components, rather than IC's, for maximum performance. In addition to regular stereo audio outputs through gold-plated phono jacks, balanced audio outputs are provided through three-pin cannon...
The Mitsubishi E-5000R may not look like your idea of a musical genius, but we're confident it sounds like it. With 150 watts per channel and so little harmonic distortion we don't even know why we brought it up.

It's got a digital tuner with 16 presets and auto-stop signal search. Along with a 10-band graphic equalizer.

You can play up to seven cassettes in a row for hours of uninterrupted music. With dual transports and high-speed dubbing.

And you can spin your vinyl on a linear tracking, fully-automatic turntable.

In fact, this genius will get along quite well with your television. Thanks largely to the video/audio interface and on-screen displays. Its 12-inch three-way speakers are even magnetically shielded to prevent interference with the TV's picture. The 30-function remote control handles primary audio and video features including those of most...
Mitsubishi televisions and VCR's. For the ultimate in musical virtuosity, you can always add the optional Mitsubishi DP-411R compact disc player. With a five-disc autochanger for even more uninterrupted music. And our three-beam optical tracking system for precise playback.

Every Mitsubishi component is meticulously engineered to produce the richest sound imaginable over the broadest range possible. From fire-breathing guitar solos to the softest, most subtle passages. From crystal-popping sopranos to neighbor-rattling bass.

And you can buy the system using the new Mitsubishi Three Diamond Card™. The Mitsubishi E-5000R. For all those who believe that a musical genius is born, not made, it is proof to the contrary.
connectors. The digital playback signal is also available, before conversion to analog form, through a standard phono jack. When this signal is fed to a digital processor or to an amplifier containing D/A converters, the analog section of the CD-X901 is bypassed.

Most of the controls of the Sansui CD-X901, all pushbuttons except a small headphone volume knob and a slide switch for external-timer operation, will be familiar to anyone who has used a CD player. They include fast search with audible sound, track skipping, and index-selection functions. A numerical keypad provides direct access to any numbered track. The player can be set to repeat one track, an entire disc, or any desired portion of a disc ("phrase repeat"). A SPACING function automatically inserts a 4-second silent interval between tracks, and the MUSIC SCAN button plays the beginning of each track for 10 seconds before proceeding to the next track.

The player's operating status is displayed in a large front-panel window in clear, easy-to-see amber numerals and words. When a disc is loaded, the display first shows the total number of tracks and playing time on the disc, then changes to the current track number and elapsed time. The window also contains a MUSIC CALENDAR display, a matrix of twenty squares in which the track numbers on a disc appear like the dates on a calendar. As each is played, its number disappears.

The CD-X901 can be programmed to play up to twenty tracks (but not indexed portions) in any order. The program sequence can be checked (using the CHECK key) while the machine is in stop mode, but not during operation. The checking function shows the playing time of each selected track, but not the time required for the transition between tracks; the selected track numbers appear on the MUSIC CALENDAR display.

The Sansui CD-X901 is a relatively large and heavy machine. It measures 17 3/4 inches wide, 16 inches deep, and 3 5/8 inches high. Supported on four large feet, it weighs 23 pounds. A wireless remote control is supplied that duplicates virtually all of the player's front-panel controls, including the power switch and the track-selector keypad. Price: $1,400. Sansui, Dept. SR, 1250 Valley Brook Rd., Lyndhurst, NJ 07071.

Lab Tests

The output voltage of the Sansui CD-X901, playing a 0-dB, 1,000-Hz track on a test CD, was 1.97 volts, with a channel imbalance of 0.18 dB. The player's frequency response was +0.3, -0 dB from 20 to 20,000 Hz. Its 1,000-Hz distortion (consisting only of third or fifth harmonics) was 0.0032 percent at 0 and -10 dB, but at -20 dB a number of low-level spurious signals surrounded each harmonic component and prevented an accurate measurement with the spectrum analyzer. The total harmonic distortion (THD) plus noise at -20 dB, however, was 0.021 percent.

The A-weighted noise level was -106 dB, and the dynamic range was 101 dB, both excellent readings. The low-level linearity of the D/A converters was good, with errors of +1 dB at -80- and -100-dB levels and a +2.3-dB error at -90 dB. The square-wave response was typical of CD players with digital filters but with low-amplitude ripples on a 1,000-Hz square wave. Channel separation was excellent, measuring 99 dB at 1,000 Hz and 95 dB at 10,000 Hz. The interchannel phase shift was undetectable (zero) from 1,000 to 10,000 Hz and a barely measurable 0.7 degree at 20,000 Hz. As with most CD players, there was a slight phase shift of 4 degrees between channels at 100 Hz.

The slew time between Tracks 1 and 15 of the Philips TS4 test disc was 3 seconds, an average figure for today's CD players. The cueing accuracy was excellent, and the CD-
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.

CIRCLE NO. 10 ON READER SERVICE CARD
X901 had no difficulty tracking the largest calibrated defects on the Philips TSSA test disc. The headphone volume with medium-impedance AKG K340 phones was excellent.

To our surprise, the Sansui CD-X901 was quite sensitive to impacts on its top cover. Even light finger tapping was sufficient to interrupt its playing, but relatively strong blows on the sides did not disturb its operation. Although our tests did not check the sensitivity of the player to vibration conducted through its mounting feet, we suspect that its isolation from that source of vibration would be much better than its isolation from top-plate excitation.

Comments
When we removed the top cover, we were most impressed by the complexity and ruggedness of the CD-X901’s internal metalwork as well as by the large number of electronic components that could be seen (many more were out of sight). At a time when many low-priced CD players consist of little more than a handful of circuit chips, Sansui’s all-out approach to the design of this product is notable. And for installations using the Sansui Vintage AU-X901 integrated amplifier, the CD-X901 offers the option of a fully balanced signal connection, from its audio outputs to the loudspeakers, that should make noise and interference from that source a thing of the past.

The CD-X901 lived up to its specifications in every important respect—when it fell a little short of meeting one figure, it surpassed another. Of course, it should be obvious to anyone who follows developments in the hi-fi world that small differences in measured performance rarely, if ever, have any effect on subjective qualities. To the extent that measurements can establish the worth of a product such as this, the CD-X901 is clearly one of the better CD players on the market. Its sound was as good as that of any other CD player we have heard, while its solid construction and smooth operating “feel” set it apart from lesser products.

Circle 140 on reader service card
CAN YOUR SPEAKERS HANDLE THE EXTREMES?

It takes sophisticated engineering and pure craftsmanship to produce speakers that deliver the extremely wide dynamic range of digital recordings. The new EPI Time/Energy Series II speakers deliver everything that digital recordings have to offer; their quiet solos, thunderous finales and lightning quick transient response.

All this is made possible by the Time/Energy technology which involves making speaker cones and domes from special two layer materials. The combined physical properties of the two layers provide the performance that gets the most from any recording.

A case in point is the new EPI model T/E 280 Series II. It exemplifies the EPI tradition of achieving high levels of performance by using imaginative engineering and precision manufacturing, not complex designs and exotic, expensive materials. Its efficiency, power capacity, wide range response and just plain beautiful sound will make even the most die-hard technophile forget the graphs and specs and sit back to revel in the sound. And, with a suggested retail price of $199.95, forget about what it cost to get it.

There is an EPI Time/Energy speaker for everyone regardless of their listening habits, their electronics or their budget. Each one gives dedicated music lovers the kind of performance, quality and reliability that will keep them listening for years to come. With the Time/Energy speakers you can literally hear today what you'll listen to in the future.
TURBOCHARGE YOUR CD PLAYER.
Now that the compact disc has taken the world by storm, ordinary amplifiers are failing their driving test. Because ordinary amplifiers simply can't handle the dynamic range and purity signal that digital sound delivers.

Fortunately, the A-91D is far from ordinary. Because the A-91D is built with one thought in mind—to maximize the performance of digital sound.

With 170 watts per channel into 4 ohm speaker loads, and 120 watts into 8 ohms, the A-91D unleashes digital's full dynamic range. Extra-large capacitors and huge finned cast-iron enclosed transformers further contribute to the A-91D's high current capacity and stability into speaker loads as low as 2 ohms.

Along with all this power comes unprecedented purity. You can plug the latest CD players with optical outputs directly into the A-91D, and reap the rewards of independent digital conversion circuitry—with twin, glitch-free D/A converters, a digital filter with four times oversampling, and an analog lowpass filter made from quality discrete parts. The A-91D also uses Pioneer's exclusive Non-Switching Type III amplifier circuit to totally eliminate switching distortion. What's more, critical signal paths are kept extraordinarily short for less electronic interference and cleaner sound.

When it comes to digital sound, there's no such thing as good vibrations. That's why the A91D uses a special anti-vibration honeycomb design in the chassis frame. In isolation barriers between electronic sections. Even in all five insulator feet. A large aluminum volume control knob with a specially balanced brass shaft also absorbs distortion-causing vibration, and printed circuit boards are mounted in rubber for the same reason.

The A91D is not only ready for digital, it's ready for the future. With six digital inputs (2 optical), and three digital outputs (1 optical).

So if you want your digital sound to drive you to new heights, you need to drive your digital components with the Elite A-91D.

For more information, call 1-800-421-1404.
OHM SOUND CYLINDER
SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

OHM Acoustics is best known for unique loudspeaker systems based on the patented designs of the late Lincoln Walsh. Essentially, a Walsh speaker uses a single cone driver that faces downward into a closed volume (sometimes with a vent) and radiates its sound omnidirectionally in the horizontal plane from the "rear" of the cone.

Because the sound wave travels along the surface of the cone with a greater velocity than in air, it is possible to design a cone whose shape and material allow different parts of the audio frequency range to be radiated from different sections of the cone at slightly different times and yet emerge in phase from the speaker boundaries. The high frequencies radiate from the narrowest part of the cone (close to the voice coil), while the lower frequencies radiate from the larger cone diameters. Although the highs leave the cone before the lows, they travel further before reaching the outer diameter of the cone, and all frequencies are in the correct phase when the signal enters the room.

The coherent acoustic waveform generated by a Walsh system is closer to that of the electrical input signal, over a wider frequency range, than can be achieved by conventional multiway, front-facing speaker systems using crossover networks. A Walsh speaker closely approximates an ideal full-bandwidth, single-driver speaker, something that has not been realized with conventional speakers.

The new Ohm Sound Cylinder is the smallest, lightest, and least expensive Walsh speaker. The molded-plastic construction has a 6-inch Walsh driver on top facing down into the cylinder, which contains acoustic damping material. At the bottom is a 3-inch-diameter port, which is coupled to the interior through a 5½-inch tube. The entire speaker is supported about 1 inch off the floor on small feet, allowing the low-bass frequencies to be radiated around the circumference of its cylindrical body. The speaker measures 11½ inches in diameter and 31½ inches high, and it weighs a surprisingly light 14¼ pounds.

The upper 6½ inches of the Sound Cylinder, a perforated metal cage covered in black cloth, contains a molded-plastic structure that houses the Walsh driver, a small tweeter, and blocks of acoustic absorbing material. Both drivers have voice coils damped and cooled by ferrofluid, and the system is recommended for use with amplifiers rated for 22 to 100 watts per channel. The Sound Cylinder contains a Thermo-Guard protection system that automatically reduces the speaker's drive level if the voice coils become overheated by excessive input, and the Walsh driver is designed to emit popping sounds as its voice-coil excursion approaches safe limits.

The only published specifications for the Sound Cylinder include a frequency response of 44 to 20,000 Hz, a sensitivity of 89 dB sound-pressure level (SPL) with a 2.83-volt input, and a nominal impedance of 8 ohms. The standard Sound Cylinder is covered with a walnut-grain vinyl material except for its black top section and base. It is also available with genuine oak, walnut, teak, or rosewood veneers, and Ohm can

Lab Tests

We placed the two speakers about 8 feet apart and 3 feet in front of the rear wall for our tests. Their tweeters were angled inward by 45 degrees, as recommended. The room response, averaged for both speakers, was excellent above 2,000 Hz, varying only ±2 dB from 2,000 to 20,000 Hz. At lower frequencies there were several moderate response fluctuations, with peaks at 1,800, 700, and 270 Hz. From 100 Hz upward, the output was within ±3.5 dB all the way to 20,000 Hz. The maximum peak was +5 dB at 70 Hz, making the speaker's overall room response extremely flat.

Our usual practice of combining a close-miked bass measurement, which is unaffected by the room, with a room measurement to form a composite frequency response was somewhat complicated by the unusual nature of the Walsh radiator. Its overall response variation was a very good ±2.5 dB from 50 to 2,000 Hz, falling steeply outside those limits. We also measured the output around the periphery of the cylinder's base, where the vent output actually emerges into the room, and found it to have a maximum at 60 Hz and a 12-dB-per-octave rolloff below and above that frequency. The contribution of the vent was much greater than that of the Walsh cone at frequencies below 100 Hz, where it was virtually the sole contributor to the system's output. Fortunately, the upper part of the vent's output curve spliced readily with the room-response curve, so we formed our composite curve without considering the close-miked measurement of the Walsh driver's output.

Except for an additional 5-dB rise at 60 Hz, overall system response was well within ±4 dB from 20 to 20,000 Hz, which would be creditable performance for any speaker and is almost unheard of from a system using a single 6-inch driver and a small tweeter! The system's impedance reached a minimum of 6.5 ohms at 58 Hz and leveled off just below 6 ohms in the 10,000- to 20,000-Hz range. Its maximum of 25 ohms occurred at 85 Hz; overall, its 8-ohm rating would appear to be valid. The measured sensitivity was 85 dB, slightly lower than rated.

With an input level of 5 volts (equivalent to a 90-dB overall SPL), we measured the bass distortion from 100 Hz downward in the slot between the cabinet bottom and the floor. The distortion was very low at the high end. In this range, about 0.5 percent and it increased linearly to about 6 percent at 25 Hz, then rose steeply to 24 percent at 20 Hz. We also measured the distortion in the Walsh cone's output; it was only slightly higher than the port distortion but could not be measured below 60 Hz, where its output dropped off rapidly.

Our quasi-anechoic frequency-response measurements made with the IQS FFT analyzer confirmed many of the characteristics visible in the system's room-response curves, including a slight peak at about 1,800 Hz and the superflat on-axis response. Measuring the frequency response at angles from 0 to 180 degrees showed clearly that the tweeter supplied almost all of the output above 2,000 Hz. Below that frequency, the measured response of the system was essentially constant in every direction, but at higher frequencies, where the Walsh driver's response was evidently cut off, the inherent directivity of the tweeter determined the system's response.

Since one of the principal characteristics of a Walsh driver is its phase coherence, we were especially interested in the group-delay measurements. From 2,000 to nearly 20,000 Hz, the group-delay variation was only ±0.2 milliseconds, excellent performance though not exactly unique. Of course, this was entirely in the operating range of the tweeter, a conventional driver. From 200 to 2,000 Hz the total variation was about 2 milliseconds, also quite good by conventional speaker standards but not exceptional.

In high-power pulse tests, the cone of the Sound Cylinder rattled with an input of 275 watts at 100 Hz into its 14-ohm impedance. At 1,000 Hz the amplifier clipped at 780 watts into 10 ohms, and at 10,000 Hz it clipped at 1,200 watts into 6 ohms with no signs of distress from the speaker.

Comments

The sound of the Ohm Sound Cylinder was smooth, balanced, and thoroughly enjoyable, well beyond what anyone would expect from such a small, light speaker. Its dispersion was subjectively complete, and we were never aware of the speakers as distinct sound sources, no matter how much we moved around the room. The stereo stage was effectively fixed on or just in front of the wall behind the speakers. Walking up to one of the speakers did not produce any significant change of perceived program level. The absence of upper-bass emphasis was striking; voices were essentially uncolored, yet the deep bass of an organ was reproduced cleanly and powerfully.

In A/B comparisons with our reference speakers, we were more aware of their similarities to the Sound Cylinders than of their differences. All in all, there was nothing about the sound of the Ohm Sound Cylinders to which we could take exception. Obviously, personal tastes differ, but these speakers certainly offer impressive value for their price and size.

Our only question has to do with whether this system uses a true Walsh driver. Earlier Walsh systems usually had complex, costly cone structures, but the one here appears, at least in its externals, to be a fairly conventional small dynamic driver. Although the Ohm A and Ohm F gave true full-range response from a single (large) driver, more recent members of the family have used separate tweeters to augment the high-end output and change the polar pattern of the system. Frankly, I don't know where the dividing line exists between a Walsh system and a conventional one, but if the Sound Cylinder is not a Walsh system, it must be one of the most remarkable two-way speaker systems with a 6-inch woofer ever created!

Circle 141 on reader service card
Investing in sound?
Here’s how to make it pay off.

Great buys—at a great buy:
HALF PRICE!

Stereo Review is written for people who want to make smart buying decisions. We’ll help you find the right stereo equipment—the first time you buy—and show you how to use it the right way. Because sound information is the key to getting an audio system that gives you what you really want.

We test over 70 stereo products in all price ranges each year. Stereo Review’s product evaluations tell you how the components sound... identify unique features... compare models to others in the same price bracket. We warn you about design quirks, distortion, potential problems. We make the components suffer—so you don’t have to.

You’ll appreciate our straightforward explanations of audio technology. Telling you how to get more out of your equipment. Announcing important breakthroughs. Clueing you in on professional maintenance tips. The kind of inexpensive know-how that can make a million-dollar difference in how your system sounds.

Even if you already have the perfect system, you’ll value Stereo Review’s record reviews. An average of 30 a month, in all categories of music. They’ll insure that your system’s power isn’t wasted on inferior recordings.

Use this coupon to subscribe to Stereo Review at HALF PRICE. It’s one of the best sound investments you’ll ever make!

---

Stereo Review
P.O. Box 55527
Boulder, CC 80322-5627

YES: I want superior stereo sound. Please enter my half-price subscription to Stereo Review for the term checked below:

☐ One year (12 issues) $5.99—HALF PRICE
☐ Two years (24 issues) $11.97—HALF PRICE
☐ Three years (36 issues) $17.97—HALF PRICE

Savings based on full one-year subscription price of $11.97.

CHECK ONE: ☐ Payment enclosed ☐ Bill me later
Mr Ms

Address ________________________________
City __________________________ State __ ZIP ______

Foreign postage: Add $3 a year for Canada; $5 a year for other countries outside U.S. and possessions. Please allow 30 to 60 days for delivery of first issue.
THIS LINE-UP LOVES THE TDK LINE-UP.

**TYPE I (Normal Position)**

**AD-X** You'll get exceptional sound throughout the entire frequency range with the first normal-bias Avilyn formulation designed for wider dynamic range with superior MOL. Record on home components.

**AD-S** For cleaner, sharper sound AD-S delivers wider dynamic range with lower tape noise. A special rigid plastic C-Thru™ mechanism provides resonance control for clear undistorted recordings. Record on home component systems, integrated systems.

**AD** Hot high-end performance is the earmark of AD. Linear ferric oxide particles for smooth, natural reproduction provide for extreme sensitivity and wider dynamic range. For use with rack systems and auto decks.

**D** When you want premium performance at an economical price, TDK D cassettes deliver. Available in the widest assortment of lengths. Record on home tape deck systems or battery powered portables.

**TYPE II (High Position)**

**SA-XG** This is the ultimate Type II performer that meets or exceeds professional recording standards. A superior RS-II three-layer mechanism, plus TDK's exclusive dual coated Super Avilyn formulation make it the world's quietest tape, in any class. Perfect for all professional and high-end home equipment recording.

**HX-S** When you want extended dynamic range and digital capability, HX-S is the premier metal particle tape to use. Record on home component systems.

**SA-X** The world's quietest tape formulation—a dual coating of Super Avilyn—plus a unique DLM (Dual Layer Mechanism) delivers improved frequency response with virtually no noise. Record on home component systems, high-end portables.

**SA** Greater dynamic range and high energy sound have made SA the world's most popular high bias cassette. Record on home component systems, boom boxes and other portables.

**TYPE IV (Metal Position)**

**MA-XG** Capture the full dynamics of digitally-sourced material on MA-XG. The ultimate metal tape features TDK's new three-layer RS-II vibration dampening mechanism, which virtually eliminates vibration—delivering the purest, clearest sound. Record on high-end metal compatible decks.

**MA-X** Our Super Finavinx metal tape formulation and new DLM (Dual Layer Mechanism), which virtually eliminates vibration, allows MA-X to deliver a richer, wider dynamic range with clearer sound. Record on all metal compatible decks.

**MA** Superior sound reproduction with super-wide dynamic range are the characteristics of MA. It delivers true metal tape performance at an affordable price. Great for digitally sourced music, too. Record on all metal compatible decks.

TDK is the world's leading manufacturer of audio & video cassettes and floppy disk products.

© 1987 TDK Electronics Corp.
IN general, audio products claimed to be "digital" use conventional analog designs whose characteristics make them suitable for use with digital sound sources such as compact discs. With the TA-E77ESD stereo control amplifier, however, Sony has taken a step toward the goal of true digital compatibility.

All of Sony's high-end ES series components employ premium-grade electronic parts and materials, as well as exceptionally rugged mechanical construction, to achieve the highest sound quality. In addition, the TA-E77ESD preamplifier contains built-in digital-to-analog (D/A) converters that can process the digital output of a CD player or DAT (digital audio tape) deck. In this sense, it is closer to being a digital component than products that accept only analog signal inputs.

The TA-E77ESD is equipped to control video sources along with a full complement of audio components. Its versatility is demonstrated by the overall connection diagram in its instruction manual. Two audio cassette decks, a CD player with analog outputs, a tuner, and a turntable can be connected to its analog audio inputs, and it also has an unassigned high-level auxiliary input. Two VCR's (including stereo audio channels, if provided) can be connected to its video input/output jacks, and a videodisc player can be connected to the third video input; other jacks carry separate chrominance and luminance signals to an external monitor.

There are two digital inputs for CD players having digital signal outputs and a set of digital input/output jacks for a DAT recorder. A separate pair of analog outputs is provided for the DAT deck's analog inputs, since CD's cannot be dubbed in digital form. Finally, an ADAPTOR loop permits insertion of a graphic equalizer or other signal processor into the signal path. There are two sets of main audio outputs, and all the audio jacks are...
The love of music taken to Infinity
Two decades ago, a small group of music-obsessed physicists and engineers working on advanced aerospace problems discovered they shared an absolute dissatisfaction with existing speaker technology. They decided to put their knowledge of electronics, audio and music to the task: Could they expand existing technological boundaries to create the kind of speaker they could live with?

The result was the Infinity Servo Statik 1, immediately acclaimed by leading audio critics as the State of the Art in the reproduction of music.

In the ensuing years, this absolute obsession with music, this passion for perfection has continued to drive us. And to please equally fanatic music lovers and audiophiles throughout the world.

Today the benchmark 7½ foot tall $45,000 Infinity Reference Standard V is the embodiment of Infinity's obsession. It is also the source of much of the state-of-the-art technology used throughout the entire Infinity product line.

Every Infinity speaker at every price point—our IRS V, our IRS Beta, Gamma and Delta, our Kappa Series, our RS Series, our Studio Monitor Series and Kappa Automotive Series—shares a 20-year tradition of technological innovation.

This Infinity dedication to developing some of the most demanding and expensive high-end products has enabled us to offer the audiophile speakers of unprecedented value and musicality.

The rich velvet timbre of a French horn with all its overtones; the crisp, gutty attack of a Fender bass; the clean, delicate swish of a brush on a Ziljian cymbal; nowhere but through an Infinity speaker will you hear them with such warmth and lifelike presence.

Unless you're at the live concert. Which, as we've been saying all along, is what it's all about.
gold plated. The two AC outlets, one of them switched, are each rated to handle up to 400 watts.

The front panel of the Sony TA-E77ESD contains a number of legibly marked, soft-touch pushbuttons that select the input source, mute the signal level by 20 dB, insert an external processor through the ADAPTOR inputs, and bypass the tone-control, filter, and balance-control circuits (SOURCE DIRECT). Bright red LED indicators in the buttons show their operating status. Other buttons activate a subsonic filter, select mono or stereo operation, and select the turnover frequencies of the bass and treble tone controls (respectively, 200 or 400 Hz and 3,000 or 6,000 Hz). Front-panel indicators show the sampling frequency of a digital source (32, 44.1, or 48 kHz). Next to the power switch is the sensor window for the supplied wireless remote control, which can also be used to switch the power on or off.

The large ATTENUATOR (volume-control) knob, like the input-selector buttons, contains a red LED that serves as an index marker. The smaller tone-control knobs have eleven indexed settings; the center position is the “off” setting. The balance knob is also center-detented. Two knobs can select any of the ten input sources for recording on one of the audio tape decks independently of the listening selection. Another knob switches the termination and gain of the phono input for a moving-magnet (MM) or moving-coil (MC) cartridge; the MC input offers a choice of either 30 or 400 ohms resistance. An OUTPUT knob connects the preamplifier’s output either to the main output jacks in the rear or to the front-panel headphone jack.

The acoustically inert chassis of the TA-E77ESD (which Sony calls the “G-chassis” after the Rock of Gibraltar) is molded from a glass-fiber-reinforced resin that results in a nonconductive, nonmagnetic, and highly rigid structure virtually immune to both internal and external vibrations. The entire unit is supported on large feet that appear to have some vibration-isolation properties. The separately encased power transformer is unusually large and heavy for a preamplifier.

The TA-E77ESD’s audio and video signal circuits are completely isolated, and signal switching is done by high-grade, shielded relays instead of the usual semiconductor circuits. The digital portion is sealed in a copper chassis to prevent spurious-noise leakage into the analog stages. Separate 16-bit D/A converters, with quadruple oversampling at 176.4 kHz, are used for each stereo channel.

The Sony TA-E77ESD is a full-size and rather heavy component. With its wood side plates attached, it is 18¾ inches wide, 13⅜ inches deep, and 5 inches high. It weighs 29 pounds (the rugged steel top plate accounts for about 4½ pounds of the total). The models sold in the United States and Canada are supplied with a programmable remote control designed to control most Sony audio and video components. It can also “memorize” the functions of other infrared wireless remote controls, enabling it to control an entire system even if not all the components are made by Sony.

**Price:** $1,100. Sony Corp. of America, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

**Lab Tests**

Driving an EIA standard load of 10,000 ohms in parallel with a 1,000-pico farad (pF) capacitance at
Now we do for Amadeus what we've always done for Mozart.

For years you've relied on Yamaha to faithfully reproduce the vibrancy and clarity of your music.

Now, innovative Yamaha technology does the same for your favorite movie videos as well.

Introducing the RX-1100U. The Yamaha receiver that combines our legendary audio quality with broadcast quality video. A major enhancement to our long line of successful receivers.

In fact, the RX-1100U contains so many exciting features, you might want to visit your authorized Yamaha dealer and spend a few minutes exploring them for yourself. Start by playing a video cassette through the RX-1100U. And watch the results on the finest video monitor.

The powerful new video-enhancing circuitry restores clarity and sharpness to even the weakest, noisiest video signal. So any prerecorded tape looks network crisp.

Then grab a camera, shoot a few minutes of tape on your own, and use the video enhancer while making a third generation dub. You'll have a hard time telling the dub from the original.

While you're at it, experiment with the new video Rec Out Selector feature. Use it to mix your video with different audio sources to create original music backgrounds and sound effects.

Just like a post-production shop. Next, take the most musically demanding CD, crank open the 125 watt/channel 18 amplifier, and listen to what's missing.

Distortion. It's not there because the RX-1100U boasts our new Absolute Linear Amplification (ALA) circuitry.

But you can still trust Yamaha to satisfy your needs.

Because when you want to know what's new in top performing equipment, we've always been the ones to listen to.

Now, with our RX-1100U, we're the ones to keep an eye on as well.

This advanced amplifier technology injects a mirror image of the output distortion back into the input stage. The distortion component drops virtually to zero.

What's more, this receiver has plenty of headroom — up to 360 watts/channel into a 2 ohm load — so it's never cramped by the wider dynamic range and varying speaker impedances associated with digital sources.

Now, walk to the other side of the room, where you can appreciate the new RS interactive remote control to its fullest.

Notice how it packs fingertip operation of the receiver, as well as other Yamaha RS remote CD players, cassette decks and turntables, into one slim hand-held unit that ends coffee table clutter forever.

Home entertainment has certainly changed. It had to. You started out as an audiophile and find yourself becoming a videophile as well. Or vice versa.

Yamaha 1887-1987

Yamaha Electronics Corporation, USA, P.O. Box 6660, Buena Park, CA 90622

CIRCLE NO. 14 ON READER SERVICE CARD
Now there's a better way to

SAVE 37% on Car Stereo Review...

Until now, it always took a lot of time and effort to ensure “living room” sound from your car stereo. That's why the Editors of Stereo Review are proud to introduce

**Car Stereo Review**

**The Ultimate Guide to Ultimate Autosound!**

This is the world’s first and only regular publication dedicated to the pursuit of high-quality autosound. Each quarterly issue will be packed with how-to articles for buying, installing, and maintaining autosound equipment—so you can get more pure enjoyment from your car stereo than you thought possible.

Whether you’re purchasing your first car stereo system or upgrading your present one, you’ll want to check out our product reviews of all the latest amplifiers, AM/FM receivers, CD players, cassette decks, equalizers, speakers and more. Our Equipment Test Reports, with laboratory results from our expert technicians, make it easy for you to select the right components for your needs and your budget. And our exclusive Road Tests feature users’ evaluations of various installations under real driving conditions.

You’ll also find money-saving shopping tips, expert advice for choosing an installer (or doing it yourself), car stereo security tips, CD and tape reviews—and fresh, updated listings of car stereo products, so you can compare features, specs and prices.

Here, then, is everything you need to know about car stereo, written by the Stereo Review experts who are in the know: William Wolfe, Julian Hirsch, Louise Boundas, Michael Smolen, and others. Subscribe today and receive...
orchestrate your autosound.

new from the Editors of Stereo Review!

special Charter Subscriber rates: just $9.98 for four big quarterly issues. That's a 37% saving off the annual newsstand cost!

YES, show me the better way to guarantee the sound quality of my car stereo! Please enter my one-year Charter Subscription to Car Stereo Review, and send me four quarterly issues for only $9.98. That's 37% off the annual newsstand cost of $15.80.

CHECK ONE:  □ Payment enclosed.  □ Bill me later.

Mr./Mrs./Ms.__________________________ (please print full name)

Address________________________________________ A pt. No.________

City__________________________________________

State__________ Zip__________

Offer valid in U.S. and possessions only. Please allow 60 to 90 days for delivery of first issue.
1,000 Hz, the Sony TA-E77ESD's output clipped at a very high 11 volts (its rated output is 1.5 volts, enough to drive almost any power amplifier up to or near its maximum output). The total harmonic distortion was between 0.0021 and 0.0028 percent from 0.1 to 3 volts output and only 0.013 percent at 10 volts, just before clipping occurred.

The Sony TA-E77ESD preamplifier handles six analog sources, three digital audio sources, and three video sources.

At a 1.5-volt level the distortion varied only slightly over the audio frequency range, measuring about 0.003 percent from 20 to 5,000 Hz and a maximum of 0.0046 percent at 20,000 Hz. At lower output levels the readings were slightly higher because of the greater proportional contribution of the preamplifier's noise content.

Overall, however, the noise was very low indeed. Relative to a 0.5-volt output, the A-weighted noise level was -89 dB through the high-level AUX input, -84 dB through the MM phono input, and -75 dB through the MC phono input at its 30-ohm setting (maximum gain). The respective sensitivities at these inputs, for a 0.5-volt output, were 46, 0.7, and 0.045 mV. The MM phono-input overload ranged from 142 to 148 mV across the audio band, and for the MC input (30 ohms) it measured between 8.5 and 9.5 mV. The MM phono-input termination was 46,000 ohms in parallel with a 260-pF capacitance. The crosstalk between the inputs (from AUX to phono MM) was unmeasurable at 1,000 Hz (below -110 dB), -86 dB at 10,000 Hz, and -78 dB at 20,000 Hz.

The RIAA phono equalization was flat within ±0.05 dB from 100 to 20,000 Hz, falling off slightly at low frequencies to -0.35 dB at 20 Hz. Through the AUX input, the response was as ruler-flat as we could measure, varying less than 0.01 dB overall from 20 to 20,000 Hz. The subsonic filter, rated to have a 6-dB-per-octave slope below 15 Hz, reduced the output by 1 dB at 30 Hz and 2 dB at 20 Hz. The tone-control turnover frequencies were approximately as marked, with a maximum control range of +8, -6 dB at 20 Hz and ±10 dB at 20,000 Hz with the 400- and 3,000-Hz turnover settings.

To test the performance of the D/A converters of the TA-E77ESD, we drove its digital input from CD players equipped with digital outputs. The first digital source was the Sansui CD-X901 (see test report in this issue). Its inherent response is very flat, but through the digital input of the Sony preamplifier there was an obvious, and very audible, loss of high frequencies. The output dropped above 1,000 Hz to -6 dB at 9,000 Hz.

To establish the cause of this problem, we repeated the test with a Sony CDP-705ESD and a Yamaha CDX-1100U. The results with these players were consistent with each other and showed that the response of the right channel of the TA-E77ESD was flat within ±0.1 dB from 20 to 20,000 Hz, but the left-channel output had a slight high-frequency rise, amounting to about 0.5 dB at 20,000 Hz, and it was also about 0.5 dB greater overall than that of the right channel.

According to Sony, its products are designed to conform to the digital interface standards established jointly by Sony and Philips, the creators of the compact disc format. Although most other manufacturers follow the same standards, some products may deviate from them in ways that do not affect their own performance but can make them incompatible with other digital products that may have been designed using different standards.

Comments

The Sony TA-E77ESD provides clear evidence of how narrow the gap is between good analog performance and the nearly perfect characteristics we expect from digital components. In all important parameters, such as crosstalk, noise, distortion, and response flatness, this preamplifier yielded measurement data that would be acceptable in a digital audio source component such as a CD player or DAT deck. Although the TA-E77ESD is not unique in that respect, there are very few other preamplifiers that could match it in a one-on-one comparison. And with the inclusion of its D/A circuits, it begins to take on some of the aspects of a fully digital audio component.

Some other audio amplifiers contain D/A converters, and there may well be a trend toward including them, at least in the upper price brackets. I wonder, however, just what practical advantages result from keeping signals in digital form until they reach the amplifier section. While frequency response, noise, distortion, and crosstalk can all be affected to some degree by interaction between analog circuits, these effects are usually audibly insignificant, making any sonic improvement resulting from digital signal connections questionable. In fact, in our tests both the Sony and Yamaha CD players delivered "better" performance from their own analog outputs than the TA-E77ESD could produce from their digital outputs. Although the differences were sonically insignificant, they definitely did not favor the bypassing of the CD players' analog sections. Finally, let's not forget the possibility of digital incompatibility that our experience disclosed.

Putting these questions aside, we must say that the TA-E77ESD is an impressive piece of equipment. It fairly radiates smoothness and precision in its operation and listening qualities. Especially for anyone with a complete audio/video system, it would be hard to find another controller with the capabilities of this one—few of us have as many as ten or twelve signal sources in our music systems! Also, the convenience of a single system controller is substantial.

Circle 142 on reader service card
Real people want real taste. Winston.
Save your TV. Now you can add 72 channel cable ready tuning, with true MTS Stereo and SAP sound that’s guaranteed to knock you socks off.

If you’re like me, you already have perfectly good TVs in your home. And, if you’ve looked at the prices on Stereo TVs, you’re probably in shock. Besides, I just can’t bring myself to throw out my perfectly good TVs, even to experience the incredible explosion of sound created by MTS TV stereo.

And, look at this. HD (High Definition) TV with slide like picture quality is coming. So, why buy a new TV now just for the sound when you’ll be able to get an unbelievably fabulous picture when (and if) HD arrives in the U.S.? So for now, why not just add the incredibly thrilling sound of stereo. Then in a few years, buy a new TV when the picture is finally improved too.

Plus, most cable compatible TVs and VCRs available today have only 10 or 12 presets. So, you have to choose only your favorite channels. Now you can have total random access stereo tuning of up to 72 channels. Wow!

With the networks’ and even the independents’ programs switching to stereo, you’re in for a phenomenal experience! Stereo, powerfully reproduced through your sound system or optional bonus amplified speakers, involves you emotionally in what you’re viewing.

So, don’t settle for a typical 3 to 5” TV speaker when you can experience truly thrilling stereo TV sound for just $9990. After you experience stereo TV, you’ll never be satisfied with a 3” TV speaker’s sound again. Even the picture seems bigger, because you’re involved.

Of course, with this advanced electronic tuning system, you might just be receiving a sharper picture. You won’t be getting snow from dirty tuning contacts and loss of fine tuning as the set ages. It’s really like a TV set without a picture tube.

BIG BIG SOUND
When you listen to your TV through your stereo or optional bonus speakers (of course, you can still enjoy sound through your TV), you’ll have wide separation and rich full dramatic impact that simply can’t be duplicated by most TVs. You see, stereo TVs have speakers built-in, so there’s not much separation.

Now you can expect the same wide-field sonic image you get from your stereo system. But the combination of sight and sound is even more astounding.

ALL THE CHANNELS
You’ll face an adventure in programming. Whether you tune in Cable or use your own antenna, you’ll have random access wireless infrared remote tuning from up to 25’ away. You’ll switch channels on your TV, and even control volume and mute through your stereo system or optional amplified speakers.

You’ll tune in all VHF Low-Band channels 2-13, Mid-Band channels 14 (A) to 22 (H), Super-Band channels 23 (J) to 36 (W) and Hyper-Band channels 37 (AA) to 71 (A3). Plus you’ll have Sub-Band channels 00 (A1) and 01 (A2).

Note: If you’re on cable, check with your cable company before viewing anything at all, to see if they require a fee. This isn’t one of the infamous ‘Black Boxes’ that decodes various ‘Pay TV Channels’. On cable, most of the programming isn’t scrambled. It’s just found outside the tuning range of the average TV. So, look at this. You can assign any 4 stations you want a “Favorite” Status and, by using the separate step tuning buttons on the remote, you can step through only your favorite channels.

I have 4 movie channels on my cable. So, I use the “Favorite” feature a lot. There’s also ALT. If you like to watch two ball games and switch between them as I do, you can now flip back and forth with the touch of a button. Plus there’s a Sleep Feature activated from the remote control. Just decide how long you want your TV to stay on (up to 90 minutes) and it will automatically turn itself off after you’re asleep.

A large LED display shows you the channel. And, LEDs show when this tuner is receiving Stereo or SAP broadcasts.

SO WHO OR WHAT IS SAP?
If you’re not familiar with SAP, it’s not a government agency. It’s called Separate Audio Programming. You’ll probably find that some of your local TV stations broadcast an audio band that normal TVs don’t get. It may or may not be related to the TV picture. It may also broadcast whatever you’re watching in a foreign language. You may find that your entertainment options are considerably broadened.

EFFORTLESS INSTALLATION
It’s easy. Just unscrew your antenna or cable connector from the back of your TV and screw it into the Controller. Then, use the included cable to connect the Controller to your TV. Plug your TV into the Controller and the Controller into the wall. You can connect your VCR before or after the Controller.

Simply connect the standard audio jacks, using standard patch cords to your stereo or the bonus amplified speakers, and you can enjoy the thrill of stereo. Wow, just wait till you hear the sound and see the quality of the picture. This is a 100% videophile component. It’s made by Universal and backed by their standard limited warranty.

ENJOY CABLE AND MTS STEREO RISK FREE
Wait till you hear the sound. It’s like switching from a portable AM radio to your full stereo system. It’s an awesome experience that’s instantly apparent.

If you’re not 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To order Universal’s 72 Channel Cable Controller with MTS Stereo and SAP risk free with your credit card, call toll free or send your check for DAK’s break-through price of just $9990 ($6 PETH). Order No. 4926. CA res add tax.

Now you can tune in virtually any Cable or VHF TV broadcast and listen to the most phenomenally dramatic sound. Plus, you’ll have remote control.

S4990AMPLIFIED BONUS SPEAKERS

Make your video thunder to life. If your TV isn’t near your stereo system, use this pair of dramatic sounding, amplified 2-way speaker systems.

Each has a powerful 4” woofer and crystal clear 2” tweeter. They are 17¾” tall, AC powered and they turn themselves on and off automatically. They’re yours ONLY with purchase of the Controller, for just $4990 ($6 PETH). Order No. 4814B. Wait till you hear the sound!
Astounding Writing, Fast!

Why say 'good', when you can say stellar, splendid or glorious? Why say 'fast', when you can say meteoric or flash? Now you can add 220,000 synonyms to your writing and speaking vocabulary and, you can correctly spell over 100,000 words instantly for just $99. Wow!

By Drew Kaplan

Forget spelling. Forget racking your brain for just the right word. Now you can trash your dictionaries and your thesauruses by using the new, pocket size, incredibly easy to use Word Finder.

If you're at all like me, you hate plodding through the pages of cumbersome dictionaries. And, if you don't know how to spell a word, it's often hard to find.

Well, imagine instantly scanning the equivalent of 1,400 8½" X 11" single spaced pages of correctly spelled words and synonyms to pinpoint just the word you want. Just touch a few buttons.

Now we'll never have to use an easy word we know how to spell, rather than an eloquent word, to convey our thoughts.

GREAT MINDS

I'm just a simple writer, but William F. Buckley, Jr. says about this program, "Your Word Finder has changed my life! I never used to use a thesaurus."

Well, he probably doesn't need the 100,000 spelling word dictionary, but when you combine the two, this is the most useful product I've ever introduced. When you speak or write, make your ideas vivid with realism. Let every word create a graphic image in your reader's mind. And, make all your points forcefully. (The words in bold represent 3 of over 54 synonyms for powerful. Wow!)

SPELLING MADE SIMPLE

I hate dictionaries. Half the words I look up I had spelled correctly. And the other half, I can't find. Well, with Word Finder from Selectronics, it's simple.

It's incredibly intelligent. First, it's phonetic. Type 'FONETIC' and you'll get Phonetic. Type 'PHήτικ' and it will let you select phonetic from other possibilities. If you add a letter, leave out a letter or even transpose a letter, it can find the correct spelling of the word you want.

So, let the two microprocessors in this new productivity tool let your writing and speaking stand out from the crowd.

HEAD OF THE CLASS

Spelling is the simplest thing Word Finder can do for you.

Touch Synonym and your speaking and writing will explode with incredible new power. You'll have 4½ megabytes of $5 and $25 words to let you express your ideas with exquisite precision.

It may not always be fair, but it's often how you say something, rather than what you say, that lets you get ahead. And, with Word Finder, you'll have incredibly creative word power at your fingertips.

4½ megabytes is equivalent to about 12½ 5" floppy disks on an IBM® PC.

Yet, there's no programming. Just type in your word and away you go.

You'll always have the right word at the right time. And, if you're not absolutely sure of a word's meaning, just check a few of its synonyms.

EASY TO USE

Just type in a word and touch Spell or Synonym. There's nothing to learn. It's great at work, at home or at school.

If you'll supply the facts, Word Finder will supply the most powerful, vivid words to convey your concepts. And, unlike dictionaries and thesauruses, it's easy to use and totally hassle free.

To use the Thesaurus, touch Synonym. When you push the down arrow, you will see main concept words. Touch the right arrow and you'll see more words with the 'same intent'. So, the thesaurus is logically arranged for ease of use.

Plus, at any time, just re-touch Synonym and you'll start reviewing synonyms of the 'synonym' that was already displayed on the large, oversized 20 character LCD screen. So, there's literally no end to the words you can explore. It's fabulous for creative writing.

BOTTOM LINE

While 100,000 dictionary words and 220,000 synonyms may sound impressive, other computer based thesaurus companies count words such as create, creates, and creating as synonyms.

Using this method, Word Finder would have 660,000 synonyms. Why is Word Finder conservative? Well, when you get your spelling and thesaurus list from Xerox Corp and Microlytics, Inc., you can afford to be understated.

Selectronics, working with Microlytics and Xerox's Palo Alto Research Center (PARC), has developed this product's incredible word compression technology. It's just 3" X 4" X ¾". It weighs just 6 oz including 4 AAA batteries (included). It's great for business (thanks to Xerox) because it has First Names, Surnames, Corporate Names and City/State/ZIP Code listings.

You'll love it when you play Jumble (available in most daily papers), crossword puzzles, Scrabble® and hangman. But, most of all, you'll love it for what it will do for your vocabulary. It's made and backed by Selectronics' limited warranty.

IMPROVE YOUR WORD POWER RISK FREE

People look down at spelling errors. People look up to the rare individual with a rich and varied vocabulary.

If you aren't 100% thrilled with the ease of spelling or the wide range of dramatic words you'll have at your command, return it in its original box within 30 days to DAK for a courteous refund.

To order your Selectronics' Word Finder 100,000 Word Spelling Dictionary with 220,000 (660,000) Synonym Thesaurus to effortlessly let you locate and spell the right word for the right time correctly, call toll free or send your check for DAK's then advertised price of just $99 (4 P&H). Order No. 4925. CA res add tax. Note: January delivery.

Infuse your ideas with powerful graphic words. You don't have to sound like a college scholar to add punch and panache to your speaking and writing.

You and your children will be amazed at how a few well sculptured words can increase the respect people have for what you're already saying.

Dak Industries, Inc.
Call Toll Free For Credit Card Orders Only
24 Hours A Day 7 Days A Week
1-800-325-0100
Fax Toll Free Information, Call 8AM-5PM Monday-Friday PST
Technical Information...1-800-272-3200
Any Other Inquiries...1-800-423-2866
8200 Remmet Ave., Canoga Park, CA 91304

POTENT
BURLY
HARSH
BRAWNY
FORCEFUL
ROUGH
DOMINANT
PASSIONATE
LUSTY
HUSSY
RUTHLESS
RESOLUTE
FAWNED
STARE
SHUTTLE
STAIN
SOMBER
STASTE
STAY
STING
STIR
SUCCESSION
SUGGEST
SURPRISE
SURVEY
SYMPATHETIC
SYMPATHY
Forget re-recording your cassettes. Forget tape hiss forever. Now you can make the hiss on the cassettes you currently own disappear instantly.

It's called single-ended noise reduction, and it's just been developed by BSR's studio electronics division dbx. Plus, it works to remove surface noise on records, hiss on FM and even hiss from AM. It brings all of your musical sources into the hiss free CD age.

**Note:** You don't have to encode your recordings. Just plug in this hiss free breakthrough and say good-bye to hiss.

If you're like me, you've got dozens or even hundreds of treasured cassettes, open reel tapes and records. Well, now you can actually listen to them for the first time without hiss.

I've tried this system with old classical imported tapes and it works. I've tried it with slow-speed recorded audio-calculator tapes and records. Well, now you can actually listen to them for the first time without hiss.

**Here's a test you can do.** Listen to the hiss between tracks on any of your cassettes. As you're listening, stop your copying tapes, touch 'Pre', and you'll start to cut some highs. Make it too strong and you'll hear some hiss. Make it too weak and you'll hear some hiss. LED meters show the level of the incoming signal, and with orange, green and red indicators show you exactly how this device is reacting to your music.

**NOT PERFECT**

OK, it really does dramatically reduce the hiss on every single tape I've tried. But, I've got some old cassettes with almost no high frequencies. And, on some cassettes whose circuit can't find enough high frequency material above the hiss level to really clean them up...

I can get rid of the hiss by turning up the noise reduction, but it makes the dead sounding cassettes even deader. The truth is, it's much more pleasurable, but I guess even this system won't turn a sow's ear into a silk purse.

On a very old prerecorded copy of Tchaikovsky's "Variations on a Rocco Theme", I encountered an unusually loud hiss level. I could turn up the noise reduction to get rid of it, but I tended to cut the highs slightly during quiet passages. There's no pumping or overt on/off with regard to the sound. I'm just giving you my subjective opinion of the music.

Of course, when I touch Bypass, I'm instantly buffeted by massive hiss. It's much more noticeable as you switch in and out than if it's there all the time.

So, you'll be amazed at how much hiss you are currently enduring. It really cuts down on enjoyment and causes fatigue, even when you don't consciously identify hiss as the problem.

So, while it will rid ANY tape of hiss, if your tape is really in bad shape, you'll lose some highs in the process.

**EASY INSTALLATION**

It hooks into the tape loop of your pre-amp or receiver, just like an equalizer. And of course, it works fine with an equalizer or any other equipment.

Switch to source and you'll reduce hiss from any component in your system. Switch to tape and you'll switch in and reduce hiss from your cassette deck.

If you are copying tapes, touch 'Pre', and you'll switch in before your cassette deck to remove hiss from the original. It really makes multi-generation tapes incredibly better.

It's designed by dbx, the world's leader in noise reduction. It's made and backed by dbx's parent, BSR's limited warranty.

**KILL THE HISS FOR GOOD RISK FREE**

Wait till you hear your very own tapes hiss free. It's a thrilling experience.

If you're not 100% thrilled, simply return it in its original box to DAK within 30 days for a courteous refund.

To order BSR's Single-Ended Noise Reduction breakthrough to bring hiss free beautiful music to your stereo system, call toll free, or send your check for just $199 ($7 P&H). Order No. 4758.

Hiss is an insidious spoiler of music. dbx has finally made it possible to reduce the hiss from all your music. You'll really love the difference.
$79.90 Name Dialing Wonder

Forget numbers. If you want to call Mom, touch M. If you want to dial Fred, touch F. It's all easy with this new name dialing breakthrough. You can dial up to 100 numbers by name automatically. Plus, there's a speakerphone model too.

By Drew Kaplan

It was the best. Last year I introduced CDT's 2-line version of this phone. It's the phone I use, and frankly, it's the best phone at any price that I've ever used.

Well, thousands of DAK customers bought the two-line phone for $129.

But, I've received lots of mail requesting a less expensive one-line version, (maybe) without a speakerphone but with the same 'name' dialing capabilities, and especially with the same quality.

Plus, the two-line phone can't be wall mounted. So, that's been added to the capabilities of this incredible new phone.

Note: This phone is available with or without the speakerphone.

IT DIALS BY NAME

I hate having to remember phone numbers. With this phone, all I do is push the 'M' button when I want to dial Mom. The 'D' button dials DAK. And, if I'm making a credit card call, I touch 'C'.

I particularly hate credit card calls, because first I have to dial the number then enter my 14 digit credit card number. If the line is busy or I touch a wrong digit, I have to do it all over again.

Now all I need to remember is the person's name. Where I have more than one name that begins with the same letter, I simply scroll through the names.

It's quick, it's easy and you'll never have to remember or look up and dial anyone's phone number again.

So, now I can avoid mistakes. I can avoid looking up numbers. And, I can be thinking about my call instead of tediously dialing phone numbers.

Each memory location can hold up to 32 digits and you can store up to 100 different names (2,048 digits).

Once you've dialed by name, you'll never want to dial any other way.

Even automated dialers require you to remember location numbers or push special buttons. Now, if you know the person's name, this phone does the rest.

DIALING ISN'T ALL

A large LCD display shows you the name and the number you are calling. And you'll see the number on the display, even if you dial manually.

And, you can put it on your desk or you can put it on the wall. Now you can have name dialing the way you want it.

OPTIONAL SPEAKERPHONE

Like the two-line version, this phone has the most powerful, clear sound, easy to use speakerphone ever.

I've used good speakerphones before, but this speakerphone's quality rivals an in-person conversation. How's that for a description of a phone that you can try for a 30 day risk free trial?

So, whichever phone you choose, you'll have the identical quality and basically the same features.

They are made by Colonial Data, a research company partially owned by one of the world's largest interconnect (big business phone systems) companies. It is 9" deep and 7 1/4" wide. It's backed by Colonial Data's limited warranty.

NAME DIALING FOR JUST $79.90 RISK FREE

Forget numbers. Forget hassles. If you're going to say, 'Hello Jim', touch J first and the phone will do it all.

You'll be astounded by the ease of use and sound quality of this incredible $79.90 breakthrough in phone technology.

If you're not 100% thrilled, simply return it in its original box within 30 days to DAK for a courteous refund.

To order your Name Dialing Phone with more useful features than even I can list on a page, risk free with your credit card, call toll free or send your check for DAK's also incredible breakthrough price of just $79.90 ($4 P&H). Order No. 4945. CA res add tax.

To order the identical Name Dialing Phone with Hands Free Speakerphone and Automatic Redial risk free with your credit card, call toll free or send your check for DAK’s also incredible breakthrough price of just $99.90 ($4 P&H). Order No. 4947.

It's simply the best. With or without the speakerphone, dialing by name will give you years of time saving, frustration reducing telephone use.

DAK INDUSTRIES INC.
Call Toll Free For Credit Card Orders Only
24 Hours A Day 7 Days A Week
1-800-325-0800

For: Toll Free Information, Call 5AM-5PM Monday-Friday PST
Technical Information: 1-800-272-3200
Any Other Inquiries: 1-800-423-2866
8200 Remmet Ave., Canoga Park, CA 91304

By Drew Kaplan

11111
BSR’s Endangered Colossus

Prepare for bone jarring bass and dramatically clear highs from these newly developed 15” 3-way 5 speaker systems that nearly missed their chance to charm an audiophile’s ear. BSR moved its dbx and ADC divisions into one facility and these speakers almost became orphans. So now, they’re yours at a close-out price.

By Drew Kaplan

It’s a shame. But, it’s also a great opportunity to get a pair of 15” audiophile loudspeakers with the newest in stereo imaging at a market-breaking price.

Imagine a purposely crafted mirror image pair of top-of-the-line BSR speakers that can effortlessly recreate the catastrophic impact of a full orchestral crescendo at full volume and yet offer flawlessly subtle sound detail to 21,500hz.

You’ll thrill to thunderous bass all the way down to 26hz. Incredibly rich, full, vibrant sound at low volume will explode with life as you increase the volume.

But before we examine the front speaker complement, the twin overlapping crossovers and the top mounted sonic placement and ambiance speakers, let’s see why they were almost orphaned.

You see, BSR, the half billion dollar electronics giant, is the parent company of two of the best names in up-scale audio, dbx and ADC.

Last year dbx developed a new multi-thousand dollar speaker system called the Soundfield One which lets you sit virtually anywhere in your room and have full stereo imaging and terrific sound.

BSR decided to consolidate ADC and dbx into one building (still 2 companies) and put all its speaker efforts into dbx.

POOR JACK

Well, while dbx’s engineers were off designing their multi-thousand dollar masterpieces, BSR’s Senior Acoustical Engineer (he had been Fisher’s Chief Engineer for 10 years during its top end component stereo days), was designing BSR’s radically new speaker line.

The revolutionary top of the line 15” stereo imaging pair pictured above will let you enjoy superb stereo imaging without sitting directly in front of your speakers.

But unfortunately, in the consolidation move, BSR’s speakers went by the wayside.

Enter DAK. After a few fearful negotiations and considering the engineering costs BSR had already expended, they agreed to make the speakers just for DAK.

Because there’s virtually no BSR overhead left on these speakers, and the R&D was all but complete, we’ve gotten these speakers for exactly the component costs plus a little BSR labor.

And don’t worry about Jack. BSR had him finish the engineering (they really are great people) and they’ll pay him a royalty on each speaker we sell. Besides, by the time you read this, Jack is sure to be snapped up as the Chief Engineer at another company.

WHAT’S STEREO IMAGING?

Stereo imagery is the logical separation and interaction between channels.

It’s the successful creation of a panoramic wall or stage of music rather than the confined, easily located 2 speaker sound. IT’S WHAT’S INSIDE THAT COUNTS.

Imagine the full thunder of a kettle drum, or the pluck of a string bass being explosively recreated in your living room. BSR’s 15” sub-bass acoustic suspension driver will revolutionize your concept of low clean bass.

Its magnetic structure weighs a thundering 48 ounces. But that’s not all. The magnetic field is developed by the rare earth metal Strontium for state of the art massive but flawlessly controlled bass.

A 38mm voice coil with a 200° centigrade temperature capacity, will handle the most demanding digital or analog recordings. And, a new super rigid cabinet design virtually eliminates coloration due to uncontrolled cabinet resonance.

At low volume, the bass will fill in and mid-ranges to reproduce your music. Your walls and your neighbors will shake. (Not for apartment dwellers please.)

MATCHED PAIRS

The mid-range and high end of BSR’s speakers are truly unique. Front mounted 8” polypropylene mid-range drivers provide rich sound while top mounted 5” polypropylene mid-range drivers provide an open, lifelike ambiance.

Front mounted exponential horn tweeters provide awesome brilliance to 21,500hz, while top mounted tweeters enhance separation because they are mounted to the outside edge of each speaker.

So, this system has a specific left and a specific right speaker. You’ll find wide, but interactive separation that will vastly widen your ideal listening area.

The imagery will give the illusion of musicians actually playing in front of you. Your music will take on a three dimensional quality. You’ll enjoy superb stereo imagery regardless of each speaker’s specific placement in your room.

MORE SPECIFICS

The exponential horn tweeters, both in front and on the top of these systems, employ 25mm rigid phenol diaphragms for stability and accurate response.

Polyamid-imid binders and ferro-fluid coolant allow for a 300% increase in heat dissipation so you can drive the voice coils up to 200° centigrade.

Now, the mid-range. Both the 8” front firing and the 5” top firing polypropylene drivers reproduce the mid-range frequencies like no ordinary speakers.

It’s amazing that so many speaker manufacturers simply slap in 8” paper cone mid-ranges, rig them, exacting drivers that deliver incredibly pure uncolored sound.

They have matched 25mm voice coils, also protected by ferro-fluid and polyimid to 200° centigrade. They are driven by powerful barium ferrite magnetic fields.

TO PREVENT PHASE SHIFTS...NOT QUITE YET

To prevent phase shift and cancellation, two totally separate crossover networks are employed in these speakers.

All frequencies below 800hz are directed to the 15” woofer. The front system routes frequencies above 800hz to the 8” mid-range to take full advantage of its superb reproduction capabilities.

Frequencies above 3400hz are routed to the horn tweeter.

The top mounted system routes only frequencies above 12000hz to the 5” polypropylene ambiance mid-range driver, and frequencies above 3400hz are routed to the top sonic placement tweeter.

There are level controls for both the top and front mounted speakers so that you can voice the speakers to match your musical taste and environment.

Note: Only the top tweeters are mounted at the the edges. The front mounted tweeters are conventionally mounted for acoustical symmetry.

Each speaker is fuse protected for up to 200 watts peak, 150 watts continuous power. You can operate these super efficient speakers with as little as 20 watts.

AND OH WHAT A PRETTY FACE

The speaker systems are 30” tall, 19½” wide and 10½” deep. Their lovely oak wood-grain appearance is enhanced by the dark removable grill cloths that beautifully contrast with the rich oak topramps.

They’re a statement of audio elegance when placed in any room. They’re backed by BSR’s 2 year limited warranty.

A COLOSSAL DREAM COMES TRUE

You’ll hear depth of sound at low levels that was previously unobtainable. And yes, when you crank it, your music will explode with realism and drama.

Try these speakers in your own system. Then compare them at any Hi-Fi Store with any pair of speakers up to $1000. If they don’t beat all the competition hands down, simply return them to DAK in their original boxes within 30 days for a courteous refund.

To order your matched pair of BSR top-of-the-line 15” 3-way 5 speaker systems with unique stereo imaging risk free with your credit card, call toll free and send your check for DAK’s market-breaking price of just $299 for the MATCHED PAIR plus $34 for Postage and Handling. On orders over $48 off retail tax.

It’s a dream system for an audiophile. Sonically pure, thunderously powerful, these BSR speakers will make your future listening years an on-going fabulous, if not earthshaking experience.
**$499 Picture In Picture VCR**

You'll be able to watch a movie or a previously recorded TV show and a live show at once. If you watch ball games, you can freeze frame the TV picture in the corner while you keep watching the game, on any of up to 155 channels.

Freeze a football as it's caught on live TV. If you're watching a tape, slow down the action using the digital capability. You'll be able to watch the action from about one frame per second to almost one quarter speed, with digital clarity that will knock your socks off.

And, speaking about speed, if you tape TV shows like I do, simply to watch them later on tape, you'll zip through commercials at an incredible 17 times normal speed.

High speed search on most VCRs is only 5 or 7 times normal speed. So, this is one of my favorite features. Now I can watch an hour show in just about 45 minutes. It's great!

WHERE TO BEGIN

Before we explore all the digital options, let's see what this VCR can do. And, what it can do best is tune stations and play and record cassettes.

It features 155 channel random access frequency synthesized tuning. You won't have to turn any little dials to set up this VCR. And, there are no presets. You get all 155 channel cable and antenna capability all the time.

And, its tuner is so good, I recommend turning your TV to channel 3 and doing all your tuning with the VCR. You'll be amazed at its tuning sensitivity.

If you hate trying to program a VCR to record, you'll love this new wonder from Magnavox. It features ON SCREEN programming that's not only simple, it even has an On Screen help menu to guide you.

So, you'll never have a problem recording any of 7 programs over a 3 week period. Plus, you can record 'Daily' or 'Weekly' programs as well.

By the way, this VCR even has memory backup in case of power failures.

Of course, it has one touch record and all the other extras. But this VCR has so much, let's concentrate on the extras. For example, it has all sorts of graphics in the fluorescent display that show you what it's doing. But, look at this.

There are On Screen displays that show tape operation, speed, channel and even tape counter. Touch a button and you'll see the current day and time.

**THE VCR IS IMPORTANT**

I'm dying to describe all the digital wizardry, but first let's look at the deck. It has 4 heads and HQ, of course. You'll have all the standard controls like Play, Pause and even Frame Advance, etc.

But remember, Pause/Still isn't like other recorders. You get a digital signal that stays stable and sharp.

It's the same type of slow motion and stop action you see on TV when you watch a ball game. Anyway, the slow motion has its own tracking control on the remote, so don't expect ANY snow or noise bars in still or slow motion.

NOW THE DIGITAL FUN

Yes, it's fun. Yes, there's never been any way to do it before. But, you'll also get the best picture and the most convenience features possible with a digital deck. But yes, using it is a blast.

So, what's Picture In Picture? Well, you can actually watch two things at once. If you're watching a prerecorded tape, you can watch live TV in the little window you see in the lower right.

And, you can move the window to any corner of the screen. But, that's just the beginning. You can swap the two pictures back and forth at any time.

Just touch Shift, and the two shows change places instantly. With digital, you can do anything. The sound always stays with the big screen.

If you're watching TV, touch TV/Memo and you'll get an instant still frame in the corner, right off of live TV. Push the button as often as you like.

You'll never lose track of the show you're watching, but you'll be able to stop the action for study. All these digital options are instantaneous and they are instantly repeatable.

I've used the still frame for magic tricks, ball games and news stories where they go on while I'm still studying the picture.

Finally, there's a Video Line In, so you can connect a camera or another VCR to take advantage of the digital effects.

For example, for security you can watch a movie while your camera keeps track of whatever you're protecting. Of course, you can switch it in and out whenever you wish.

Oh yes, if you're watching a movie, you can flip channels on the little screen to choose what you'll watch next. My wife hates me flipping channels, but now she doesn't lose track of what she's watching while I do.

It's new. It's terrific. It's made by Magnavox. And it's backed by their standard limited warranty.

ALL THAT'S DIGITAL FOR $499

Wait till you have digital effects in your home. You'll flip through up to 155 channels. You'll watch two things at once. You'll have instant still frame of live TV. Plus you'll have unbelievable still frame and slow motion from tapes.

If you aren't thrilled by the picture quality, the ease of use and the fabulous digital effects, simply return it in its original box to DAK within 30 days for a courteous refund.

To order Magnavox's new 4 Head Digital VCR with HQ, 155 Channel Frequency Synthesized Tuning, Digital Still, Digital Double Fine Slow Motion, TV Still, Picture In Picture and On Screen Programming all from the Infrared Remote risk free with your credit card, call toll free or send your check for DAK's breakthrough price of just $499 ($14 P&H). Order No. 4948. CA res add tax.

It's a whole new world for your video pleasure. Digital picture quality, effects and reliability will give you years of exciting video opportunities.
A puppy may be man’s best friend. Woof. Woof. . .But, now I’ve got a new friend you can add on to your stereo system. It doesn’t need to be taken on walks, washed or fed. But, it makes a great cocktail table for you when you’re being fed. And, oh what a woof it has.

GREAT SOUND FOR EVERYONE
It’s called a subwoofer. And, normally it is the beloved pet of only the most ardent audiophiles.

It’s not generally understood that it can be used with virtually any speaker system in any stereo. And, in addition to substantially increasing and perfecting the bass response, it has a significant impact on the mid-range clarity too.

Before I tell you exactly how marvelous your stereo will sound when you connect this subwoofer to it, there are two things you should know.

First, you’ll be getting your new friend at a phenomenal price. DAK has sold over 10,000 of Cerwin-Vega’s 12” subwoofers. They had a retail price of $332, but we sold them for $164.90.

Second, your new friend comes complete with a paid up health insurance policy in the form of a 2 year limited warranty from its father, BSR.

By the way, the puppy sitting on top of the subwoofer is the same puppy I used with Cerwin-Vega’s, but wait till you hear what’s under him now. You’ll have BSR’s 15” massive infusion of explosive bass, added to your system for just $99.90.

But don’t be misled. BSR bass is clean and tight, never muddy (intermodulation distortion). It adds a feeling of depth and fullness to your music that you simply can’t get with two or 3-way speaker systems.

HERE’S WHAT IT DOES
Basically, the problem with most speaker systems is that the bass overpowers the system. In a 3-way system, a woofer must handle movements required to reproduce the very low frequencies.

But, it would do a lousy job of reproducing mid-range, which is why, cost aside, manufactures don’t put big voice coils in normal 10” or 12” woofers.

To make the massive movements accurate, this woofer has a very large magnetic structure. This magnetic structure also makes the subwoofer system extremely efficient. (The sensitivity is 91.5 db at 1 watt at 1 meter.)

So, whether you have two or three-way speaker systems, with 8”, 10” 12” or even 15” woofers, you’ll find the sonic improvements staggering.

You’ll hear and feel the awesome effect of thunder rumbling through your home. You’ll hear a depth and dramatic fullness to your music that won’t be heavy but will thrill you with its massive strength.

EASY HOOKUP
It’s easy to connect. Simply run the right and left speaker wires from your amplifier to the input terminals of the subwoofer. It works with any system from 20 to 150 watts per channel.

Then, you simply connect the speaker wires from your two standard 8 ohm stereo speaker systems to the output terminals on the subwoofer. They receive the exact signal that they did before except that everything from 120hz down is routed only to the subwoofer.

Placement of your regular speakers is just as critical as usual for stereo imaging, but the subwoofer can be placed anywhere because low frequency material is totally non-directional.

The subwoofer makes a perfect cocktail or end table. Its rich wood-tone appearance matches any decor. It is 24½” long, 16¼” high and 20” wide.

TRY AUDIOPHILE’S BEST FRIEND RISK FREE
The fullness, richness and depth is awe inspiring. Wait till you connect this subwoofer to your system and experience truly massive force from your music.

If you aren’t 100% satisfied, simply return it to DAK in its original box within 30 days for a courteous refund.

To order BSR’s Thundering Subwoofer with its dramatic 15” Dual Wound Voice Coil Subwoofer risk free with your credit card, call toll free, or send your check for DAK’s breakthrough price of just $99.90 ($14 P&H). Or, No. 4514. CA res add tax.

You can’t replace the love and softness of a warm puppy. But, wait till you experience the richness and depth this subwoofer will add to your bass and the clarity you’ll hear in your mid-range.
Cheap Thrills for $49.90

For just the price of a monaural recorder, look at all the thrills. You'll have an AC/DC portable recorder with high speed dubbing and sequential play, plus AM and FM stereo and much more, for just $49.90. But, there's a catch.

By Drew Kaplan

It's a 2-way, 4 speaker powerhouse of rich stereo sound. Why settle for a monaural portable radio/recorder's sound?

In fact, why settle for just one cassette when you can have uninterrupted music from two cassettes sequentially?

And, while you're enjoying the full, rich, stereo sound, think about the ability to copy stereo cassettes at HIGH SPEED wherever you are. It's yours for just $49.90, but don't forget, there's a catch.

**MANY USES**

Sure, you can copy your friends' tapes. Sure, you can make copies of your own tapes for your car. And, sure, you can copy educational cassettes.

But, at just $49.90, you can use this great sounding portable stereo music center around the house just like a cheap monaural radio/recorder too.

I've had a monaural radio/cassette recorder for years. I use it to listen to the morning news while I shower and shave.

And when you're outside, just push the Loudness Contour button and you'll hear the tape explode with power to fill the entire outdoors.

**LOOK AT IT ALL DOES**

From your first touch, you'll feel the quality of this AC/DC portable stereo music center with its 4 speaker 2-way sound and electronic high speed dubbing.

Just put recorded cassettes into both decks. You can play the tapes sequentially by pressing both play buttons. When one deck is finished, it will shut off and the other will automatically begin.

If you want to copy a tape, simply put the tape you want to copy in 'Deck A' and a blank cassette into 'Deck B'.

You can copy cassettes while operating from AC (cord included), or from standard 'D' batteries (not included). So, you can have great musical sounds or make copies wherever you are.

A note about Dolby®. If you have a tape recorded with Dolby, you can play it on this deck and the copy will still be recorded in Dolby. If you simply play a tape that's been recorded in Dolby, it will sound brighter than normal because Dolby boosts the highs in the recording.

In fact, many people record cassettes in Dolby to play through their high-end stereo receivers. Dolby's mono switch will do the job. But, of course, you can record from the built-in AM or FM stereo tuners, and the built-in condenser microphone.

If you sing, there's front panel mixing and a mike input. Just plug-in your own mike and you can add your voice to any tape you are recording. Plus, there are two standard mike inputs as well.

And, wait till you hear the FM stereo reception. There's a stereo/mono switch to remind you of just how much more exciting this stereo is than your old mono radio/cassette recorder.

And, with the AM radio tuner, you'll never be without news. For, there's a CD 'Aux' jack. It's made by Emerson and backed by their limited warranty.

A SIMPLY PERFECT CATCH

What could go better with a high speed dubbing machine than 10 DAK 90 minute Gold Label cassettes? And, selling you this duplicator is a clever ploy to sell you more cassettes in the future as well.

We make a cassette with great sound and no problems. We want you to try DAK's Gold Label MXLA high energy normal bias or high bias cassettes.

Don't pay $44.90 or even $35.90 for your cassettes. Buy factory direct for just $24.90 for DAK MLX normal bias or $29.90 for MLX2 high bias 90 minute cassettes.

We challenge you to compare the frequency response, dynamic range, and signal to noise ratio of our Gold Label MXL to Maxell or TDK cassettes.

DAK's normal bias cassettes have a frequency response to 19,500Hz and our high bias to 21,000Hz. Both come with a hard plastic box, an index insert card and a limited 1 year warrant.

WHY, YOU MAY BE ASKING?

Obviously, we're losing our shirts on the portable music center. But, you're very valuable to us in the form of future business. Over 1,000,000 people like you have responded to our bonuses.

We find that once you've tried our products, most of you keep buying from DAK, and that's a worthwhile gamble.

TRY DAK MLX & MLX2 CASSETTES AND GET THRILLS CHEAP

Wait till you hear the stereo. Wait till you duplicate some tapes. And, wait till you sit back and enjoy uninterrupted music from sequentially played tapes.

To get the portable stereo music center for just $49.90, try 10 MLX or MLX2 cassettes. If you aren't 100% satisfied, return only 9 of the 10 cassettes and the portable stereo in its original box within 30 days for a refund. The 10th cassette is a gift for your time.

To order your 10 Gold Label DAK 90 minute cassettes and get Emerson's Dual Cassette, High Speed Dubbing, AC/DC Portable Music Center with FM stereo and AM, call toll free or send your check for just $24.90 for the MLX90 cassettes plus $49.90 for the stereo and $7 for P&H. Order No. 4910. CA res add sales tax.

If you prefer our MLX2 high bias 90 minute cassettes, send just $26.90 for the 10 tapes, plus $49.90 for the stereo and $7 for P&H Order No. 4911.

Increase your tape library and enjoy great sounding music wherever you are. DAK MLX and a $49.90 dual cassette music center make it time to stock up.
Orchestral ChordMaker Plus

Here's an entire instrumental group to fulfill your every musical need. Whether you’re a pianist, an organist or a singer, even if you’ve never played before, you’ll be creating beautiful music. And, wait till you pick up the bonus drum sticks.

By Drew Kaplan

It’s chopsticks time in musicland. Now you can play any of 12 totally different instruments, and have 12 different rhythm sections backing you up automatically.

And what if you don’t play? Well, if you sing, this incredible new chordmaker will combine auto-rhythm with your choice of chords to accompany you.

It’s amazing. It’s like having a skilled band backing you up. If you want to sing in the key of G, just touch G, and let the concert begin.

GREAT SOUNDS

You’ll hear your music through powerful twin built-in speakers. Or, connect this keyboard to your stereo system. Wait till you hear the power of a pipe organ in your living room. It’s awesome.

Just touch a button and this keyboard accurately reproduces the sounds of the following 12 instruments and rhythms: Piano, vibraphone, jazz organ, violin, trumpet, funky clavichord, electric piano, electric guitar, pipe organ, human voice, flute and synthesizer sound. The rhythms are rock 1, pops, disco, swing, samba, march, rock 2, reggae, 16 beat, slow rock, bossa nova and waltz.

The sound is so real that when you touch violin, you can actually hear the bow move across the string.

So, even if you can only play with one finger, you can record about 500 notes in this keyboard’s real time memory, or hook it up to your stereo and send your creations off to Carnegie Hall.

There are 12 basic rhythm beats, but you’ll also have 5 automatic ‘Super Drums’, each with 3 variable effects for a total of 2,916 possible variations.

Plus, the rhythm is controlled by infinitely variable electronic tempo controls.

There’s even an Intro./Fill-In Button and an Automatic End Button.

This may all sound complicated, but just switch on the keyboard and start playing. It’s all really easy to use.

In fact, it’s mostly automated for you. Or, you can take control anytime you like.

You’ll have a full 3 octave 49 key range.

And for chords, this keyboard is 8-note polyphonic which means you can press more than one key at a time.

Special note: Like a studic mixer, you’ll have individual level control of the accompaniment volume, rhythm volume and main volume. So, you’re in complete control of this superb musical system.

AUTO-ACCOMPANIMENT

This isn’t the first keyboard I’ve seen, although it’s certainly the best I’ve used. But I think what really sets it apart is the auto-accompaniment.

It combines rhythm and the cords you choose to accompany you when you or a group sings.

It’s like strumming chords on a guitar without ever having to learn how to play, and adding in a rhythm section too. Wow!

But if you’re a professional musician, you’ll love the freedom to play any instrument anywhere you are. It operates on 6 AA batteries (included).

And, it even shuts itself off if you haven’t used it for 6 minutes. It’s a full 26” wide, 7¾” deep and 2½” tall. It weighs just 8 pounds, including batteries. It’s made by Casio and backed by their standard limited warranty.

A COMPLETE ORCHESTRA RISK FREE

Put your fingers on the full sized keyboard. Play through the 3 full octaves. Choose your favorite voices. Then add in the incredible auto-accompaniment and auto-rhythm.

When you sit down at this keyboard, you’ll be playing full rich vibrant instruments. It’s great for soloists or for accompaniment. It’s so easy to use because it’s so incredibly sophisticated.

If you’re not 100% satisfied, simply return it in its original box to DAK within 30 days for a courteous refund.

To order Casio’s 3 Octave Full Size Electronic Keyboard with 12 Incredibly Accurate Instruments, 12 Separate Rhythms with 2916 Variations, Recording Capabilities and the incredible Chording Auto- Accompaniment Function, call toll free, or send your check for DAK’s market breaking price (suggested retail is $199) of just $129²⁹ for $7 P&H. Order No. 4895. CA res add tax.

Super FREE Bonus: Pick up the incredible electronic Casio Drum Sticks. You can add any of 8 drum sounds.

The sound is electronic. You can shake them in the air or hit any object. You’ll be amazed. So, you can now have a complete drum section in your hands.

The sticks are normally a $50 suggested retail option. DAK will include them absolutely free when you purchase the keyboard at our breakthrough price.

NOTE: None of the rhythm capabilities described with the keyboard include what you’ll be able to do with these incredible electronic drum sticks.

You’ll be the hit of any party, even your own, with this phenomenal group of musical instruments from Casio.

DAK INDUSTRIES

For Toll Free Information, Call 6AM-5PM Monday-Friday PST

Technical Information...1-800-272-3200

Any Other Inquiries...1-800-423-3066

DAK 100

8200 Remmet Ave., Canoga Park, CA 91304

CASIO
Come to where the flavor is.

SURGEON GENERAL’S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.

16 mg "tar" 1.0 mg nicotine av per cigarette. FTC Report Feb '85
THE AMPLIFIER THAT CHANGES
THE MEANING OF THE WORDS
"PEAK PERFORMANCE
IN AN AUTOMOBILE".

With our new Phase Linear PLT 150 Turbo amplifier, the mere act of sitting in your car can become an exhilarating experience.

Because we build into each one the uncanny ability to boost its power, and sustain that power, during those crucial moments when your music makes inordinate demands on your stereo system.

Thus, the Turbo ensures that every musical peak, every rousing crescendo, comes through flawlessly.

A reservoir of energy on which it can instantly draw, in times of need, to swell from a normal 30 Watts per Channel to an awesome 150 Watts per Channel.

And because our amp sustains this burst of power 25 times longer than the industry standard, it produces a truer sound than any amplifier in its class.

Even truer than larger, costlier amps that depend totally on their brawn for lack of our turbocharged brain.

Our Turbo amp increases your car's dynamic headroom.

Our new Turbo amp achieves its power boost—its dynamic headroom—with what we call a "smart" power supply.

To be bridgeable with the flick of a switch. In this monobridged mode each amp then produces a significantly beefed up 90 Watts RMS, 180 Watts Peak, to one speaker through one channel. Supplying you not only with a tremendous source of power, but tremendous proof that the only thing better than one PLT Turbo amp is two of them.

Our Turbo amp increases your car's dynamic headroom.

AN AMP THIS POWERFUL DESERVES A STRONG SPEAKER.

Luckily, at Phase Linear we build speakers rugged enough to handle the power of our amps.

Our Phase Linear Graphite speakers.

Each one, built with rigid graphite cones, responds more quickly and accurately than paper cone models to intense fluctuations in peak performance music. And because they tend to "break up" less at higher volumes, you can blast away all day without the slightest hint of distortion.

So if you've been thinking of buying a car stereo amp, we suggest you try our new PLT 150 Turbo. It may not help the way your car drives. But with the right equipment, it will definitely get you going.

Making the best of sound technology.
A few years ago, some manufacturers combined a stereo receiver with a cassette deck and called the resulting hybrid component a "casceiver." Encouraged by the rapid growth of the compact disc market, Sharp has now announced what is possibly the first combination of a full-featured stereo receiver and a CD player—the SA-CD800 CD Ver (pronounced "see-dee-ver").

Unlike casceivers, which were aimed at a broad, nonhobbyist market, the Sharp CDVer is a highly versatile and relatively high-priced component suitable for use in a good home entertainment system. It comes with a wireless remote control that duplicates virtually all of the control functions of the tuner, amplifier, and CD sections.

The amplifier is rated to deliver 100 watts per channel into 8-ohm loads from 40 to 20,000 Hz with no more than 0.5 percent total harmonic distortion. Instead of conventional tone controls, there is a seven-band graphic equalizer and a real-time spectrum analyzer. In addition to the usual phono-input and tape-input/output facilities, there are connections for two VCR's. Front-panel switches are provided for their video and audio programs, and there is a video-monitor output. Either or both of the video circuits can be used for an audio tape deck instead of a VCR.

The CD portion of the SA-CD800 is an unusual multidisc player that uses Sharp's exclusive "5+1" six-disc magazine. Individual swing-out trays hold five of the six discs, and the lowest disc (identified as No.1) fits into a slide-out drawer in the magazine, which is loaded by pushing it into a slot on the CD Ver's panel and released by pressing a button on the panel. A second button slides out just the bottom drawer for single-disc play (it must be closed manually).

The CD player itself has all of the usual features, including track skipping and high-speed search with audible program. It can be programmed to play any tracks on the discs loaded into its magazine in any sequence of up to thirty-two steps, each of which can consist of one track on a disc, an entire disc, or a pause. The repeat mode indefinitely replays all tracks on all discs in the magazine or any programmed sequence. The random mode plays all the selections in the magazine in a random sequence of discs and tracks. In the programmed mode, it is possible to put a sequence on hold and play another selection by pressing the RESERVE button.
The Sharp SA-CD800 is a large, moderately heavy receiver. It measures 17 inches wide, 15¾ inches...
Your audio-video system should be a reflection of your lifestyle. That's why you'll want the ultimate in picture, sound and design.

Introducing Proton’s new AV27 audio-video system.

At the heart of the system is our superb, remote-controlled 300 Series audio components with exclusive Dynamic Power on Demand™ (DPD™). Since its introduction, DPD has received the highest acclaim. It does what no other technological innovation has for CD, other digital recordings, or hi-fi video listening pleasure. DPD boosts the amp’s output up to four times its rated power, to let you hear even the highest musical peaks clearly, without distortion.

When you put the 300 Series together with our new matching speakers, you'll have a combination that sounds as extraordinary as it looks. And, it's the perfect complement to Proton's stunning new 27" flat screen stereo monitor/receiver.

The Proton AV27 audio-video system. Once you own it, you'll know you've arrived.

The ultimate audio/video guide is yours free for the asking.

Proton’s Ultimate System Guide for Audio/Videophiles tells you everything about the innovative technology and design that go into creating the renowned Proton line.

For your copy, which includes a list of the Proton retailers near you, call (800) 772-0172.
In California, (800) 428-1006.
The RIAA phono-equalization error was less than 0.05 dB from 70 to 6,000 Hz, decreasing to -1.2 dB at 20 Hz and -1 dB at 20,000 Hz. The frequency response through a high-level input was down 1 dB at 80 and 20,000 Hz, -2.5 dB at 20 Hz. The graphic equalizer had a range of +6.5, -9 dB in each of its bands, the center frequencies of which were approximately as specified.

The FM tuner had a usable sensitivity of 14.3 dBf (2.9 μV). The 50-dB quieting sensitivity was 15.5 dBf (3.3 μV) in mono and 29 dBf (15.5 μV) in stereo. The tuner’s distortion was lower in stereo than in mono (0.22 percent versus 0.47 percent), but the mono noise level of -73.5 dB was better than the stereo noise level of -70.8 dB. The tuner (and CD) measurements were made at the tape-output terminals, eliminating any possible effects from the main audio amplifiers. We noted a synthesizer frequency error of 20 to 30 kHz; setting the signal generator to the actual tuner frequency resulted in slight improvement in usable sensitivity and cut the mono distortion in half, making it approximately the same as the stereo measurements.

The FM frequency response was flat within 0.5 dB from 30 to 10,000 Hz and down 2.5 dB at 15,000 Hz. Stereo channel separation was quite uniform, about 32.5 dB from 20 to 7,000 Hz and 29 dB at 30 and 15,000 Hz. The AM tuner section had a typically restricted frequency response, within 5, -6 dB from 45 through 2,100 Hz.

The AM player’s frequency response was +0.25, -0.15 dB from 20 to 18,000 Hz, dropping sharply to about -1.5 dB at 20,000 Hz. Its distortion was 0.007 percent at a 0-dB level and increased to 0.014 percent at -10 dB and 0.037 percent at -20 dB. The signal-to-noise ratio and dynamic range were each 96 dB. The channel separation decreased from 70 dB at 1,000 Hz to 46 dB at 20,000 Hz. Interchannel phase shift reached 50 degrees at 20,000 Hz, suggesting the use of double oversampling and a digital-to-analog (D/A) converter multiplexed between the two channels. The square-wave response was characteristic of digital filtering, with an added overshoot and asymmetry that were probably caused by the analog filter section.

The low-level errors in the D/A converter were greater than we have previously measured from a CD player, though their audible effect was negligible. The error at -70 dB was a reasonable -2.4 dB, but the -80-dB conversion step apparently was not functioning (its output error was about -12 dB). The -90-dB level from the test disc actually produced a higher output than the -80-dB level!

The slewing time of the laser pick-up was about average, taking 3 seconds to move from Track 1 to Track 15 of the Philips TS4 sampler test disc. The cueing from Track 17 to Track 18 was accurate, and the player tracked all the calibrated defects on the Philips TS5A test disc. Probably because the CDVer’s top cover was made of light-gauge, unbraced sheet metal, it flexed easily when rapped and contributed to the CD player’s C grade for resistance to top impacts (it earned a good B grade for side impacts).

Comments

For the most part our measurements came close to the values specified for the SA-CD800 in its instruction manual. Clearly, this product was not intended for the perfectionist or high-end enthusiast, but it is certainly capable of delivering excellent performance in a large majority of home music systems.

The convenience of this all-in-one music system, minimizing the multitude of cables typical of separate-component hi-fi installations and including a highly versatile CD player, is undeniable. Although we...
did not use the CDver with video components, we did check out all its audio functions, and everything worked just as it was meant to. The CD changer, in particular, operated flawlessly, and in its random mode it could supply high-quality background music for many hours without noticeable repetition. Like every other multidisc CD changer we have used, it emitted audible mechanical sounds when switching between discs, but it was otherwise quiet. The single-play drawer was very convenient to use as it does not require replacing the multiday magazine with a separate single-play magazine or an adaptor.

We do have some criticisms of the SA-CD800's ergonomic design, however. The array of equal-size buttons along the full width of the front panel sometimes required a careful search before performing what would be a routine operation on any separate component. The smaller buttons immediately above the large ones look more like labels than controls, so we frequently found ourselves pushing the wrong button by mistake. For example, it is all too easy to select another CD instead of another track on the current disc or to start a scan of the FM band when trying to select a preset station. These problems are nothing that a little practice (and reading the instruction manual) will not cure, but they can be mildly annoying.

Anyone who is inclined to view the SA-CD800 as merely another "lo-fi" product masquerading as a true hi-fi component should examine its measurable performance (Sharp's specifications and our test results are pretty much the same), pick it up to feel its weight, and, most important, listen to it in operation. Even if many of its performance figures do not push the current limits of the art, they are more than sufficient to establish its hi-fi credentials. It also passed our amplifier tests without a hitch and without even getting too warm to rest your hand on. How many mass-market receivers can deliver an honest 100-plus watts per channel to almost any speaker? All in all, this Sharp CDver seems to be a product with genuine value despite its strange name!

Circle 143 on reader service card

---

**Pinnacle PN5+ Speaker System**

*Julian Hirsch, Hirsch-Houck Laboratories*

The Pinnacle PN5+ is a miniature bookshelf loudspeaker that employs a proprietary Diaduct port design to extend its bass response. The optimum duct length and port diameter for a given bass response are critically related to the bass driver's characteristics and the enclosure's volume. According to Pinnacle, the use of an angled duct tube terminating in an oval port on the rear panel permits a bass response not otherwise obtainable in a fourth-order vented enclosure of the PN5+'s size using the same drivers. The PN5+’s cabinet depth from speakerboard to the slightly recessed rear panel is only 6 inches, which obviously could not accommodate the required 6-inch-long duct in a conventional design. Angling the 1 1/2-inch-diameter tube at 40 degrees to the rear panel enables its length to be increased without obstructing the internal duct opening and the external port to be increased to a 1 1/2 x 2 3/4-inch oval.

The PN5+ is a two-way system whose driver complement consists of a 5 1/4-inch polycarbonate-cone woofer and a 3/4-inch polycarbonate-dome tweeter cooled and damped with ferrofluid. The crossover frequency is 5,000 Hz, and the rated frequency response is 50 to 21,000 Hz.
AKAI'S QUICK START:
THE MOST SIGNIFICANT ADVANCEMENT IN TAPE HANDLING SINCE THE VHS CASSETTE.

Today's VHS cassettes may give you eight hours of programs. But today's VHS decks make locating those programs a real bore. That's because conventional decks must slowly thread the tape around the head drum every time you go from Fast Forward or Rewind into Play. And slowly pull the tape back into the cassette whenever you return to Fast Forward or Rewind.

Of course, most VCRs have visible scan. But can you imagine scanning through a two-hour movie? Pass the aspirin. Akai's exclusive Quick Start system gives you fast, fast, fast relief. For the first time, the VHS tape remains fully threaded—even during Fast Forward and Rewind. So switching between functions is more than five times faster than conventional VHS decks.

There's more. To make locating programs even easier, Akai searches and scans recorded segments automatically. Best of all, this revolution in tape handling is found not just on our top model—but on every new Akai VCR.

Sound great? Seem simple? Wonder why no one ever did it before?

WHY IT TOOK AKAI TO PERFECT VHS TAPE HANDLING.

Simply stated, Akai has been building tape recorders for over 35 years. And what is a VCR if not a tape recorder? People may forget that it
was Akai that built the first home video tape recorder in 1965 and the first lightweight helical-scan portable video tape recorder in 1969. Compared to Akai, even the biggest names in video recording seem like “Johnnies-come-lately.”

To invent Quick Start, Akai invented a completely new tape transport with better tape tension control, more precise guide poles and specially conductive fine ceramic tape guides. The entire transport is under the intelligent control of a micro-processor that only years of tape deck experience could develop. The Akai Quick Start Transport. Sure it’s simple…when you know how.

**AT AKAI, SOPHISTICATION MEANS SIMPLICITY**

Akai, a leader in on-screen programming, now takes ease-of-operation one step further. On our new decks, most programming functions require no more than one touch. Nothing *could* be simpler.

Or more sophisticated. Take Akai’s new top-of-the-line VS-M930U-B. It offers digital special effects with memory; VHS Hi-Fi stereo; four heads; HQ circuitry with CCD noise reduction; editing; universal wireless remote control with LCD readout; on-screen programming and naturally, Akai’s Quick Start system with Index and Address Search, as well as Intro Scan. Not just bells and whistles, but features any serious recordist would deem essential.

Akai. Original thinking from a true original.
and a 9-dB dip to the minimum at 1,300 Hz.

The quasi-anechoic response measurements made with our IQS FFT analyzer confirmed most of the room measurements, showing a moderate number of irregularities and an overall variation of about ±5 dB from below 100 Hz to almost 20,000 Hz. The horizontal dispersion was good, the response curves on-axis and 45 degrees off-axis diverging only above 10,000 Hz. The group-delay variation was only ±0.2 millisecond from 500 to 18,000 Hz.

The system's impedance reached only 11⅛ inches high, 6¾ inches wide, and 7 inches deep including the removable black cloth grille. It is solidly constructed of half-inch particle board covered in walnut-grain vinyl veneer. Weight is 8¼ pounds. The spring-loaded terminals, which accept the stripped ends of the speaker wires, are recessed slightly into the back of the cabinet.

The speaker is recommended for use with amplifiers delivering between 10 and 50 watts per channel. Price: $149 a pair. Pinnacle, Dept. SR, Inter-Ego Systems Inc., 517 Rt. 111, Hauppauge, NY 11788.

Lab Tests

The averaged room response of the Pinnacle PN5+ speakers was relatively smooth, with less than the usual amount of low-frequency room interaction, possibly because of their inherently limited low-bass response. We mounted the speakers on pedestals about 26 inches from the floor and well away from any walls for our measurements. The most obvious feature of the response curve was a midrange depression, the output in the 1,000- to 2,000-Hz range being about 5 dB less than at lower and higher frequencies. Of course, the same characteristic could also be interpreted, subjectively, as a slightly emphasized bass and treble response relative to the midrange reference level. The output also rose at the highest frequencies; the octave from 10,000 to 20,000 Hz was about 5 dB higher in level than any other portion of the audio spectrum.

The close-miked woofer response reached its maximum at 130 Hz, falling off at 18 dB per octave at lower frequencies and at 6 dB per octave at higher frequencies. The effective crossover from the woofer's cone to its port radiation was at 80 Hz. When we spliced the woofer curve to the room curve, the resulting composite frequency-response plot had a swaybacked shape. There were approximately equal maximum outputs at 130 and 15,000 Hz.

At lower levels the sound character of the PN5+ system was amazingly close to that of our reference speakers, which cost nearly twenty times as much.

The PN5+ simply did not sound like a minispeaker. It had a smooth spectral balance, without boom or sizzle, and certainly without a seriously depressed midrange. As might be expected, the speakers could not be played at very high levels without sounding strained, but at lower levels their sound character was amazingly close to that of our reference speakers, which cost nearly twenty times as much!

I am not saying that the PN5+'s soundings like our reference speakers, since they could not produce really low bass (below 50 Hz) at any usable level. But their octave-to-octave energy balance from, say, 100 to 10,000 Hz was closer to the balance of our reference speakers than has been that of many other speakers we have tested over the years.

We also placed the PN5+ speakers on a low shelf a couple of inches from the wall, with very similar results. Their imaging and general sense of space were best in a free-standing position, but they were relatively insensitive to room placement. Wherever situated, they also conveyed an impression of bass response an octave or so lower than if they could really deliver. This effect may well have been a benefit of the relatively high harmonic distortion from the small woofer in the range below 100 Hz. Distortion consisting mostly of second and third harmonics can give an artificial sense of lower bass when only the harmonics, not the fundamentals, are present (in reasonable amounts).

In any event, no one would choose these speakers as part of a primary music system with the expectation that they could reproduce the full audible spectrum, though I imagine a pair would make fine satellite speakers along with a subwoofer. According to Pinnacle, "The... sound of the PN5+ is often mistaken for that of a much larger, more costly speaker." and our experience confirmed that claim. Quite remarkable from a box displacing about one-sixth of a cubic foot!

Circle 144 on reader service card
A Sound Argument
For Receivers That
Cost Less Than They Did
Nearly 30 Years Ago.

Suggested retail price (1963) $374.50.
S-7700 II AM/FM Receiver. 36 watts RMS per channel. Analog flywheel tuning. 21 tubes, 16 diodes.

Suggested retail price (1988) $199.95.
S-2730 CP AM/FM Receiver. 35 watts RMS per channel. Computer-controlled MOS-FET tuner with 16 memories and digital readout. Inputs for video sound and compact disc.

In the early 1960s, Sherwood introduced stereo receivers that cost almost one-third as much as some new cars did.

But thousands of people were willing to pay the price, because Sherwood added a touch of realism to sound that had never been heard before.

By today’s standards, however, that original Sherwood, good as it was, is almost as antiquated as the Edison Gramophone.

In today’s Sherwood receiver you get computerized tuning that automatically adjusts itself for drift-free accuracy. You get a MOS-FET front end for higher sensitivity with less noise.

You get balanced mixers, so weak stations sound clear and strong ones don’t overload. You get a heavy-duty, high A/B class amplifier and symmetrical multiplex filters to deliver sound as clean and clear as a live performance.

You even get video sound inputs, so you can turn your living or family room into a complete home audio/video theater with four-speaker surround sound.

Yet, a Sherwood receiver today costs less than it did 30 years ago. We don’t build ‘em like we used to, for which your ears and your bank account will be eternally grateful.

Sherwood
LIVE PERFORMANCE SOUND
©1988 Inkel Corporation, 13845 Artesia Blvd. Cerritos, CA 90701
CIRCLE NO. 18 ON READER SERVICE CARD
FEELIN’ GROOVY
HEAD-TO-HEAD LAB AND LISTENING TESTS
OF FIVE LEADING PHONO CARTRIDGES
BY JULIAN HIRSCH

Contrary to a popular belief, those familiar black-vinyl discs and the equipment needed to play them are not yet obsolete. To illustrate that fact, we tested five phono cartridges introduced in the era of the compact disc. Including two moving-magnet (MM) cartridges, two high-output moving-coil (MC) cartridges, and one low-output MC cartridge, they represent a fair cross section of cartridge-design philosophies. Their list prices range from $115 to $1,250, spanning all hi-fi budget classes from the "basic" category to the true high-end enthusiast’s dream.

The results of our tests may surprise some readers, and no doubt they will anger others. They indicate, for example, that there is no clear relationship between price and performance—something we have found to be equally true for most other audio products. Read on, and judge for yourself.

**DENON DL-160**

The Denon DL-160 ($115) is a high-output moving-coil cartridge designed to be connected directly to the phono input of any amplifier without using a step-up transformer or head amplifier. The winding resistance of the coils is 160 ohms per channel, but the cartridge load is specified as 47,000 ohms or greater. Like most moving-coil cartridges, the DL-160 does not have a user-replaceable stylus. Its rated output is 1.6 millivolts (mv), and the recommended tracking force is 1.3 to 1.9 grams. The diamond stylus tip has a rectangular cross section and a special elliptical shape.

The DL-160 is housed in a black, molded-plastic case with an integral hinged stylus guard. The relatively low total cartridge weight of 4.8 grams is within the adjustment range of most tonearms (ours balanced with its counterweight nearly all the way forward). An extra metal weight is supplied that, when mounted between the cartridge and the headshell, will allow it to be balanced in almost any arm. The supplied overhang-adjustment gauge contains a magnifying section for stylus inspection, and a stylus cleaning brush is also supplied.

**AUDIO-TECHNICA AT160ML**

The Audio-Technica AT160ML ($295) heads the company’s Vector-Aligned series of phono cartridges. It is a moving-magnet cartridge whose replaceable stylus assembly also carries a hinged stylus guard. The recommended tracking-force range is from 0.8 to 1.8 grams, and the cartridge’s rated tracking ability is 90 micrometers at the center value of 1.3 grams, which we used for our tests. The rated output is 5 mv at a lateral velocity of 5 centimeters per second (equivalent to 3.54 cm/s in each stereo channel).

The "Vector-Aligned" nomenclature refers to the angular alignment of the two tiny magnets mounted on the stylus cantilever near its pivot. The V formed by the magnets closely conforms to the angle between the two walls of a record groove so that each magnet will generate an output only in the coil winding for its channel, with a minimum of crosstalk into the other channel. The AT160ML’s gold-plated beryllium cantilever, only 0.3 millimeter in diameter, is both rigid and light. The manufacturer claims that the gold plating damps any resonance in the beryllium.

The Microline stylus shape used in this cartridge is said to approximate the shape of a cutting stylus more closely than any previous design and therefore to produce better high-frequency response with less wear and distortion. The fixed coils, which Audio-Technica calls a “Paratoroidal Signal Generator,” are wound on a laminated core and are said to have higher efficiency and less high-frequency loss than conventional cartridge coils. A magnetic shield between the coils minimizes crosstalk between channels.

The gold-colored cartridge body is relatively bulky and massive, with a thick metal casting on top (the mounting surface) and a metal shield enclosing the coils. At 8.1 grams, the AT160ML was the heaviest cartridge in the group. Balancing it in our test tonearm required the counterweight to be extended to the extreme rear of the arm.
## LABORATORY MEASUREMENTS

<table>
<thead>
<tr>
<th></th>
<th><strong>DENON DL-160</strong> ($115)</th>
<th><strong>AUDIO-TECHNICA AT-160ML</strong> ($295)</th>
<th><strong>ORTOFON XS-MC</strong> ($300)</th>
<th><strong>SIGNET MR6.0ml</strong> ($350)</th>
<th><strong>KISKEI Purpleheart</strong> ($1,240)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output (mV)</strong></td>
<td>2.99</td>
<td>5.0</td>
<td>2.34</td>
<td>3.75</td>
<td>0.272</td>
</tr>
<tr>
<td><strong>Channel imbalance (dB)</strong></td>
<td>0.35</td>
<td>0.7</td>
<td>0.6</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Vertical stylus angle (degrees)</strong></td>
<td>26</td>
<td>18</td>
<td>22</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td><strong>Low-frequency resonance (Hz)</strong></td>
<td>8-10</td>
<td>6-7</td>
<td>11</td>
<td>6</td>
<td>8-9</td>
</tr>
<tr>
<td><strong>Frequency-response deviation (dB) from 1,000 to 20,000 Hz</strong></td>
<td>+2, -0</td>
<td>+1, -2.5</td>
<td>+3, -0</td>
<td>+3, -2</td>
<td>±0.5</td>
</tr>
<tr>
<td><strong>Channel separation (dB)</strong></td>
<td>25</td>
<td>26+</td>
<td>30+</td>
<td>25</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>Weight (grams)</strong></td>
<td>4.8</td>
<td>8.1</td>
<td>4.1</td>
<td>6.0</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Tracking ability at 315 Hz (highest level tracked, in micrometers)</strong></td>
<td>60*</td>
<td>90</td>
<td>80</td>
<td>90</td>
<td>60</td>
</tr>
</tbody>
</table>

*Tracked 70-micrometer level with maximum recommended tracking force.

### Graphs

- **DENON DL-160**
- **AUDIO-TECHNICA AT-160ML**
- **ORTOFON XS-MC**
- **SIGNET MR6.0ml**
- **KISKEI Purpleheart**

**Frequency in Hertz:**

20 50 100 150 200
TEST PROCEDURES

We tested all of the cartridges in the same JVC QL-F6 turntable. Except for the Audio-Technica, which we tested in its supplied headshell, we used identical plug-in shells to facilitate interchanging the cartridges in the tonearm of the QL-F6. Each cartridge was positioned in its shell for the correct overhang (minimum horizontal tracking angle error). The couple of minutes required to change shells and rebalance the arm for each cartridge made A/B listening tests impractical. Extended individual listening tests were performed instead, using a wide variety of records.

Each cartridge was operated at its recommended optimal tracking force. The termination was 47,000 ohms in parallel with a 130-µfarad capacitance, near the middle of the recommended capacitance range for each cartridge. In the case of the Kiseki Purpleheart, whose manufacturer suggests a load between 5 and 50 ohms, we also measured its response into 15 ohms.

The frequency-response test record was the JVC TRS-1007, which has sine-wave tones sweeping from 20 to 20,000 Hz. This record range was made for each cartridge. The in the case of the Kiseki Purpleheart, whose manufacturer suggests a load between 5 and 50 ohms, we also measured its response into 15 ohms.

The frequency-response test record was the JVC TRS-1007, which has sine-wave tones sweeping from 20 to 20,000 Hz. This record range was made for each cartridge. The frequency-response test record was the JVC TRS-1007, which has sine-wave tones sweeping from 20 to 20,000 Hz. This record range was made for each cartridge.

We measured the low-frequency tone-arm/cartridge resonance for each cartridge. The JVC QL-F6's arm is a typical J-shaped tubular model with an effective mass, referred to the stylus position, of about 17 grams. This mass is roughly in the range of many popular tonearms, so the frequency and amplitude of the arm's resonance with a cartridge installed provide a rough indication of the cartridge's compatibility with a typical medium-mass tonearm.

The resonant frequency was determined with the aid of an NAD T/MP-02 test record having vertically recorded high-level tones at intervals of 1 Hz from 5 to 15 Hz. As the resonant frequency was approached, the arm would begin to oscillate visibly, reaching its maximum oscillation at the approximate resonance point. With some cartridges, the resonance was damped and the actual frequency became difficult to identify. In those cases, we established the frequency range in which the arm vibrated visibly.

The AT160ML comes with several useful installation and alignment aids. For our tests, we used the thick-walled, plastic universal mounting shell provided by Audio-Technica. It proved markedly superior to the light, perforated-metal headshells we used for the other cartridges, resulting in a notable absence of resonant "glitches" in the cartridge's response at frequencies below 500 Hz. Because the headshell and tonearm always play a large role in a cartridge's measured response below 1,000 Hz, we did not consider this part of the range in comparing the response of the five cartridges in this test.

ORTOFON X5-MC

Ortofon's X5-MC ($300) is a high-output moving-coil cartridge rated to deliver more than 2 mV output at a lateral stylus velocity of 5 cm/s. The coil windings have a resistance of 75 ohms per channel but are intended to operate into a standard phono-preamplifier input of 47,000 ohms. The X5-MC's body and generating system are similar to those of the less expensive Ortofon X3-MC reviewed here in March 1987. Each of its tiny coils (two per channel) contains 230 turns of microscopically fine wire, and they are surrounded by a powerful, focused magnetic field that makes its high output possible.

The principal difference between the X5-MC and the X3-MC is in their stylus shapes. While the X3-MC, like most other high-quality cartridges, has an extended line-contact stylus, the X5-MC has a Fritz Gyger (FG2) stylus whose shape closely approximates that of a cutting stylus. It has a flat front (leading) face, and the sides that are in contact with the groove walls have very narrow edges. The angle between the contact sides matches that between the groove walls, and the contact surfaces extend down to the bottom of the groove, enabling the stylus to follow high-frequency modulations more accurately even on worn records. According to Ortofon, the FG2 is the same stylus used on its top-of-the-line MC3000, a $1,500 cartridge.

The X5-MC, the lightest of the group at only 4.1 grams, balanced in our arm with the counterweight close to its extreme forward position. The cartridge body, molded of red plastic, has none of the cosmetic
ornamentation found on many other cartridges. Its stylus guard is not integral but slides on and off the body easily. The stylus is not user-replaceable.

**SIGNET MR5.0ml**

The Signet MR5.0ml ($350) moving-magnet cartridge is hand assembled under laboratory conditions. Its two tiny magnets are mounted at 45-degree angles to the record surface, perpendicular to the walls of the record groove. Signet's UniCore coil system does away with internal connections; each pair of coils is wound with a single length of wire, both ends of which go directly to the output terminals. The pole pieces are integral with the cores, eliminating unnecessary magnetic losses, and are laminated to reduce eddy currents and improve high-frequency performance.

The "MR" in the model name indicates that the 5.0ml is part of Signet’s Maximum Resolution series of cartridges in which all the wire is made of linear-crystal oxygen-free copper (LC-OFCC). According to the manufacturer, the use of LC-OFCC wire reduces the crystal junction points by a factor of 25 compared with the previously used OFC wire, resulting in improved sonic resolution.

The MR5.0ml's gold-plated beryllium cantilever is tipped with a Microline diamond stylus. The highly refined line-contact shape is designed to make contact with the groove walls from top to bottom for improved high-frequency response and reduced record wear. The rest of the diamond tip is cut away so that only the Microline ridges touch the record. The square-shank diamond is node-mounted in a laser-drilled hole at the end of the cantilever. The rated output of the Signet MR5.0ml is 5 mV at a velocity of 5 cm/s. Its recommended tracking-force range is 0.8 to 1.8 grams. We operated it at the center value, 1.3 grams.

**KISEKI PURPLEHEART**

The Kiseki Purpleheart ($1,240) is a classic low-output moving-coil cartridge with a coil resistance of only 5.3 ohms. The importer, Sumiko, recommends using a load between 5 and 53 ohms and states that higher load resistances may cause the cartridge to sound bright and affect its imaging qualities. We plotted its frequency response with loads of both 15 and 47,000 ohms and found no measurable difference. Sumiko also advised playing the cartridge for at least 10 hours to let the suspension "settle in."

The Purpleheart's unusual name derives from that of the purplish-red wood used for the cartridge body. A machined gold-colored aluminum/magnesium alloy is used for the mounting plate and removable stylus guard. Inasmuch as no specifications whatever were supplied to us by Sumiko, we found out for ourselves that the Purpleheart has a super-elliptical stylus mounted on an aluminum cantilever overlaid with boron and uses a samarium-cobalt magnet. The rated output is about 0.4 mV, and the cartridge is designed to track at forces between 1.6 and 2.2 grams; 2 grams is the optimum value (which we used). Visually, the cartridge gives an impression of bulk and mass, and it weighs a substantial 7.5 grams.

**On the Test Bench**

The test results for each of the cartridges are summarized in the table on page 76. In general, their output voltages were consistent with the manufacturers' specifications. The imbalance between channels was acceptable on all the cartridges, and the Signet and Kiseki had virtually perfect level matching.

The vertical tracking angle (VTA) of all five cartridges measured sufficiently close to the standard 20 degrees that the deviations could have no effect on sound quality. The Denon and Kiseki cartridges had the greatest deviations from the standard, and the Kiseki was exactly on target. It should be realized, however, that this measurement has an inherent uncertainty of about 2 degrees, so only the Denon and Signet cartridges really departed measurably from the 20-degree standard. But since Ortofon specifies the VTA of the X5-MC as 23 degrees and we measured it as 22 degrees, our data appear to be reasonably accurate.

In terms of frequency response in the range above 1,000 Hz, the cartridges fell into two groups. The Denon and Kiseki were almost identical in their superbly flat responses, which were within a decibel or two of the reference level up to 20,000 Hz. The Audio-Technica was almost as flat except that its maximum output occurred at 10,000 Hz and sloped off about 2.5 dB from there to 20,000 Hz. In contrast, the Signet and Ortofon cartridges had a broad output rise beginning at about 5,000 Hz and maximum readings of +3 dB at 12,000 and 10,000 Hz, respectively. Above 15,000 Hz, the Signet's output dropped to −2 dB at 20,000 Hz, but the Ortofon maintained its maximum level within ±1 dB from 8,000 to 20,000 Hz.

I would consider all of these deviations from flatness to be insignificant. If they were audible to a listener, they would hardly be of such a magnitude as to affect program quality or listening enjoyment.

The channel separation of most of the cartridges was in the vicinity of 25 dB through the midrange and about 20 dB at 20,000 Hz, more than sufficient for full stereo imaging. The only exception to this pattern was the Ortofon, whose separation was greater than 30 dB (our measurement limit, set by system noise) over almost the entire audio frequency spectrum.

Measurements of low-frequency arm resonance indicated that the Denon, Ortofon, and Kiseki cartridges were most suitable for use in a medium- to high-mass tonearm with a resonant frequency in the 8- to 11-Hz range. Apparently the Signet and Audio-Technica cartridges have much more compliant styli than the others, resonating with the arm mass in the undesirably low range of 6 to 7 Hz. Both almost mistracked calibrated warps on a special test record that presented no problems to any of the other cartridges we tested.

The tracking-ability test has usually been the most revealing indicator of differences between cartridges, and that proved to be true in this instance. The Signet and Audio-Technica cartridges played the 90-micrometer test level at their rated forces without mistracking, which is excellent performance. The Ortofon was close, at 80 micrometers, and the Denon was on the borderline with a 60-micrometer track-
amplifiers and such. The degree of linearity enjoyed by loudspeakers, are far from attaining obvious: that phono cartridges are these figures merely point up the percent, but both were mistracking around 40 percent and the Kiseki’s 63 level, the Denon’s distortion was nica cartridges. At the same +12 dB meters amplitude) and increased to twice as much distortion as most of the level increased from 0 to +12 dB. The Signet cartridge, which had the lowest distortion at lower signal levels, showed a sudden increase around +6 dB and then returned to its original rate of increase.

The Denon, which had about twice as much distortion as most of the others at most levels, mistracked at +12 dB (corresponding to slightly more than its 60-micrometer limit with the DIN 45-549 record). And the distortion of the Kiseki, initially a little lower than the Denon’s, exceeded it above +6 dB until it finally mistracked badly at +12 dB.

All these measurements were of the third-order intermodulation distortion, which is merely one of many possible distortions and probably far from being the most objectionable kind. The actual distortion readings were in the range of 3 to 8 percent at a 0-dB level (16 micrometers amplitude) and increased to around 20 to 25 percent at +12 dB (64 micrometers amplitude) for the Ortofon, Signet, and Audio-Technica cartridges. At the same +12-dB level, the Denon’s distortion was about 40 percent and the Kiseki’s 63 percent, but both were mistracking to some degree. While even the starting percentages seem high in comparison with the distortions of a system’s electronic components, these figures merely point up the obvious: that phono cartridges are mechanical transducers and, like loudspeakers, are far from attaining the degree of linearity enjoyed by amplifiers and such.

**Listening**

Depending on your point of view, the results of our listening tests might seem to be either obvious or unbelievable. Time did not permit extended listening to any of the cartridges, but each received several hours of exposure to an assortment of records. Most were relatively recent, high-quality “audiophile” recordings, but we also used some older, well-worn LP’s to establish how well the cartridges could cope with their imperfections. We had hoped that one or more of the cartridge/record combinations would produce an effect, either good or bad, that would not be duplicated with the other cartridges. Alas, nothing like this happened!

All the cartridges sounded excellent. That should not be too surprising, since all showed superbly uniform frequency-response and channel-separation characteristics across the audio range. Also, all have some form of line-contact stylus and should have been able to extract the contents of almost any record groove with a minimum of distortion. When we played some old mono LP’s, circa 1950 to 1955, that had been showpieces at the audio fairs of those times, the basic sound quality was surprisingly good. The styli, however, reached down into portions of the grooves that had been buried under the accumulated dirt of decades and many playings with cartridges more suitable (by today’s standards) for carving granite than tracing vinyl grooves. The resultant hissing and popping were in vivid contrast to the sound of more recent (and more pampered) recordings.

The first cartridge we listened to was the Kiseki, and it sounded truly superb. At that point I began to wonder whether the exotic materials and construction of this cartridge might really have a beneficial effect on its sound. The similarly excellent sound of the four other cartridges perhaps confirms the idea (radical in some circles) that cartridges that measure alike may just possibly sound alike!

To be fair, let me say that few music records present the challenges to a cartridge posed by some of the test records we used. Although a 60-micrometer tracking limit is my personal minimum requirement for a high-fidelity cartridge, the fact remains that a cartridge can fall short of that mark and still manage to sound perfectly all right on at least 95 percent of the records it plays. It is those last few percent of difficult records that separate the really good cartridges from the rest, but if you never try to play one of those records, you might never appreciate the difference.

**Summing Up**

The performance of all five of these cartridges can be described as superior, especially when compared with models of a few years ago. Whether you prefer a moving-coil or a moving-magnet cartridge—and the distinctions between these types are being diminished by such excellent high-output MC cartridges as the ones we tested—from a listening standpoint you could not go wrong with any of these.

But there are differences, at least between the extremes of the group. While I cannot take issue with what I heard from the Kiseki Purpleheart, I cannot see any valid reason for an audiophile to spend more than $1,000 for a phono cartridge, especially if it doesn’t sound appreciably different from another costing one-tenth as much. Of course, if it does sound different, and better, enough to you to justify such an expenditure, go right ahead.

The Denon DL-160 is clearly the “best buy” of the group, offering all the fundamental characteristics of the others at a substantially lower price. The Ortofon X5-MC is a nearly ideal moving-coil cartridge; both its measurements and listening qualities were equal to or better than any of the others at a price close to their median cost. Finally, the Signet and Audio-Technica units offer the sturdiness of a moving-magnet design, the convenience of user-replaceable styli, and the best tracking ability of the group.

So, in many ways, these cartridges are all “winners.” None was perfect, but none was unsatisfactory, and all shared the ability to extract sounds from good records comparable to that of many compact discs.
A prize-winning high-end car system with smooth sound, accurate imaging, and functional placement

by William Wolfe

Ken Bullough of Baltimore is not a car stereo installer by trade, but the quality of his work is outstanding. The 492-watt, $7,000 system he installed in his 1987 Toyota Supra Turbo took the consumer trophy in the 251- to 500-watt class at Alpine's recent Car Audio Nationals (CAN) sound-off contest, beating out systems installed by people who hook up car stereo components for a living. The Supra system was only Bullough's second high-end installation; his first was a "devastating, dB-heavy" powerhouse in a Porsche 928S. The system in the Toyota is "much smoother and images more accurately," he says.

The Supra installation is also seamless. In the dash are three Alpine components, the Model 7902 CD tuner, the 3215 equalizer/amplifier, and the 3311 equalizer/preamplifier. The DIN-size 7902 uses double oversampling and has metal castings in the disc transport. Other features include twenty-track programming, power loading, and 10-second track preview. The seven-band 3215 delivers 18 watts into four channels; the seven-band 3311 provides ± 18-db adjustment of the frequencies centered at 60, 125, and 250 Hz and ± 12-db adjustment of those centered at 500, 1,000, 3,500, and 10,000 Hz.

The system is powered by three amps: two 160-watt a/d/s/PQ10's and one 120-watt Alpine 3533. The speaker complement consists of two sets of a/d/s/320i's (four 5-inch woofers and four 1-inch soft-dome tweeters), four KEF KAR110 bass/midrange drivers, and a pair of SAS T-18 Bazooka subwoofers housed in the trunk (each bass-reflex enclosure holds two 8-inch woofers).

Compared with the creations of his CAN competitors, Bullough's system was rather straightforward, but it was extremely functional and it sounded great—a fine example for installers who want to follow the current trend of cutting back on power while paying stricter attention to sound quality.
Accessories
Sound investments for your sound system

The state-of-the-art derby is a costly race to enter. Buyers are often spurred on by the simple purchase of a compact disc player, a component that can reveal previously masked deficiencies in the rest of a home audio system. But CD's aren't the only culprits. Any significant component upgrade can make what remains seem pale in comparison. The question soon becomes, how can I get the rest of the system up to snuff?

Happily, costly upgrading is not the only route to better sound. There is a host of smaller purchases, some even in the $10 to $20 range, that can bring out the best in what you already own. Good, clean sound is begging to be freed from the dust packed around phono styli, the residual magnetism on the heads and capstans of cassette decks, the extra resistance of overly thin speaker wire, and the tarnish on jacks and plugs. And besides products to clean your equipment or otherwise improve its performance, there are others that can help preserve your records, tapes, and CD's from degeneration. Together, such accessories will let...
Signet's Music Line speaker cable is 114-gauge oxygen-free copper ($1 a foot). Nakamichi's phono connectors and OFC interconnect cables have gold-plated plugs ($12.50 and $30 a pair).

The Hunt EDA record brush has carbon filaments thin enough to follow a record’s grooves ($19.95).

Terk’s FM 8403 antenna is omnidirectional in a vertical position and directional when placed horizontally ($100).

Mission’s Isoplat support ($69) protects components such as turntables and CD players from external vibration.

Kenwood’s AT-56 audio timer ($120) can turn a system on or off at preset times.

Remember, though, that we are a nation of widget fanatics, and for every special interest such as audio, there are both practical and useless accouterments offered for sale. A combination of common sense and a reasonable budget will determine your real needs. A moderately priced stereo system might not audibly benefit from the subtlest fine tuning, but a more expensive one probably could.

Let’s begin with the program sources: the turntable, compact disc player, and cassette deck. Given the energy fields generated by the concentration of electricity, home stereo components are dust magnets. As static electricity builds around a turntable, for example, dust particles are virtually sucked from the air, and dust is the single greatest culprit in record and stylus degradation. Many products have been developed to neutralize static charges. Companies like Discwasher, AM Products, and Scotch make antistatic turntable mats that fit onto the platter and absorb some of the static charge. They retail from $6.50 to $10 and are a good investment.

It is also crucial to rid the record itself of the dust and smudges that have accumulated on it, no doubt from the poltergeists who run their gritty little fingers through your record collection while you sleep. For the truly meticulous, several companies sell ionizing guns that cancel static charges on records, making it easier to clean them.

What is essential, however, is a record-cleaning device of some sort. If you want scrupulously clean records and have a hefty budget, you can get a record-cleaning machine like Nitty Gritty’s top-of-the-line Pro MK 3, which sells for $859; other models are priced down to about $160. Much less costly is a simple brush with a fluid to be applied manually. The old reliable is the Discwasher DC-1 ($16.50), and other models are available from companies such as SignaClean ($26), Nagaoka ($25), and Stanton ($17). Whatever you spend, the cost is small compared with that of the records you’ll be saving.

Stereo Review January 1988 83
Sonex Juniors acoustic foam (four sheets for $54) traps and diffuses sound waves to reduce room reflections.

Discwasher’s D4+ system ($16.50) includes cleaning fluid and record and stylus brushes.

TDK’s cassette-shaped HD-01 ($19.50) can demagnetize the metal parts inside a tape deck.

which can scratch records, and the simple "record cloths" that sell for a couple of dollars, which may leave a chemical residue that can "cement" dust into the grooves.

You should also regularly clean your stylus, since dust collects there as well. Shure sells a stylus cleaner for $11, and others are available. Never apply the brush to the stylus without proper cleaning fluid, and always brush in the direction of record motion, from the back of the cartridge to the front. Be sure to turn the volume down or off—a good stylus cleaning makes a frighteningly bad racket.

Proper care of a tape player—home, car, or portable—will prolong the life of the heads and maintain the machine’s original sound quality. There is no such thing as cleaning tape decks too often, for every time a tape passes along the heads, guides, pinch-rollers, and capstan(s), it leaves oxide or metallic flakes that can limit high-frequency response and even damage other tapes played or recorded subsequently. One reason car decks jam so often is that the pinch-rollers become caked with dust.

A tape deck is one place where a cheap cleaning solution can be used safely. Applied with high-quality, nonfraying cotton swabs, pure isopropl alcohol without perfume or additives, which can be bought in most pharmacies, makes an almost ideal cleaner for tape heads and metal parts. Better still is pure, 200-proof grain alcohol since it evaporates quickly and leaves no residue. Some claim that alcohol can dry out the rubber in pinch-rollers, however, so a commercial formula is advisable to clean these.

The tape-deck cleaners housed in cassette shells are very popular. Stick with trusted names and avoid the bargain-basement brands, since overly abrasive cleaning materials can damage the tape heads. Allsop makes a trusty cleaner that sells for about $17. Most models cost from $10 to $20.

Tape heads are electromagnets that rearrange the magnetic charges on a tape to store musical information, and after many hours of use the heads can also magnetize surrounding metal parts. Such magnetic buildup can affect playback or even alter the recorded signal, often causing some of the precious midrange and high frequencies to be lost or replaced with noise. Many com-
panies offer demagnetizers housed in cassette shells, which are especially useful for hard-to-reach mechanisms like those in car decks. Handheld prototype models are also good since they can reach the metal surrounding the capstan(s) and pinch-rollers. TDK makes both the cassette-shell HD-01 ($19.50) and the handheld HD-11 ($27.30).

**Despite** popular belief, compact discs are not indestructible. True, simply playing them will cause no damage, but if you expect the thousandth playing to be identical to the first, proper care and handling are essential. How much do you need to spend for a CD cleaner? Frankly, not much. Yes, if like gadgets, you can spend $169 for Nitty Gritty's excellent automatic CD cleaner, or you can purchase one of the manual cleaning devices on the market. Memorex makes a $15 model, and Discwasher's costs $20. But I've yet to find a smudge that a half-penny cotton swab and isopropyl alcohol couldn't take care of, or a surface scratch that a quick swipe of a dust-free cloth with some Buff Stuff ($9.95) couldn't ameliorate. If you are the do-it-yourself type, just be sure to clean CD's radially, from the center out—never wipe around the disc. As for lens cleaners for CD players, let's just say I'm skeptical.

Great claims are made for the benefits of coupling records to the turntable with clamps or weights, and the concept itself makes good sense. Any unwanted vibration will be picked up by the stylus along the spindle to hold the record in place. Souther Engineering, SpyderClamp, Mission, and Sumiko offer clamping devices for $10, $13, $39, and $40, respectively.

It is also a good idea to isolate the turntable itself, and CD players too, from unnecessary vibration, and various vibration-damping mats, shelves, and even feet are available. Audio-Technica's AT618 Disc Stabilizer ($24.95) is simply a heavy brass weight in a protective rubber coating that fits over the spindle to hold the record in place. Souther Engineering, SpyderClamp, Mission, and Sumiko offer clamping devices for $10, $13, $39, and $40, respectively.

As for speaker cable, you should probably use something better than standard 16-gauge zip cord, especially for a long run of cable, and you should certainly avoid the 18- or 20-gauge "speaker wire" sold in department stores and the like. With such high resistance, precious amplifier wattage is wasted simply transmitting the signal. The lower the gauge number, the thicker the wire and the lower the resistance.

Inferior cable can also rob some of the musical program, especially in the low end of the audio spectrum. Plain, fat 10- or 12-gauge speaker cable sells for upwards of 75¢ a foot in stores like Radio Shack. Many audio companies offer special cables that are claimed to get the most signal through the least resistance. The prices vary: Monster Cable's begins at $2.75 a foot, and Audioquest's Livewire ranges from 50¢ to $7.50 a foot.

Here are a few rules of thumb on speaker cable:
- The less cable you use, the better.
- Use the same length of cable for both speakers in a pair or for all the speakers in a surround-sound installation.
- Never coil excess speaker cable, as this creates an inductor field that impedes high frequencies and can pick up unwanted radio signals.
- Make sure that power cords do not cross any of your speaker or interconnect cables. If they do, any sudden power surge will audibly hum through your system.

When it comes to system placement, remember that the cooler a system runs, the longer it will last. Your equipment has ventilation holes for a reason, so keep them unobstructed. If the holes are on top of a component, don't stack another component over them. That's a sure-fire way of burning out your equipment. Poor ventilation is why so many of the racks sold separately or with one-brand systems mean death to the equipment they hold. If you've got a rack or are about to buy one, make sure it provides for easy air flow. If it doesn't, install a $12 whisper fan and drill a few more air holes. Audio Research makes a passive-convection ventilating unit ($50) that is recommended for systems generating a lot of heat.

Once your system is in place, some fine tuning is possible with several new products on the market. Weak FM signals can be made stronger by amplifying antennas such as those made by Parsec ($75) and Terk ($100). Systems whose sound is overly bright or too reverberant can be precision-dampened with sonic foam like the panels from Sonex or the Tube Traps made by ASC. Sonex's 12 x 40-inch sheets of acoustical foam come in boxes of four for $90; a smaller-size set is $54. ASC's Tube Traps—large foam cylinders cut to order and planted in a listening room's corners and flush against the walls—are considerably more expensive.

If you haven't tried any of these products already, using them just might give you the kind of audible improvement you'd expect only from a costly component upgrade. Try sitting out one race in the state-of-the-art derby. Enhance what you already own instead.
"FOR fifteen years I've been out on every limb there is," said Holly Near, "and if I want to take a detour for a minute and do a love-song album, give me a break."

Near made her record debut in 1973 with an album of anti-war and feminist songs, and after diverse collaborations with the exiled Chilean folk ensemble Inti-Illimani, ex-Weaver Ronnie Gilbert, and the progressive folk group Trapezoid, she wanted to make a different kind of pop record. And she has, with "Don't Hold Back," her latest release on the independent California-based Redwood label.

"Don't Hold Back" is a sparkling, upbeat set of original love songs with a bold musical framework that ranges from edgy, striding rhythms to Broadway show tunes to Fifties rock-and-roll. With pop producer Steve Wood handling the arrangements, Kenny Loggins and Bonnie Raitt dropping by for guest shots, and only one mention of social struggle woven into her universally appealing lyrics, Near is geared up to tackle pop radio and the large-scale exposure her reputation for "women's music" and "activism" has so far hindered. In short, she wants a mainstream record career.

Surely, there's nothing very controversial about that. But at first not all her old fans were exactly thrilled about it.

"Oh, I think there was sort of an initial panic on some people's part," Near told me when I interviewed her at the Sisterfire Festival outside of Washington, D.C., a few months ago. "But the fact of the matter is that most of my audiences love it. They have my whole record collection, and now they have one they can dance to, one they can put on while they're chopping zucchini. The other part of it," she said, breaking into a disarming smile, "is who's kidding who? Love songs are political."

"Don't Hold Back" is Near's most cohesive and consistently satisfying record to date. In some ways it takes risks that her twelve earlier albums, aimed at the already converted, did not. Without the overt politics, the anger, or the Pollyannaish optimism that sometimes creeps
into her peace and “Sisters unite!” songs, Near is free to be passionate, sexy, and true to the heart. She is also forced to rely on her two strongest gifts: her shimmering, often breathtaking soprano, and her emotional, evocative songwriting.

“In the Face of Love,” for example, the one socially conscious song in the album, features a quietly erotic set of lyrics. It was inspired by friends of Near who “live in war zones and try to keep their relationships together literally under fire.” Except for that song and the theatrical Bird Gonna Fly, which she wrote for the television show Fame, most of the material “just happened,” Near said, and wasn’t written for the sake of certain rhythms or to fill a niche in the album.

“We went through fifty or sixty songs—my stuff and other people's stuff—and when we looked at the final selection, the songs really made a fairly good-feeling record. Then when we sequenced them, we went, ‘Huh! This is great!’ It’s kind of like a baby,” she added, grinning. “You go through all this labor, and then it just pops out, this perfect little pink thing.”

Born in the Northern California town of Ukiah, where Jim Jones would later locate his People’s Temple, Near grew up on a farm in nearby Potter Valley with sisters Timothy, an actress, and Laurel, a dancer. If her childhood was, by one account, somewhat impoverished, there was something else gnawing away at her, too.

“I spent long times sitting on rocks on the farm, up in the hills, being by myself,” Near remembers. “I knew that I was doing things and thinking things that the other kids weren’t, unless they just weren't telling me. I wasn’t sophisticated enough yet to think I might be special. I just felt very alone when I was growing up. Except for my family. My family was always really right there.”

Indeed, Near’s activism came naturally. Her parents worked for the local Progressive Party, having previously organized workers in a Southern California airplane factory where they’d both been employed in the Forties. Baby Holly, the story goes, rocked away her infancy to Paul Robeson records, later listening to Patsy Cline, Elvis, and Broadway cast albums, Edith Piaf, Kurt Weill, and the Weavers. Especially the Weavers, whom Holly and her friends imitated with their own folk group in high school. In between, she became a frequent performer at local rodeos, teas, and weddings, and she studied voice with Connie Cox, who had worked with Johnny Mathis. At some point, she refused an invitation to run for Miss Teenage America because she didn’t want to “get that skinny,” but she still got up at 5 a.m. to practice her piano and singing before school.

Although she went on to study theater at UCLA, Near dropped out when she had the chance to appear on television in such shows as Mod Squad, Room 222, and The Partridge Family. She later joined the Broadway production of Hair and played Billy Pilgrim’s daughter in the film of Kurt Vonnegut’s Slaughterhouse Five. But the work never quite fulfilled her—“I was in the ten worst films of the year for a long time”—and Near found she kept being drawn back to situations where music could make a difference. Certain of her convictions were still unformed, however. It was about this time that she told a friend, “Women’s lib is okay for women who need it.”

Near was certain of her stance against the Vietnam War, though, and when she was asked to join the “Free the Army” tour with Jane Fonda and Donald Sutherland in 1971, she began to see a possible niche in the album, features a quietly erotic songwriting. Then when we sequenced them, we went, ‘Huh! This is great!’ It’s kind of like a baby,” she added, grinning. “You go through all this labor, and then it just pops out, this perfect little pink thing.”

Near was certain of her stance against the Vietnam War, though, and when she was asked to join the “Free the Army” tour with Jane Fonda and Donald Sutherland in 1971, she began to see a possible niche in the album, features a quietly erotic songwriting. Then when we sequenced them, we went, ‘Huh! This is great!’ It’s kind of like a baby,” she added, grinning. “You go through all this labor, and then it just pops out, this perfect little pink thing.”

Near was certain of her stance against the Vietnam War, though, and when she was asked to join the “Free the Army” tour with Jane Fonda and Donald Sutherland in 1971, she began to see a possible niche in the album, features a quietly erotic songwriting. Then when we sequenced them, we went, ‘Huh! This is great!’ It’s kind of like a baby,” she added, grinning. “You go through all this labor, and then it just pops out, this perfect little pink thing.”

Near was certain of her stance against the Vietnam War, though, and when she was asked to join the “Free the Army” tour with Jane Fonda and Donald Sutherland in 1971, she began to see a possible niche in the album, features a quietly erotic songwriting. Then when we sequenced them, we went, ‘Huh! This is great!’ It’s kind of like a baby,” she added, grinning. “You go through all this labor, and then it just pops out, this perfect little pink thing.”
When you never get rid of a record, knowing what you have and being able to find it aren't easy.

All me a Yuppie or a Baby Boomer if you will, although I am a bit old to be either, but all those old rock-and-roll records currently dominating the airwaves could have been chosen with me in mind. Nowadays, my record-buying habits are fairly typical for an audiophile—well-recorded versions of good popular, jazz, and classical music, carefully maintained and preserved. But before about 1970 my main musical interest was Top 40 rock, and I amassed a large number of hit singles stretching all the way back to 1952, when I bought my first recording.

True discophiles might look askance at this mass of musical detritus, but I tend to think of it as a real collection—one that reflects not only the musical trends of the period, but also my own taste at that time. My youthful acquisitiveness drove me to purchase virtually every song I liked, and I have never disposed of a record—they have moved with me over the years and now occupy a significant part of my basement.

From time to time, however, I contemplate them with the frustrating feeling that I really don't know what I have. Often enough, when the mood strikes me to listen to one old record, I encounter another I have forgotten about, only to wonder how many more such favorites are lurking in the shelves but not in my memory.

And yet, the idea of actually producing some sort of index has been somewhat daunting. I have occasionally conceived of various schemes for using file cards to bring some order to the chaos, but the amount of time such plans would take to execute insured until recently that my discs would remain in their unorganized state. It's not totally random, of course. Everything is filed in alphabetical order by artist, so I am usually able to find a particular piece of music... as long as I recall that I have it.

Finally it occurred to me that my personal computer might come to the rescue. Its main use is word processing, and since I intended to organize my old records only once, it didn't make sense to invest in a program specifically designed for record cataloging, although such programs probably exist. Nevertheless, I made it a weekend project to devise a way to list and cross-reference the records using my trusty Apple Macintosh computer.

By Ian G. Masters
I made it a weekend project to list and cross-reference the records using my trusty computer.

The first challenge was to locate all the records I intended to include. Most of them were 45-rpm singles I bought when they came out, and I had at least had the sense almost from the beginning to store these, in heavy-duty filing sleeves, alphabetically. The basic index could be made up of a simple listing of these singles. In the earliest days, however, I bought much of my music on 78’s, which had been augmented over the years as various friends abandoned that format and bequeathed me their records. The 78’s were filed separately both because of their larger size and because they weigh so much that they could be housed only on bottom shelves.

Over the years I have supplemented these records in various ways, either to fill gaps in the collection or to replace damaged originals. In some cases, I bought 45-rpm reissues, which I filed along with the originals. Further additions were on L.P’s, usually “greatest hits” collections by particular artists but sometimes conventional albums that contained one or more hits. These records were filed alphabetically with more recent L.P’s. A considerable amount of the period’s music is also contained in various multiple-artist “oldies” records that have their own sections (including a few early ones issued as 45-rpm EP’s) or in soundtrack albums filed by show title. Finally, many record companies have reissued some of this material on compact discs, and these had to be taken into account as well.

All in all, I determined that a song from the Fifties or Sixties could be in any one of eight different parts of my collection. Each section would have to be gone through record by record and the appropriate selections noted.

It became clear from the start that listing absolutely everything would result in a massive document of not much use, so I had to decide on some criteria for inclusion. There were some obvious candidates for rejection—a yodeling record picked up on vacation in Austria, for instance, along with a couple of bagpipe selections, bought for reasons that escape me now, and similar anomalies. As for the “mainstream” records, I decided to eliminate B sides of singles unless they were hits in their own right or had some special meaning for me. On the other hand, any 45 I had purchased at the time would be included whether it became a hit or not, on the theory that I liked it sufficiently to pay money for it. With 78’s I chose to be much more selective, listing only major hits, and then only if the 78 version was the only one in the collection.

As for songs included in albums, they would only make the index if they had become individual hits. One might argue that everything certain artists recorded had hit status—everything by the Beatles, for instance—but there seemed to be little point in listing every song they produced. Similarly, whole albums often became hits, particularly in the late Sixties, but I chose to include only songs that made the charts individually. With collections of oldies, virtually everything qualified, but “greatest hits” records of particular artists often contained some filler; these dubious items were excluded.

After I settled on these rules, the question arose as to what information should be included about each

**COMPUTER PROGRAMS FOR CATALOGING RECORDS**

Any word-processing or database program can catalog a record collection. While some are better at this than others, the best program for you is probably the one you know best. If you haven’t used any program, try at least a few before purchasing one. For speed and convenience of entry, consider word-processing programs. For power and flexibility, look at database programs.

Whatever type of program you choose, you must decide what information you want in your catalog. Obvious choices are composer, performer, record label, and format, but you may want to include track numbers, timings, dates, and other such things.

Word-Processing Programs

With a word-processing program, you can sit down with a stack of records—or data scribbled from them—and start typing. If your collection is filed in some kind of order, use that order as a guide. If it is not organized, you should decide on some kind of system before you enter the information. Although data can be entered in any order, it can be a lot of work to alphabetize or otherwise rearrange a long list after you’ve entered it.

A listing of a record made with a word-processing program might look like this:


Most word-processing programs can locate every occurrence of a certain word or number, so you could find, for example, every record on a certain label.
song. Once the artist's name and the song title had been noted, there was relatively little room for supplementary data since, in the interest of space and for ease of later manipulation, I wanted to keep each entry to a single line. While some fans of old records would insist on including information about record labels and numbers, I decided that, for me, this was irrelevant. The date of each record was much more important to me, and I determined to include a year for every song even though I knew that ferreting out such dates might be difficult with some of the lesser-known material.

One potentially useful bit of information might have been some sort of sound-quality rating, because the records themselves had had varied histories of use and abuse. No simple way of rating them presented itself, however, and the necessity of actually listening to every record made this idea impractical. Instead, I devised a simple letter code to identify the format of each recording: "A" for original 45's, "B" for reissued 45's, and so forth. This system served a number of purposes. For one thing, it indicated with little fuss where a recording could be found in the files, and it allowed easy identification of songs that existed in several formats. In addition, the code could serve as a rough guide to quality. The LP's were generally pristine, as were reissued 45's and EP's (which required their own codes). The 78's were dreadful almost without exception, and the original 45's were of variable quality, most of them having suffered through too many parties being played on none-too-sophisticated turntables.

With LP's and CD's, there was some temptation to indicate which album a song might be found on, but I rejected this idea because of space. Instead, I used separate codes for multi-artist oldies collections, soundtracks, and albums by a particular artist. No one artist had a section so large that a song could not be found readily. By the same token, the collection and soundtrack sections were small, so finding a given song would not be a huge task.

One last question remained: How would the final catalog be organized? I knew from the start that, as a minimum, I wanted to end up with an alphabetical master list that would bring together all the appropriate music in a single document. But once that master list existed, it could perhaps be rearranged for other purposes. I decided that a breakdown by year would be useful, as would an alphabetical listing by song title. Without a program specifically designed to reorganize the data in this way, I knew I would have to do it by brute force, but this would be easier on the computer than with file cards.

So far, all of these decisions had been a matter of planning. At some point, however, I would actually have to face the keyboard and start creating the catalog. Because the wall full of 45's represented the biggest single piece of the collection, and because it was already arranged in the order the final listing would take, I began the laborious process of transferring information from the record sleeves to the computer, one record at a time. It was fairly mindless work, but satisfying in its own way, as I reacquainted myself with music I hadn't thought about in years.

### Database Programs

Because most database programs make it difficult—or impossible—to change the database structure, you should decide what information you want in the catalog before you begin work. Databases are divided into records, usually a collection of data about an individual thing or person, and each record is divided into fields of specific types of data. You can use one record for each recording and one field for each piece of information, such as composer, performer, etc. Databases print information in discrete blocks of type (like addresses), not in the lines or paragraphs a word-processing program produces.

Suppose you decide on these fields for each record in your database: composer, work(s), performer(s), format, record label, record number, total time of recording, SPARS code. A record might look like this (each number indicates a field):

1. Beethoven, Ludwig van
3. New Vienna Octet

4. Compact disc
5. London (Decca)
6. MCPS 414 576-2
7. 64-03
8. DDD

Since a database organizes information by field, you can sort data for a printout based on any field. You could sort by composer, performer, and record label and have three lists with the same information in three different orders—from Acsaust to Zwilich, Abba to Zappa, and A&M to Warner Bros.

William Burton
The basic list of 45's took several weeks to complete, but it was only the first step. The next was to intersperse songs in other formats with these listings. The 78's were arranged in a similar order, so simply dropping those listings in between the ones already in the computer was no real problem, particularly as I had been fairly ruthless in deciding which ones to reject. The LP's by individual artists were also alphabetical and could be incorporated by the same method, although going through all the records to discover which ones might contain appropriate music, and then checking various reference sources to see which songs actually made the charts, took more time than building the original basic list.

The oldies collections were slightly more complicated to catalog because there was no order to them. The simplest way to include them, I found, was to list the songs in whatever order they occurred, then arrange them in alphabetical order in the computer. Using the edit function, each entry could then be dropped into its appropriate place in the list. Finally, I incorporated the handful of songs reissued on compact discs. Once that was done, the master list was complete, at least as far as titles and artists were concerned.

Now came what was to be the trickiest part of the whole project: dating the recordings. The majority of 45's presented no problem, because I had always noted the year on each filing sleeve when I bought a record, and I simply entered this when making the basic list. I knew that these years might vary a bit from the reference books, some of which date recordings by their time of release, others by their appearance on the charts. In any event, songs were inclined to become popular at different times in different regions, especially in the Fifties and early Sixties. My own dating system tended to reflect what I knew, which usually coincided with its first appearance on the radio in my area. Also, the earliest 45's, which I bought before I set up an organized filing system, had been dated after the fact—quite accurately, as it turned out, because I could relate most of them to particular events or people. In all, I decided an accuracy of plus or minus a year was as close as I was likely to get.

During the period covered by my catalog, record companies were notorious for not dating their products, which posed some problems, particularly with lesser-known songs. Major hits are well documented elsewhere, however, so the majority of the records I hadn't dated myself—songs on LP's, for instance—could be found in reference books, which allowed me not only to date them but to identify hits as well. The reissued 45's often bore original-release dates as well, and I took the very fact that they had been rereleased as proof that they qualified. For regional hits, I went through a carefully preserved stack of hit-parade charts published by a local radio station.

After all that, I had managed to date all but about twenty recordings in the list, mostly from the early Fifties. For these, I found I had to resort to a sort of "disc archaeology": Taking as many records on the same label as I could find, I arranged them by record number, noting their dates where possible. If one of the mystery discs had a number that fell within the series, its date could be fixed fairly closely. Fortunately, back then the number of record labels was much smaller than would later be the case, so it was reasonably simple to find enough known dates to make the technique work. In the end I failed to date only one record, and I decided—arbitrarily, I admit—that it was obscure enough to warrant deletion.

From that point, what remained was to reorganize the master list by date and by song title. There are undoubtedly easier ways to achieve this, but my technique was simply one of successive deletions. To come up with all the songs for a particular year, for example, I duplicated the main list and then removed, one by one, every record that didn't carry that year's date. Time-consuming, but effective.

The completed catalog contained just over 2,000 entries in each of its three sections and was some 180 pages long. It took considerably longer to produce than the weekend I had anticipated. But even though I am still not sure what sort of practical use it might have, it does document an important aspect of my life: the music of my youth. The next move will be to index the more recent part of my collection, but that will have to wait for another weekend.
IF BI-AMPLIFIED SOUND IS THE CAT'S MEOW, GET READY FOR THE LION'S ROAR.
Audiophiles have long been purring over the benefits of bi-amplified speakers. They point to the incredibly lifelike dynamic range. The reduced intermodulation distortion.

At Altec Lansing however, we’ve been pursuing much bigger cats.

Introducing the Altec Lansing BIAS™ 550. The first loudspeakers in the world with Pentamplified Sound.

The 550 is a system unlike any other. With discreet amplifiers for each of 5 bandwidths. A total of ten driver-dedicated amplifiers delivering 1400 watts of power (.05% THD/1 Watt to rated power.)

And because you can adjust the volume of each amplifier by remote control, you can tailor the sound perfectly for the nuances of your room.

From the very first moment, you’ll hear subtleties you’ve never heard before. Startling dynamics. Airy sound staging. Reproduced without any noticeable coloration.

But of course, sophisticated technology demands equally sophisticated materials.

To complement our woven carbon fiber cones, we developed mid and high frequency drivers coated with diamond particles. Producing an astonishingly accurate high frequency response.

To eliminate resonance, we designed a unique double enclosure cabinet Literally a cabinet within a cabinet separated by a layer of acoustical foam rubber.

We believe the 550 to be the finest loudspeaker system in the world. For more detailed information and complete specifications call 1-800-ALTEC 88** and ask about our special demonstrations.

They’ll be easy to find. Just follow your ears.
JBL PRO SOUND COMES HOME.

Now JBL brings advanced state-of-the-studio and state-of-the-stage speaker technology all the way home.

JBL is the speaker of choice in renowned concert halls and nearly seventy percent of recording studios worldwide. JBL puts on a powerful live performance on tour with superstar rock artists, under the most demanding, sustained volume conditions.

Using technology developed to satisfy these professional applications, JBL lets the home audience experience pro performance, too. The new JBL home loudspeaker systems deliver smooth, flat, accurate response with maximum power handling capability. Time domain and titanium technologies throughout ensure full dynamic range and precise stereo imaging for exciting, true-to-live sound.

JBL. The loudspeakers professionals feel most at home with.

For more information and your nearest dealer call toll free 1-800-525-7000 Ext. 401 or write JBL, 240 Crossways Park West, Box 9401, Woodbury, New York 11797
Signal processing is a nasty-sounding phrase. Talking about it is a little like discussing meat packing while you’re at the dinner table— or, worse, when you’re about to eat a hamburger in a fast-food joint. Music is the food of the gods, and for many audiophiles that means that from stylus to speakers mortals should leave the musical signal untouched.

Of course, to suppose that what is on a CD, tape, or LP is a pure, unprocessed capturing of the music is naïvely to ignore the equalizers, companders, mixers, and the like that make high-fidelity recordings possible. More to the point, to suppose that those recordings can re-create the original music in your specific listening room with only the addition of an amplifier and a pair of speakers is often to ignore what is needed to achieve real high-fidelity music reproduction.

Record producers are not infallible in their sonic judgment. Furthermore, repeatedly comparing my own master tapes against the live sound in the halls where they were made is quite enough to make me realize that the sound waves in a home listening room are so fundamentally affected by their constricted environment that any processing means are fair if they make the walls fall away.

Signal processors can help correct listening-room and recording deficiencies.

by Craig Stark

NEC’s AVD-700E is a 16-bit digital surround-sound processor with inputs for up to ten video and five audio sources. Its frequency response is rated as 10 to 20,000 Hz +5, -3 dB, its signal-to-noise ratio as 100 dB. Price: $729, which includes a remote control.
The benchmark Yamaha DSP-1 Digital Sound Field Processor (near right) features sixteen preset acoustic-surround modes, sixteen sound-effect modes, and sixteen programmable user memories. It also has a full six-channel digital Dolby Surround mode, a front-panel RCA-jack record/mix patch panel, and a wireless remote control. Price: $899.

Sansui's SE-99B graphic equalizer (facing page) introduced a true breakthrough in front-panel control by including a light pen that allows you to “draw” EQ settings. Other features include twelve bands per channel, five user-programmable memories, a remote control, and a built-in microphone for setting a flat room response. Price: $725.

Before Buying a Processor

The benchmark Yamaha DSP-1 Digital Sound Field Processor (near right) features sixteen preset acoustic-surround modes, sixteen sound-effect modes, and sixteen programmable user memories. It also has a full six-channel digital Dolby Surround mode, a front-panel RCA-jack record/mix patch panel, and a wireless remote control. Price: $899.

Sansui's SE-99B graphic equalizer (facing page) introduced a true breakthrough in front-panel control by including a light pen that allows you to “draw” EQ settings. Other features include twelve bands per channel, five user-programmable memories, a remote control, and a built-in microphone for setting a flat room response. Price: $725.

Before Buying a Processor

The interaction between your speakers and their surrounding acoustic environment—your listening room—is the starting point for improving the sound of any home stereo system. Ill-placed speakers can produce a boomy, “one-note” bass, for example. Moving your speakers around—sometimes by only a few inches—can often do more for the clarity of the sonic image than an add-on “image enhancer.”

If your bass seems deficient in general and the sound field your speakers produce seems diffuse, it is possible that your speakers may be operating out of phase. That is, the driver(s) of your left-channel speaker system are pushing air out into the room at the same instant that the driver(s) of your right-channel speaker system are pulling air into their cabinet.

The cure for this condition is both simple and complete. Just reverse the wires connected at one end of one of the two speaker systems. To maximize the audible effect when checking phase, set your amplifier for monophonic reproduction, temporarily place both speakers close to each other, and play music that has a lot of bass in it. When you reverse the wires at the terminals of one speaker, the difference will be instantly audible. The connection that gives you the better bass response is the correct one.

When your speakers are in phase and you've found their best locations in the listening room, however, deficiencies in frequency response are likely to remain. The tone controls in a preamplifier or receiver are often inadequate because their effect is usually concentrated at the extreme ends of the audible spectrum. In order to brighten up the midrange by 3 dB, for example, you may have to crank up the treble control fully, adding 12 or 15 dB to the response at 20,000 Hz. Or to cure a slight boombiness in the 125- to 250-Hz range (a frequent problem with vented, or bass-reflex, speaker designs), you may have to roll off the deep-bass response to the point where there's nothing left of organ pedals and double-bass notes. While tone controls can be genuinely helpful in correcting tonal imbalances on a program-by-program basis, the job of matching a speaker system's output with your listening room across the spectrum is best left to an outboard processor.

Equalizers

An equalizer is designed to cure just such frequency-response problems, and it is the type of signal processor purchased most often. An equalizer splits the audio spectrum into individually adjustable bands, usually with 12 dB or so of possible boost or cut in each band. Typical equalizers have ten bands per channel, each centered an octave apart. An octave is a 1:2 frequency ratio, and ten octaves cover the 20- to 20,000-Hz audible spectrum. A twelve-band equalizer gives you a bit more control at the frequency extremes. Some equalizers have bands covering only one-third of an octave—the Technics SH-8065 ($535) and Soundcraftsmen's DC 4415 ($599) are good examples—and may have thirty-three or more separate slider controls per channel. Most home equalizers are of the graphic type, so named because the physical positions of the slider controls for each band form a kind of graph of the frequency response for which the equalizer is set. Profes-
sionals often use a three-band parametric equalizer in which the center frequencies of the bands and the bandwidths themselves are independently adjustable.

Adjusting an equalizer by ear while listening to music is likely to prove a frustrating experience if you're trying to achieve an accurate rather than a merely pleasing effect. Even very small differences in level introduced by manipulating the equalizer's controls can mislead the ear into judging the louder sound as the "better." For this reason, better equalizers such as the Audio Control C-101 ($429) include a microphone, a pink-noise generator (or sometimes a "warble-tone" oscillator), and a real-time analyzer (RTA) and display that show the relative room response with any given setting of the controls.

Pink noise is frequently chosen as the test signal because it contains equal power per octave. White noise contains equal power at each frequency, which means that the power doubles with each rising octave. Interstation FM hiss is somewhere between the two (I call it rosin noise). By using a known signal and a visual readout, you can track your progress toward overall satisfactory response and—a very important point—you can always return to known and repeatable settings after making temporary changes.

Even more advanced equalizers, such as the dbx 14/10 ($1,200), the ADC Sound Shaper SS-525X ($600), and the Sansui SE-99B ($725), are microprocessor controlled and can set themselves automatically (though with provision for manual override). They can also store a number of settings in memory, so that you can switch to different frequency curves for listening to different kinds of music or sound sources, or even for different listening locations within the room.

Using a variety of equalization curves for different purposes goes a step beyond using an equalizer just to offset ("equalize") specific deficiencies in frequency response that arise either from your speakers or from their interaction with the listening room. In their classical use, equalizers are "set and forget" processors. If you change an equalizer's settings to modify the sound of the music sources themselves, you are using the device as a program equalizer, and unless you have stored settings, you may have to recalibrate when you wish to return to a flat response.

A third application for an equalizer is during recording. Frankly, except for special situations—dubbing a tape specifically for use in a car system, for example—I do not recommend this application, for it almost inevitably leads to disappointing results. Home cassette decks rarely have headroom to spare at the extreme high and low frequencies where people invariably try to use equalizers during recordings. And inexpensive home cassette decks (especially "dubbing decks"), like inexpensive home speakers, are not designed to provide useful response at the frequency extremes in any event. Equalizers are for smoothing out relatively minor variations; they cannot create wider frequency ranges from what isn't there.

Subharmonic Synthesizers

Unlike equalizers, subharmonic synthesizers can create frequencies not present in the original, though if your speakers cannot reproduce the low-bass range you will need a subwoofer in order to hear their effects. Beginning at 50 or even 100 Hz,
The Soundcraftsmen DC-4415 (top) is a one-third-octave stereo equalizer. The twenty-one bands per channel are adjustable over a ±15-dB range. It also features a proprietary Differential Comparator circuit for unity-gain setting within a claimed 0.1-dB accuracy. Price: $599.

Actually three processors in one compact rack-mountable package, the dbx 3BX-DS (center) combines an ambience processor, a compander with the renowned dbx Over-Easy compression circuitry, and the DAIR three-band impact-recovery circuitry for restoring the full range and "punch" of original recordings. Price: $499.

Audio Control's Phase-Coupled Activator (bottom) detects and digitally reconstructs fundamental musical frequencies that have been attenuated during the recording process. Price: $259.

loud, deep bass notes are very frequently rolled off during production of nondigital recordings, not only are many home phono cartridges incapable of tracking their modulations (which means a high return rate of so-called "defective" records), but very few home music systems could reproduce the really deep bass in any event. With a bit of electronic sleight of hand, however, such frequencies can be plausibly reconstructed.

The desire to hear more bass than is really there did not originate in the rock era. Back in the eighteenth century the German organist W. A. Sorge, working from a discovery of the composer Giuseppe Tartini, found that if he played a musical fifth consisting of a C (32 Hz) and a G (48 Hz), he could induce the ear to hear a C an octave down (16 Hz). Since the 32-foot pipes needed to produce that low C by itself cost more than the wages of sin, church organ builders have used this principle ever since.

Used with restraint, bass synthesizers such as the dbx Model 120 ($299) or the Audio Control Phase Coupled Activator ($259) can minimize the felt loss of deep-bass power that is all too obvious when you compare live music with recorded music. The problem is, there is no guarantee that a bass synthesizer's subharmonic output will always be re-created rather than created. With some kinds of music this is not a very serious problem, but the ear can be very unforgiving in noticing pseudo-bass enhancement of music whose original sound is well remembered.

Dynamis-Range Enhancers

Not even professional analog recorders equipped with Dolby A noise reduction can capture the full range between the loudest and the softest sounds without either dis-
SPEAKERS BUILT UPON THE BELIEF
THAT MUSIC IS MEANT TO BE PLAYED,
NOT PLAYED WITH.

When we built the first Advent® in 1968, we believed music should sound exactly the way the artist had intended. Nothing added. Nothing taken away.

Just music.

Since then, trends in speaker design have come and gone. But the Advent philosophy has remained the same. You’ll know why when you listen to our current line of loudspeakers. They’ve been designed with the latest technology, yet preserve the clean, accurate sound Advent is known for.

All our speakers feature high efficiency long throw woofers, ferrofluid-filled tweeters and are compact disc ready. The Advent Maestro takes this performance even further with a mica-filled polypropylene dome midrange, 750 watts of power handling capability and a sound diffraction baffle. (Designed to enhance stereo imaging and broaden the musical soundstage.)

Wherever you put an Advent, you know it will look great. Our famous solid hardwood tops and bases go perfectly with any decor and there’s an Advent for virtually any size room.

If you want to hear music with a little something extra, listen to any loudspeaker. If you want to hear the truth, listen to an Advent.

ADVENT®
Sound as it was meant to be heard.
When we enter experience disbelief we suspend our disbelief. "Willing suspension of disbelief" is the same kind of process we experience when we enter into a novel.

Hi-fi home music reproduction involves the same kind of "willing suspension of disbelief" we experience when we enter into a novel.

The reproduction of sound in the home is represented by the Yamaha DSP-1 Digital Sound Field Processor ($849). This unit not only handles the videophile's surround-sound needs but allows the audiophile to enhance his music reproduction with the ambience characteristics actually measured in a wide variety of suitable music-performance locales.

Ambience Generators

Most of the sound we hear in a live performance is reflected from the room surfaces rather than radiated directly from instrument to ear. In a large hall it may take more than 2 seconds for sounds to die away to one-millionth of their original intensity (which defines the "reverberation time" of the hall); in the home, sounds may take only a few tenths of a second to die away to inaudibility. In Boston's Symphony Hall, for example, a centrally located listener will hear the first echo from the rear wall 140 milliseconds after the direct sound, whereas in a living room with exactly the same proportions but only 19 feet, 8 inches long, he will hear it 17.5 ms later, and he will hear seven more diminishing front-to-back echoes in the full 140 milliseconds. If the walls of our listening rooms are going to fall away (figuratively), our sound-reproducing systems must do something about this disparity.

Until recently, the cost of sufficiently powerful digital circuitry to generate realistic ambience signals from rear-mounted or side-mounted satellite speakers has been too high to make satisfactory home ambience generators practical. The popularity of surround-sound processors for home video systems, such as the Fosgate DMS-3602 ($995), Sony's SDP-505ES ($700), and NEC's AVD-700E ($699), has contributed to the process of reducing the costs of digital sound-processing circuitry, to the development of appropriate VLSI chips, and to a willingness to find room (and buy amplifiers) for more than the traditional single pair of stereo speakers.

For now, the state of the audio art in reproducing concert-hall ambience in the home is represented by the Yamaha DSP-1 Digital Sound Field Processor ($849). This unit not only handles the videophile's surround-sound needs but allows the audiophile to enhance his music reproduction with the ambience characteristics actually measured in a wide variety of suitable music-performance locales.

Image Enhancers

In the early days of stereo, people gasped to hear a locomotive approach from the distance on the left, cross in front of them, and disappear into the distance on the right. Quadraphonic demonstrations were even sillier: You rode with a ping-pong ball or sat in the middle of a string quartet. Absurdities notwithstanding, the clarity of music reproduction in the home is related to the sharpness of the sonic image, the breadth, depth, and feeling of openness ("air around the instruments") that are conveyed. And in many systems the sonic image can be significantly enhanced by units such as the Carver C-9 Sonic Hologram Generator ($249) or the Sound Concepts IR-2100 Image Restoration System ($289). As with most other signal-processing units, you are not likely to want to use an image-enhancement device with every program. When called for, however, such a unit can sometimes make the difference between a good simulation of reality and a superb one.

Putting It All Together

While few readers are likely to have all of the signal-processing components I've described, when even two or three are gathered together, along with a tape deck or two and perhaps an outboard tape noise-reduction unit, the question of how to hook everything up becomes far from self-evident. Obviously, the starting point is with the manufacturers' instructions, but
A MATTER OF BALANCE.

We believe the new NAD Monitor Series Preamp and Power Amplifiers are the best you can buy. Not because of one feature or specification—but because of a thousand design decisions, correctly made.

Like everything in our new Monitor Series, the 1300 Preamplifier and 2600 Power Amplifier are high-performance components that will challenge the best in the market. But what makes them world-class products can't be isolated to one feature or one specification. It's the balance of thoughtfully selected controls and superior performance. Each stage of each component has been designed with a no-weak-links strategy so that the performance of each section actually enhances the performance of every other. Every feature, every subcomponent, every circuit was analyzed and re-analyzed, tested and re-tested.

The process took over three years—and involved a combination of current technology and new concepts, fine-tuned by a thousand thoughtful and (we think) correct decisions. A very few examples . . .

- The 2600 uses NAD's innovative "Power Envelope" technology to produce 4 dB of dynamic headroom. Conservatively rated at 150 watts, it is capable of 700 watts per channel of useable, real-world music power. It will generate very high sound pressure levels (an average of over 114 dB SPL) with most loudspeakers.
- In its bridged mode, the 2600 yields 500 continuous watts and 1200 to 1600 watts of dynamic power.
- A "Null" switch in the preamplifier subtracts the right signal from the left signal, thus removing any monaural information. This elegantly simple feature allows you, by ear, to easily align your FM antenna or phono cartridge for optimum stereo sound.
- Every circuit in the 1300 is designed with very high headroom and extremely low noise to handle any signal source, present or future. Its total dynamic range, measured with respect to the output of a CD player, exceeds 110 dB.
- We chose professional quality semi-parametric tone controls for the 1300. They provide genuinely useful corrections, without veiling or coloration.

In short, what makes the 1300 Preamplifier and 2600 Power Amplifier combination special . . . is a long story. If you'd like to know more about it, write for our Monitor Series brochure. Or visit your authorized NAD dealer—and hear the result of a thousand design decisions, correctly made.
in most cases these are likely to assume that you have only one sound-processing device or only the specific ones that manufacturer produces.

My own solution stresses flexibility: All of the inputs and outputs of my system are wired through a 156-jack patch bay, which allows anything to be plugged into anything else in any order. This is presumably more flexibility than most people want. For complex systems, a good switching system such as the dbx 200XG ($129), 400XG ($279), or new DAV-600G Audio/Video Program Route Selector ($399) can help you make orderly, switch-selectable connections without needing to get at the cables in the back every time.

If you lack such amenities, however, start by seeing what provisions your amplifier or receiver provides. If you have a separate preamp or a flexible integrated amp, you may, in addition to your tape-in/tape-out jacks, have a pair of jacks intended for use with an external processor (they will probably be labeled EXT. PROC. or the like). If present, these jacks normally follow the preamp’s tape-in/tape-out circuits and precede its balance, volume, and tone controls. I normally connect my own signal-processing components at this same point.

If you don’t have separate signal-processor jacks, you may have to choose whether to connect your processor(s) between the preamp output and the main (power) amp input or in one of the tape-monitor loops. With a number of integrated amplifiers and receivers you may not even have a set of preamp-out/main-in jacks, which will dictate a tape-loop connection. Don’t be dismayed by this. While I would prefer to go between the preamp and the power amp, most home signal-processing units are actually slightly better matched to the characteristics of a tape-monitor loop. Their noise levels tend to be a little higher than those of a separate preamp, and they aren’t designed to drive the medium-impedance input characteristic of many power amplifiers anyway.

If you decide to “steal” a set of tape jacks for your processing equipment, you must realize that whatever program source you select thereafter, you will always be listening to the “playback” from a tape circuit. Your phono, FM, and CD signal will always be “taped,” so to speak, by the equipment connected in your processor chain. Since each of the sound processors in the chain will normally have its own set of tape-in/out jacks, you can theoretically plug your tape deck into any one of them. I recommend, however, that you connect your primary tape deck to the first sound processor in the chain so that its recordings will not be subjected to any signal processing that goes on further down the line. You would not want, for example, always to feed your cassette deck’s input with a signal that had passed through a dynamic-range expander—more often than not, you’d overload the tape.

While the guidelines suggested below are only suggestions, there is one hard and fast rule: Never put any kind of processing device between a tape deck and a dbx or Dolby noise-reduction system. The frequency response of the decoded tape signal will suffer if you do. (If, for some reason, you’re using both a Dolby and a dbx unit on the same recording, the sequence should be: encode dbx, then encode Dolby; record; play back; decode Dolby, then decode dbx.)

Assuming, then, that you’re hooking together a chain of signal-processing units, the output of one connected to the input of the next, using your amplifier’s tape jacks, here are my recommendations:

- An image enhancer should be the last link in the chain, with no subsequent processing between it and the power amplifier. While you may occasionally have to make an exception to this rule (some equalizers are built into speaker systems, for example), since an image enhancer is a phase-manipulating device and any other signal processing may also affect the signal phase, give the enhancer the last shot at the signal.
- The equalizer should be one step back from the image enhancer. Since the equalizer’s primary job is to eliminate listening-room frequency-response anomalies, previous processors should be set up to work with the equalizer in its normal, flat setting.
- An ambience-generating (reverberation) device should precede the equalizer. The proper use of these devices is with auxiliary speakers (side and rear), so in general they won’t affect the main signal going through the equalizer. At the same time, the input to the ambience generator will be affected by previous processors in the chain.
- A dynamic-range expander should precede an ambience generator because the latter should do its work on the full dynamic range of the music to be experienced.
- Finally, if a bass subharmonic synthesizer is used, it should precede the dynamic-range expander. The synthesizer won’t always be active, of course, but if it does create low-bass frequencies that you want, they should be considered part of the musical signal as a whole (as if they had been there originally) and be processed by the expander.

These suggestions are not, of course, inflexible rules. Rather, they should constitute a starting point for your own experimentation. High-fidelity home music reproduction involves the same kind of “willing suspension of disbelief” we experience when we enter into a novel. We don’t suspend disbelief if the novel we’re reading is too far removed from reality, of course. But the good writer uses all manner of tricks to persuade us to believe. If the tricks work, he fails, and we are unconvinced. The same goes for signal-processing devices in a home music system. Depending on how well they are designed and how carefully they are used, they can either undermine or enhance the realism of the music.
After 9 years of advancing the science of radar warning, we have quite a following

If imitation is the sincerest form of flattery, then Escort and Passport are easily the world’s most admired radar detectors.

And if imitation were the same as duplication, then there would be other equally capable detectors. Occasionally you hear of imitations “just as good as” Escort and Passport, usually from someone trying to sell you something cheaper.

**The experts are unanimous**

No matter what anybody says, there is, in fact, no detector on the market that’s “just as good as” Escort and Passport. And you needn’t take our word for it. In 1987, three respected magazines have published comparison tests of radar detectors.

**What Car and Driver says**

In April, Car and Driver rated Passport highest of nine miniature models, saying, “At $295 direct from the factory, it’s the most expensive piece of electronic protection in the group, but it’s worth every nickel in roadgoing peace of mind.”

**What Roundel says**

In June, Roundel ranked Passport and Escort first and second respectively in a comparison of 14 detectors. About Passport the author said, “It remains the State of the Art, a true quality product, American ingenuity at its best.” Regarding Escort, “It is an excellent detector in its own right and continues as a pacesetter in the detector market.”

**What Popular Mechanics says**

In July, Popular Mechanics rated Escort first and Passport second in a group of 11 brands. The magazine concluded, “Clearly, the Escort is the best radar detector around. The best of the minis was the Passport…”

**What we say**

Escort and Passport stay at the top of the experts’ ratings year after year because, by definition, the imitators are always behind. Our engineers work constantly to lengthen detection range, and when they make a breakthrough, we rush that improvement into production.

Still, early warning means nothing if the warning is false. That’s why—a year ago—we added Alternating Frequency Rejection (AFR*) circuitry, designed specifically to ignore the Rashid VPSS collision warning system.

Said Car and Driver, “While other make’s have spelt their energy on funny features or zoomy styling, CM has found a way to improve function in a quiet and systematic way. Such innovation is the mark of a leader, and we applaud Cincinnati Microwave for its eagerness to head off problems before they become problems.”

Our anti-Rashid circuitry demonstrates our commitment to the highest radar warning technology. We think the fact that the imitators don’t have it demonstrates their commitment too.

**Right here in Cincinnati**

Our attitude is unique in another way. We keep all of our engineering, assembly, sales, and service in one location so that we can respond quickly to our customers. If you have questions, need service, or want to order, just call toll free.

We sell direct to our customers only. Orders in by 3:00 pm eastern time go out the same day by UPS, and we pay for shipping. Overnight delivery is guaranteed by Federal Express for only $10 extra.

**Satisfaction guaranteed**

If you’re not entirely satisfied within 30 days, return your purchase. We’ll refund all of your money and your shipping costs.

For the only radar detectors “just as good as” Escort and Passport, please call toll free.

**Order Today**

TOLL FREE...800-543-1608
(Mon-Fri 8am-11pm, Sat-Sun 9:30-6 EST)

By mail send to address below. All orders processed immediately. Prices slightly higher for Canadian shipments.

**Pocket-Size Radar Protection**

**ESCORT**

The Classic of Radar Warning

$295

(Ohio res. add $16.23 tax)

**PASSPORT**

Radar Warning Receiver

$245

(Ohio Res. add $13.48 tax)

Cincinnati Microwave

Department 68418

One Microwave Plaza

Cincinnati, Ohio 45249-9502

© 1987 Cincinnati Microwave, Inc.
Is Escort Scared or Smart?

By Drew Kaplan

It's time to attack. No more Mr. Nice Guy for me. I've done everything I can to get them to play fair. Now it's time for the truth. I've offered $10,000, then $20,000, if they could beat Maxon's lowest price $990 detector (now on sale for just $790) by more than 10 feet. I've even offered to print the results in my next catalog, win, lose or draw.

In a minute, I'm going to introduce Maxon's new True-Path Micro-Detector that is CORDLESS and built to traverse Escort and Passport, but first let's see what we can do to compare detectors.

IS THIS FAIR? YOU DECIDE

In their recent ads, Cincinnati Microwave quotes what Car and Driver Magazine's April '87 issue says about Passport, "At $296 direct from the factory, it's the most expensive piece of electronic protection in the group, but it's worth every nickel in road-going peace of mind."

Well, wouldn't you think that Passport obliterated every other detector by a country mile? And, don't you think everyone is going to go out and find the magazine and read the whole review?"

Well, look what else Car and Driver said in the same article (and not quoted in Passport ad), "As it turned out, the top five brands are so close in their 'Overall Sensitivity' scores that a minor juggling of the X/K-band weighting formula would upset the apple cart."

"So, Passport's perfect scores (6) in the X Band tests, which is 6 miles. In fact, on the X Band tests, it appears that it came in 3rd in a Dead-Ahead Trap, 3rd in an Over-The-Hill Trap, and 3rd in an Around The Corner Trap."

But in choosing Passport as best, Car and Driver says, "an 'excellent' appraisal of support systems (cords, lights, alarms etc.) is well worth several hundred feet of warning distance."".

Which brings me back to the point I've been trying to make since I first challenged Escort. Today, a good detector can often sniff out police radar as many feet of sensing difference, if any, that Escort's or Passport's and doesn't make much difference.

READ THIS

So, if Passport or Escort lose to the $790 Maxon, it would be catastrophic for their advertising. And, even if they beat Maxon by a second or two, are they going to go out and buy one for the price of $790?

So, that's why I think they're in a no win situation. Without the magazine's loving editorial comments, we'd be down to who won and by how many feet?

And while they may or may not be scared of losing to Maxon, so far, they sure seem to be smart enough to stay out of a Detectors Race.

TRUE BREAKTHROUGH NO. FIVE

Unlike the questionable value Anti-Rashid circuit from Cincinnati Microwave, Maxon has now leapt ahead. Now you can have a micro detector that operates from 6 AA rechargeable batteries (included).

Now you can forget plugging your radar detector into your cigarette lighter. A revolutionary circuit design gives you cordless freedom and improved protection.

Maxon is especially tops in military and other military applications which replaces the traditional Gunn diode oscillator with a DRO (Di-electrically Resonated Oscillator)

The efficient DRO circuit is much more stable when subjected to temperature extremes and vibration (hence its use in the military, especially aircraft). Its only disadvantage is that it costs more.

The new detector also has incredible "support systems". Its bright LEDs, dimming tones, not only is the volume adjustment automatic, 'Mute' lets you silence the alarms without adjusting volume. They will automatically reset after the alert passes.

You can plug the Micro into your cigarette lighter, you can run it for about 8 hours on its rechargeable batteries, and it automatically resets once you use your cigarette lighter overnight or while you use it plugged in during the day.

OK, now it's time to prove that Maxon is Number One. Cincinnati Microwave, eat our dust!

A $10,000 Challenge To Escort

Let's cut through the Radar Detector Glut. We challenge Escort & Passport radar detectors to a one-on-one Distance and Falsing duel to the death on the highway of their choice. If they win, the $20,000 check pictured below is theirs.

By Drew Kaplan

We've put up our $20,000. We challenge Escort to take on Maxon's Dual Superheterodyne RD-1 $990 detector (right) (Now only $790) or Maxon's new Mini RD25 $990 detector (middle) or Maxon's Cordless Micro-Trouncer $1490 detector (left) on the road of their choice in a one-on-one contest.

The real question today is: 1) How many feet of sensing difference, if any, is there between Maxon's Detectors and Escort's or Passport's? And 2) Which is more accurate at interpreting real radar versus false signals?

So Escort, you pick the road (continental U.S. please). You pick the equipment to create the false signals. And, finally, you pick the gun.

Maxon and DAK will come to your highway with engineers and equipment to verify the results.

And, we'll have the $20,000 check (printed) to hand over if you win!

BOB SAYS MAXON IS BETTER

Here's how it started. Maxon is a mammoth electronics prime manufacturer. They actually make all types of sophisticated electronic products for some of the biggest U.S. Electronics Companies.

No, they don't make Escort's.

Bob Thetford, the president of Maxon Systems Inc. and a friend of mine, was explaining their anti-falsing Dual Superheterodyne Radar detector to me. I said "You know Bob, I think Escort really has the market locked up." He said, "Our new designs can beat theirs."

...Next Page Please
Challenge Continued

So, since I’ve never been one to be in second place, I said, "Would you bet $20,000 that you can beat Escort?" And, as they say, the rest is history.

By the way, Bob is about 6'9" tall, so if we can’t beat Escort, we can sure scare the you know what out of them. But, Bob and his engineers are deadly serious about this ‘duel’. And you can bet that our $20,000 is serious.

We only ask the following. 1) The public be invited to watch. 2) Maxon’s Engineers as well as Escort’s check the radar gun and monitor the test and the results. 3) The same car be used in all tests. 4) We’d like an answer from Escort no later than December 31, 1987, and 60 days by 2 seconds at 55 mph in both uninterrupted and initial alerts or equals the Micro-Trouncer, OR if Passport beats Maxon’s RD-1 or RD-25 by 2 seconds at 55 mph in both uninterrupted and initial alerts or equals the Micro-Trouncer. So, DAK wins only if we beat both the $295 Passport and $245 Escort Trouncer. So, DAK wins only if we beat Escort no later than December 31, 1987, and 60 days notice of the time and place of the conflict to alert the public. And, 5) If Escort can prove that there are even 500 Rashid units in operation, we will present them with a check for $500,000 at the conflict. HOW’S THIS FOR FAIR?

Cincinnati Microwave will be deemed the winner and given the check if either Escort beats Maxon’s RD-1 or RD-25 by 10 feet in both uninterrupted and initial alerts or equals the Micro-Trouncer, OR if Passport beats Maxon’s RD-1 or RD-25 by 2 seconds at 55 mph in both uninterrupted and initial alerts or equals the Micro-Trouncer. So, DAK wins only if we beat both the $295 Passport and $245 Escort Radar Detectors. SO WHAT’S DUAL SUPERHETERODYNE?

OK, so far we’ve set up the conflict. Now let me tell you about the new dual superheterodyne technology that lets Maxon leap ahead of the pack.

It’s a technology that tests each suspected radar signal 4 separate times before it notifies you, and yet it explodes into action in just 1/4 of one second. (1/10th second for the Micro-Trouncer.) Just imagine the sophistication of devices that can test a signal 4 times in less than a 1/4 of one second. Wow!

But, using Maxon is easy. These long range detectors have all the bells and whistles with separate audible sounds for X and K radar signals. LED Bar Graph Meters accurately show the radar signal’s strength. And, you won’t have to look at a needle in a meter. Keep your eyes on the road, you’ll see these meters with your peripheral vision.

You’ll have a very high level of protection. Maxon’s Dual Conversion Scanning Superheterodyne circuitry combined with die-cast aluminum ridge guide wide-band horn internal antennas, really ferret out radar signals.

And the key word is ‘radar’, not trash. The 4 test check system that operates in 1/4 second gives you protection from signals from other detectors, intrusion systems and garage door openers.

So, when the lights and X or K band sounds explode into action, take care, there’s very likely police radar nearby. You’ll have full volume control, and a City/Highway button.

Maxon detectors are backed by Maxon’s standard limited warranty.

There are many cheap imports that aren’t very good. My quarrel with them is that except for themselves, I don’t know who they think is so very good.

CHECK OUT RADAR YOURSELF RISK FREE

Put a detector on your visor, dash or windshield. When it sounds, look around for the police. There’s a good chance you’ll be saving money in fines and higher insurance rates.

If you aren’t 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

(RD-1 Pictured to Right.) To get your Maxon, Dual Superheterodyne, Anti-Falsing Radar Detector risk free with your credit card, call toll free or send your check for $249 suggested retail detector at DAK’s mar-

Note from Drew: 1) Use of radar de-

tectors is illegal in some states.

2) Speeding is dangerous. Use your detector to help keep you safe when you forget, not to get away with speeding.

DON’T WASTE MONEY

As I’ve said, good radar detectors today are very similar. The RD-1 is great. It is much smaller than Escort at just 3½ wide, 4½” deep and 1½’’ tall.

If you want an even smaller detector, the RD-25 at just 2½ wide, 4½” deep and 1’’ tell, with its included windshield mount and identical specs is for you.

If you want the very best, or if you want to forget cords and be able to slip a 4½” wide, 3¼” deep, ¾” tall (It mounts sideways to the rest) detector into your shirt pocket, choose the Micro-Trouncer.

I’d love to tell you that the Micro-Trouncer is light years ahead in detection, because its circuitry certainly is.

But, I’d be into advertising gambit-land if I claimed that 1 or 2 seconds of improvement over Maxon’s other detectors or even over Escort and Passport really make a significant difference. Caution: Cincinnati Microwave is right.

Maxon’s Dual Conversion Scanning Superheterodyne circuitry combined with die-cast aluminum ridge guide wide-band horn internal antennas, really ferret out radar signals.

And the key word is ‘radar’, not trash. The 4 test check system that operates in 1/4 second gives you protection from signals from other detectors, intrusion systems and garage door openers.

So, when the lights and X or K band sounds explode into action, take care, there’s very likely police radar nearby. You’ll have full volume control, and a City/Highway button.

Maxon detectors are backed by Maxon’s standard limited warranty.

There are many cheap imports that aren’t very good. My quarrel with them is that except for themselves, I don’t know who they think is so very good.

CHECK OUT RADAR YOURSELF RISK FREE

Put a detector on your visor, dash or windshield. When it sounds, look around for the police. There’s a good chance you’ll be saving money in fines and higher insurance rates.

If you aren’t 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

(RD-1 Pictured to Right.) To get your Maxon, Dual Superheterodyne, Anti-Falsing Radar Detector risk free with your credit card, call toll free or send your check for just $99” ($4 P&H) Order No. 6117. CA res add tax.

(Micro-Trouncer Pictured to Left.) To order Maxon’s Top-Of-The-Line, DRO Circuit Radar Detector with Mute, 4 Second LED Meter Hold, Dark Switch, Cordless Battery Operation (6 AA NiCad Batteries Included) with Windshield, Dash and Visor mounts and 2 power cords risk free with your credit card, call toll free or send your check for just $199” ($4 P&H) Order No. 6118. OK Escort, it’s up to you. We’ve got $20,000 that says you can’t beat Maxon on the road. Your answer, please?

Escort and Passport are registered trademarks of Cincinnati Microwave. Radar MD’s, and Radar Safety Brake are registered trademarks of Vehicle Radar Safety Systems, Inc.

DAK INDUSTRIES INC.

Call Toll Free For Credit Card Orders Only 24 Hours A Day 7 Days A Week 1-800-325-0800

For Toll Free Information, Call 6AM-5PM Monday-Friday PST

Technical Information. . . . . . 1-800-272-3200

Any Other Inquiries. . . . . . 1-800-423-2866

8200 Remmet Ave., Canoga Park, CA 91304
The Great $9990 Copier Blow-Out

DAK has obliterated the $349 suggested retail price. Now for just $9990, you can copy price lists at trade shows, articles in libraries, receipts in your car, stock quotes on airplanes, recipes at home or blueprints on a construction site.

By Drew Kaplan

You're in a restaurant. An important meeting is in progress. The person you're meeting with shows you a confidential price list. You whip out your new Silver Reed Industrial Pocket Copier and make yourself a copy.

Great Idea, but... While thousands of rich executives are currently increasing their productivity by using this sophisticated copier at meetings, in hotels, and of course at home, it's simply been too expensive for the rest of us to use. Well, no more. Silver Reed couldn't find as many rich executives as it needed, so DAK bought all their copiers for cash! Now, for just $9990, which I've been told is $40 below the Japanese manufacturing cost, we can all make full size, crisp, flawless copies wherever we are, instantly. Now we can all enjoy the productivity and luxury of the rich. We can forget the $349 suggested retail price. We can forget the 1987 Confidential $230 Dealer Price List Cost. Cordless, hand held copying is now a reality while our limited supply lasts, for just $9990.

HOW IT WORKS

Dozens of magazines have reviewed this product because of its revolutionary miniaturized technology and utility. Just glide this less than 2 pound copier over any printed surface including words, pictures and graphs. And, your permanent copy will instantly emerge. This copier uses the newest sophisticated CCD image sensors to scan the material to be copied. It then digitally converts the image. Finally, much like a laser printer, it prints an image so sharp and crisp and with such incredibly fine dots, that it can even have more contrast than the original. Since it uses the newest thermal technology, there are never any chemicals or powders to bother with. And best of all, absolutely no maintenance is required.

It's a phenomenal amount of technology for just $9990. Plus, look at everything you get! It comes with built-in rechargeable ni-cad batteries. So, you won't have to buy batteries. And, even the charger is included. There's a leatherette carrying case and it all fits easily into your briefcase, purse or overcoat pocket.

HERE AND THERE

So, if you want to copy a column out of an encyclopedia, or a document that can't be removed from a file room or library, or stock quotes from the paper, Silver Reed has the solution.

At home you can copy checks, recipes or airline ticket schedules.

On the road, you can copy your expense receipts as they occur. If you're like me, you often lose half of them, so this copier is saving me a lot of money.

BUT IT'S ONLY 3" WIDE

It copies a 3" wide path, as long as you like, flawlessly. So, it's really great for sections of blueprints, computer printouts and hard to copy items like box labels in the warehouse or on the dock. You can copy a typical 6" letter (that's the average text amount) in two quick passes. So, for letters, checks, research or newspaper articles, you can now copy where no copier has gone before.

ALL THE CORDLESS USES

From copying EKG results for doctors to bibliographies for students and professors, you'll be more productive. Forget taking tedious notes. Just copy paragraphs or sections you need. You'll have error free permanent records. You can copy charts or music. Copy an income statement or a balance sheet. And, if you've ever stood in line at a federal, state or city archive as I have, you can now copy anything instantly. And, speaking of aggravation, being stuck in a hotel room or on a commuter train can just devastate my productivity. I can't copy my notes. I can't copy sections of articles I'm reading to show my fellow DAK executives, and I hate writing notes on original spec sheets.

FINAL CLOSE-OUT

List Price was $349
DAK sold it for $299
NOW JUST $9990

If you make house calls to sell insurance, ...
...Copier Blow-Out Continued

or real estate, or if you simply work on
school projects at other peoples' homes
as my wife does, this copier is a must.
You can copy title reports, old medi-
cal forms, or even original blueprints.
For working on school projects, you can
instantly copy class phone/address lists
and save lots of tedious note taking.
You can copy the front and back of a
check. Or, you can copy a map so you
won't get lost. It's all really easy.
Copy driver's licenses if you own a
store and cash checks, or if you have an
accident. Hospitals can copy health cards
or IDs for permanent, error free records.
And if you're into government espionage
(our side only please), this copier
should replace your old spy camera.
Of course, the most common use is at
your desk. You'll be amazed at how many
things you'll copy when a copier is at
your side. As I mentioned, if I read an
article, I like to copy the important parts
for others at DAK, to maximize my efforts.

BUT IS IT REALLY GOOD?
OK, if you're standing next to your
desktop copier, which copier should you
use? Well, the answer is simple. Assuming
you don't have to wait for the desk-
top copier to warm up, (the Porta Copy
is instant on) the answer is the desktop.
But, you'll love the quality of this copier.
You'll love all the places you can take
it. And, now that it doesn't cost $349,
you'll love how much cheaper it is.
The quality of the copy is nothing
short of superb. So, you won't be sacrific-
ing quality for portability.
It's just 6½" tall, 4" wide and 1½"
deep. It weighs less than two pounds
(Wow). It has a copy density control that
lets you adjust for imperfect originals.
It comes complete with a carrying
case, a roll of paper and the recharger
for its internal ni-cad batteries. It's backed
by Silver Reed's limited warranty.

Desktop Blow-Out Too
If you don't need cordless portability,
DAK also bought all of Silver Reed's top
of the line desktop copiers too. Forget
the $449 suggested retail price. Forget
the 1987 Confidential $280 Dealer Cost.
For an incredible $229 you can copy
full 8½" X 11" papers and even books,
flawlessly. It is maintenance free and
doesn't require toner or powders.
Take a moment and journey back with
me to about 1978. My very first real lux-
ury was renting a Xerox® machine for my
office at home.
Every time I made a copy of a letter or
a magazine article, I felt successful.
My wife copied recipes and a never
dated copy of my son's 3rd grade speech.
We had to send a copy of our can-
celled check for a house payment to our
bank. And, I copied a poem from a book
for my son to learn. We even made copies
of my son's 3rd grade speech.

At DAK, we have several large expensive
copiers. But, we have a 64,000 square
foot building. So, they are never nearby.
I can buy 12 of these copiers for the cost
of just one standard machine.
And since the copy quality is so good,
several departments at DAK have their
own. They're thrilled and I'm happy be-
cause they save time.
Just switch it on and in 3 seconds
you're ready to make great looking copies.
There's even a contrast control to com-
 pensate for imperfect originals.
It uses the same breakthrough CCD
image sensing circuitry as the portable.
The revolutionary computerized thermal
technology that makes these copiers
possible, provides you with crisp, drama-
tically sharp copies with contrast that
can even surpass the original.
My wife often says she married me
because I had a copier at home. (She
was a teacher at the time.) And, we all
use it a lot. From homework assign-
ments to road maps to report cards, our
copier is always running.

service. But Silver Reed's sophisticated
maintenance free thermal copiers elimi-
nate the problem. Forget powders, toners
drum cleaning. Just turn these copi-
ers on and enjoy the luxury of making
copies whenever and wherever you want.

At DAK, you'll save a bundle on copier
rental, plus a charge per copy.
Well, now at home or in my own office
at DAK, I can make perfect copies of let-
ters and reports. I can make 8½" wide
copies from 3" to 11" long.
This copier is absolutely silent. There
are no fans to disturb you. The only sound
you'll hear is a gentle whirr during the
actual copy process. It's absolutely per-
fected for your desk at work.

THE UGLY SERVICE PROBLEM
Everyone knows that copiers need ser-

MAMMOTH COPIER BLOW-OUTS
RISK FREE
I love having a copier. I never have to
get in the car when I need a copy of a
document when I'm at home. And now,
I can even make flawless copies in an air-
plane, a hotel room or on a loading dock.

To order Silver Reed's Hand Held Porta
Copy Cordless Copier complete with
builtin ni-cad batteries, charger, carry-
ing case and a 30' roll of paper risk free
with your credit card, call toll free, or
send your check for DAK's limited blow-
out price of just $99 (56 PBH). Order
No. 6203. CA res add tax.
Extra 30 foot rolls of Thermal paper
are just $1# each. A box of 5 is just $7#4
($1 PBH). Order No. 4679.

To order Silver Reed's DeskTop AC
Powered Copier with CCD Imaging, 3"-
11" long Copying, for home or office use
risk free with your credit card, call toll
free or send your check for DAK's limited blow-out price of just $229 ($12 PBH).
Order No. 6204.

100' Rolls of Pure White Thermal Paper
are just $4#0 ($1 PBH). Order No. 4836.

Having a copier at home or in your
briefcase is one of life's true luxuries.
And, once you have it, you'll realize that
it's a money saving necessity as well.

For Toll Free Information, Call 6AM-5PM Monday-Friday PST

1-800-272-3200

8200 Remmet Ave., Canoga Park, CA 91304
Skulker Stunner
If you don’t want strangers skulking around your home, stun them with bright lights that come on automatically when they approach. They simply replace your current lights. And, they’re a super convenience for you.

By Drew Kaplan

It’s watching. It’s waiting. Whenever a warm body comes within its 40 to 60’ range, it reacts with blazing lights. So, whether you’d like lights to come on as you approach your home, or you want protection from skulkers, this sophisticated new system does it all.

BURGLAR ALARM TECHNOLOGY
It’s strictly state of the art. The best burglar alarms now use passive infrared detection. It reacts to warm bodies, not swaying trees and blowing drapes.

Now this same technology has been incorporated into this easy to install convenience and security system. You can have automated light wherever you now have an outside fixture.

This system simply replaces any fixture mounted on a standard round junction box (the industry standard). There’s no extra wiring to run. Just supply the bulbs. There’s nothing special to do.

But boy, will you get special automated control. You can set both the sensitivity and the length of time the lights stay on. BATHED IN LIGHT
When you walk out on your patio, around the side of your home or drive up to your garage, you can be bathed in light. This system gives you, the home owner, automatic light wherever you go. You can adjust the sensitivity so the lights come on only when you are very close, or extend it to 40 to 60 ft. Once your lights come on, you can have them stay on for a minimum of about 10 seconds up to 15 minutes.

Very smart system. There’s a sensor that detects daylight so your lights will only come on at night. And, the automatic timing system will keep resetting itself. So, if you’re on the patio, as long as you move within the time limits you’ve set, your lights won’t keep cycling. It’s backed by a standard limited warranty.

SECURITY AND CONVENIENCE RISK FREE
Stun skulkers and keep your home looking like it’s watched by an alert guard. Hopefully you won’t encounter skulkers, but you will enjoy the benefits of this system whenever you’re outside.

If you’re not 100% satisfied, simply return it to DAK, in its original box within 30 days for a courteous refund.

To order your Security and Convenience Automated Lighting System risk free with your credit card, call toll free or send your check for just $49* ($4 P&H). Order No. 4917. CA res add tax.

Wait till you walk out in your yard and have instant, automatic light. Wait till you hear a noise and look outside. Your new lights don’t need noise, just a warm body to make them explode into action.

Instant Car Shield
Imagine a remote control car alarm that can be effortlessly installed with only two wires. It’s very sophisticated, yet incredibly easy to use.

It’s easy. It’s fast. And oh, does it protect your car and its contents!

Press a wireless key ring transmitter (you get two), and a chirp assures you that your car alarm is activated. Another chirp confirms that it’s disarmed. Your car and your possessions are protected.

This alarm can sense movement, vibration or the opening of a door. And when it does, it sends out a wailing blast that will curdle your blood.

Just touch your key ring and it’s instantly silenced. Nothing could be easier, except maybe the installation.

FEAR OF INSTALLING
This system’s brains are contained in the horn housing. So, there’s really nothing extra to install.

Just attach the bracket (shown in the picture) with two screws and then attach the black ground wire, using any screw that’s already under your hood. You can run the red (hot) wire to the positive side of the battery and you’ll have vibration and motion sensing. Or run it to the fuse marked courtesy, and whenever a door, hood, or trunk that has a light is opened, the alarm will go off. Either way you’ll have protection in minutes. You need no special tools. It’s made by Serpico and backed by their standard limited warranty.

A CAR FORCE FIELD RISK FREE
Why not protect your car. Many insurance companies give you a discount. But, the real saving is the horrible hassle of replacing your lost items, paying the deductible amount and negotiating with your insurance company.

If you’re not 100% thrilled with the protection, simply return it in its original box to DAK within 30 days for a refund.

To order Serpico’s sophisticated Wireless Car Alarm System that you’ll install in just a few minutes, complete with two transmitters risk free with your credit card, call toll free or send your check for just $59* ($4 P&H). Order No. 4918. CA res add tax.

Across the country, a car disappears twice a minute. Unfortunately, alarms are becoming a way of life. Combine sophistication, remote control and ease of installation to protect your car.
The Observers

At the office or at home, you can scrutinize up to 4 separate areas with both picture and sound. New technology allows a single cable to both power a camera and carry the audio and video signals. There’s even an automatic switcher for up to 4 cameras. It’s all yours at an amazing new price.

It does it all. And, it’s absolutely terrific. You can monitor loading docks or swimming pools. You can watch for pilferage, shoplifting or accidents.

And, there’s even an output for a video recorder so you can make a permanent record. Now you can see who comes and goes. And, you’ll see what they do.

The system comes with a 12” video monitor, a sequential switching system that allows you to view up to 4 cameras from 4 to 60 seconds each, a camera complete with microphone, and an infinitely adjustable mounting arm.

You’ll also get 57 feet of cable and you can add up to 300’. You can even add a weather resistant case for outside use.

LOOK AT ALL IT DOES

The technological breakthrough that allows you to make a single wire installation lets you have sound and picture monitoring of all types of areas.

Risk areas: Monitor secluded side doors, corridors, equipment yards, tool cribs and other storage areas.

Hazardous areas: Prevent accidents or get help for one fast. You can see what people do unsafe things.

Supervision: You can’t be everywhere at once. Now you can see who comes and goes. Monitor an entire night crew if you’re on the premises, or have an 8 hour tape you can view in about 1/4 hours using high speed search on your VCR.

Retail Protection: Don’t leave your employees alone in your store or in your parking lot or structure. Now the manager can be there to assist. And, you can have a recorded audio and video record.

Theft: From shoplifting to employee theft to vandalism, anonymity is the culprit’s protection. With observation cameras no one knows when they are being watched or when a recording is being made. It’s a safety feature to protect employees from danger and to protect the company from all sorts of crime.

NOT JUST FOR WORK

You can monitor your front door, your back yard and your pool. You can even monitor the animals in your barn or your baby in the bedroom. So, if you raise animals or children, you can always keep an eye on their safety.

Always check local laws which may restrict some types of observation.

EFFORTLESS INSTALLATION

From 3 lux to 30,000 lux, you can watch what’s happening with this superb new system. You’ll be amazed at how sensitive it is at low light levels.

And, whatever you monitor, you’ll have a superbly detailed high contrast picture.

While I wrote this ad, I had a camera aimed out the window. As it got dark, I couldn’t see down the street. But the camera’s automatic sensitivity adjusted, so I could see the street on the monitor almost as well as I had in the afternoon.

And best of all, the cameras are incredibly easy to install. You don’t even need AC plugs where you mount them.

And, the infinitely adjustable mounting arms attach with only 3 screws to floors, walls or ceilings.

Switch on the monitor and press a camera button. All power for the entire system comes from the monitor/switcher.

You can have one or all 4 cameras connected. And, connecting the cameras is the simplest thing of all.

This system uses standard round coax type cable, just like your home’s cable TV system. Through this standard cable, Magnavox sends power for the cameras.

And, the camera sends both audio and video signals back down the very same cable. So, installation consists of simply running one standard video cable.

The monitor has a built-in electronic switcher. Most automatic switchers that I’ve seen in surveillance, cost hundreds of dollars. With Magnavox it’s included.

You set it to lock onto any camera for a minimum of 4 seconds and a maximum of 60 seconds, or pick one camera.

The signal (both audio and video) from all cameras being viewed can always be sent to your VCR for a permanent record.

And there’s more. By simply running a standard video cable, you can also watch the output of the monitor on other TVs in other rooms.

ENDLESS USES

Think of the feeling of safety you’ll have when you can monitor both the front and back of your home from the kitchen or the bedroom, or both.

The monitor is 12” wide, 1½” tall by 1 ½” deep. Each camera is just 9” deep, 4 ½” wide and 2½” tall and weighs 2½ lbs. It’s made by Magnavox and backed by their standard limited warranty.

OBSERVE YOUR WORLD

RISK FREE

Use it to protect your business or home, your employees, your family and your possessions. If you’re not 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To order Magnavox’s Observation System, complete with 12” Monochrome Monitor, 4 Station Electronic Automated Switcher, Black and White Camera, 57’ of Cable, and Infinitely Adjustable Mounting Arm risk free with your credit card, call toll free, or send your check for only $299 ($11 P&H). Order No. 4415.

Each Extra Camera with Built-in Microphone, 57’ Cable and Mounting Arm is just $169 ($4 P&H). Order No. 4549.

Weather Resistant Cases are just $390 ($3 P&H). Order No. 4550. CA add tax.

100’ extension cables are just $190 ($2 P&H) Order No. 4551. Note: a pair of cable ends is included, so you can make your own cable, up to 300’.

To view almost double the width you see in the picture above, there’s an 88° wide angle lens for just $690 ($2 P&H). Order No. 4823.

You’ll have a new sense of security when you can see and hear what’s happening. And, by connecting a video recorder, you can have a permanent record of the comings, goings and actions of everyone on your property.

DAK INDUSTRIES INC.

Call Toll Free For Credit Card Orders Only 24 Hours A Day, 7 Days A Week 1-800-325-0800

For Toll Free Information, Call 6AM-6PM Monday-Friday PST Technical Information: 1-800-272-3200 Any Other Inquiries: 1-800-423-2866

8200 Remmet Ave., Canoga Park, CA 91304
Persuasive Presenter Close-Out

For business presentations, family outings (even in the kitchen or bedroom) or copying STEREO tapes, Citizen's new One Piece AC/DC/Battery Stereo VHS Video Cassette Player with built-in high resolution 5" color monitor, lets you see it all. This is a heavy-duty industrial business product, but at DAK's close-out price, now it's great for home use too.

It's movies on the move. Now you can watch movies or show sales presentations anywhere, totally hassle free!

On your desk, in your car, on an airplane or boat, or at the park, this industrial presentation system will instantly provide superb video and audio quality.

Forget hooking up components. Forget cables. Forget being locked to an AC plug. In fact, forget setup at all.

In your office, in your bedroom or in your camper, just put in a VHS video cassette and start watching. Citizen's complete presentation/entertainment system unlocks video for you instantly.

Whether you're presenting a sales message to a prospective customer, working on your car in the garage or lying in bed, this hassle free system instantly plays your VHS tapes.

It's small enough to place under an airline seat. It's small enough to sit on the corner of a customer's desk. Yet, it's big enough to tell your full story.

At home you can carry it from room to room. Why be tied down to one room to watch tapes? It's as easy to carry as a briefcase. Cook in the kitchen or relax on the patio, this rugged industrial system is made to be on the move.

RIGHT MOVES

You can be confident of the industrial rugged dependability of this new Japanese made, video presentation system from Citizen Business Machines. Citizen made it to compete with presentation systems in the $1,000 range from companies like DuKane®, and Panasonic®.

When it was developed, Citizen never dreamed this industrial system would sell for DAK's close-out price.

Imagine, a video presentation system designed to be tough enough for continuous use in library media centers (the headphones are included) and industrial training departments.

So, use it all day to demonstrate your products at a trade show. And then, take it back to your hotel room at night so that you can curl up with a good movie.

USE IT ANYWHERE

Plug in its included AC cord the minute it arrives and you'll be watching video in seconds. There is absolutely nothing to hook up. There's nothing to set up. It's ready to use right out of the box.

Use this presentation/entertainment system anywhere with its optional car cord and rechargeable Ni-Cad battery.

And speaking of places I like, the back seat of the car is great for my kids. Now for long drives, I just give them a movie and they are entertained for hours.

At home, if anyone is ill, they can be entertained by movies in any bedroom.

THE BUSINESS OF IT ALL

Now you can watch tapes in your office between phone calls or with visitors.

SALESMAN'S WONDER

From the boardroom to the selling floor, this machine demonstrates all angles of your product or service and delivers your message. And boy, does it capture your viewer's attention!

On the road, this 22 pound briefcase size sales tool is so portable and easy to use, you won't want it left behind.

TRAINING DIRECTOR'S ANSWER

From safety films to sales training, everything is available on video. Now you can bring the video to the production line, the lunch room or a spare office.

You can train in groups. You can train individually. And, you can send this 22 pound trainer home with the trainees.

... Next Page Please
UNENDING USES

For giving seminars, for use in hospital rooms or for insurance training, you'll have video wherever you wish.

It is particularly useful in doctor's offices because there's so much information coming in for doctors on video. And, for patients, there are many educational tapes available on various procedures.

For real estate, it's a natural. You can take video "Walk-Throughs" right to client's living rooms.

THERE'S NO BUSINESS LIKE

Ah, to be in show business. Well, if you're a producer, a movie star, a dancer, an agent, or have anything to do with the entertainment business, you can now view the action wherever you are.

And, if you're in advertising, is there any better way to show clients, or review your work, than with live video?

HOME USE WONDER

Most VCRs are made to be lovingly placed on a shelf and never moved. But, Citizen's industrial system is different.

Forget watching movies in just your living room or den. Now you can have video wherever you want to be.

It's particularly useful in doctor's offices, to compete with the $1,000 systems from Du-kane® and Panasonic®. Unfortunately, they were late in delivering, very late.

So, Citizen lost the order. But, they didn't lose the systems.

Citizen was stuck with 20,000 of these incredible systems and absolutely no customer waiting to buy them. Enter DAK. We bought all 20,000 at a price that made Citizen cringe. But, with all their other products, they didn't have the time to concentrate on just this one.

VIBRANT VIDEO EVERYWHERE

Use it at work. Use it at home. You'll have dramatically sharp video, anywhere.

If you're not 100% satisfied, simply return it in its original box to DAK within 30 days for a courteous refund.

To order Citizen Business Machine's industrial AC/DC/Battery Stereo VHS Video Cassette Player with built-in High Resolution 5" Color Monitor, built-in Speaker, and Samarium Cobalt Stereophones risk free with your credit card, call toll free, or send your check, not for a $1,000 industrial price, but for DAK's incredible close-out price of just $499 ($12 P&H). Order No. 4495. CA add tax.

DAK's Super Power Bonus, including a Car Cord and a 12V Ni-Cad 1,000 time rechargeable battery pack, the recharger, and a silver-grey battery bag, is just $69.95 ($4 P&H). Order No. 4827.

This system can be connected to any size video monitor or TV with AV inputs. If you want to tune in on channel 3 on a standard TV, add the RF modulator for an incredible close-out price of just $499 ($4 P&H). Order No. 4829.

It's a heavy-duty superb quality video system that has nothing in common with a home VHS system except for the compatibility of the cassettes it uses.

DAK INDUSTRIES INC.

Call Toll Free For Credit Card Orders Only
24 Hours A Day 7 Days A Week
1-800-325-0880

For Toll Free Information, Call 6AM-5PM Monday-Friday PST Technical Information: 1-800-272-3200
Any Other Inquiries: 1-800-423-2866
8200 Remmet Ave., Canoga Park, CA 91304
$3 Rip-Offs Exposed?

Who says people can't make money with their computers? There are people downloading games, utilities and word processing programs for FREE from public bulletin boards and then selling them to you for $3 to $6. Well, now you can get thousands of programs for your IBM PC, clone or other computer, mostly for FREE, plus help the American Cancer Society!

By Drew Kaplan

Get free programs yourself! If you own a computer this may be the most important article you've ever read. Imagine printing 10 foot long banners, playing dozens of arcade style action and adventure video games (no joystick required), using spreadsheet programs, typing labels automatically, speed-typing thousands of words, changing text documents into a piano, diagnosing the speed and accuracy of your computer, renaming and re-sorting directories and a million more useful and fun programs.

But PEOPLE ARE MAKING MONEY
It's OK to copy these programs for yourself and you are actually encouraged to make copies for friends. This way the software really gets spread around. So, there's a loophole that allows you to make and distribute copies and to 'recover distribution costs'. Well, now there are companies making money (by downloading free programs and selling them to you for $3 to $6) on the backs of these generous programmers who have actually done the work.

ENTER DAK
OK Martha, here's the catch. No, there's no catch. You don't have to buy 10 tapes or disks. You don't even have to buy a modem from DAK. Of course, you'll need a modem, but you'll benefit from the hardware, software and double your friends and both benefit from the great software. I started DAK as a hobby 22 years ago when I was a student at UCLA. And, I've tried to keep it a hobby ever since.

DAK will donate to the American Cancer Society (I have a personal interest in research) all proceeds from the sale of their products beyond the cost of producing and distributing them.

And what's more, the cost of this 'ad' will be NOT be included in my costs. So, you won't be alone. Enclosed with your order are checks to support the American Cancer Society. All information must be handled through the P.O. BOX. Even if you order anything else from DAK, these items still MUST be ordered separately.

Computer Floodgates

You'll be deluged with free programs, instant information and incredible entertainment when you connect ADC's Hayes Compatible 1200 baud auto-answer/auto-dial modem to your computer at a breakthrough price.

By Drew Kaplan

Get ready. If you're just using your computer for word processing or spreadsheets, you haven't got a surprise for you. With a modem you can dial any of the thousands of electronic bulletin boards across the country and download (I'll explain in a minute) programs that will literally knock your socks off. And forget expensive long distance calls. With thousands of electronic bulletin boards, there are likely to be several right in your area.

FREE FREE FREE
I just printed out a 10' banner for my son's birthday. The program prints on any printer, daisy wheel, dot matrix or ink jet. Wow, and it was free.

I'm really enjoying three action video games. In Striker, a helicopter game, I'm the backyard of my house and have to pass through enemy territory to recover the items, get supplies and more. I haven't won yet. In Beasts, I keep getting eaten and in Pango, well, it's arcade action at its best.

I've designed forms using a form program. I've compared my Visual Computer's speed to a true PC (100%), and an AT Clone came in over 600% faster. If you're like me, whenever you type a word, it remembers your last few entries, it lets you use the up arrow to retrieve them and you can edit them without retyping the entire line. Great. There's a program that turns the entire face of my computer into a clock and another program that just puts the time in the upper right hand corner.

About a word processing program with spell check and all the refinements you'd expect for hundreds of dollars? Well, it's free too.

What's more, there is the wonderful world of Public Domain Software. From File Utilities to diagnostic and debugging to multi-tasking, you'll find thousands of programs to experiment with. From C compiling to artificial intelligence language, you'll have a wealth of knowledge. There are even programs that let your computer talk or play music.

PHONE LINE BLUES
So, you don't have a spare phone line? Don't worry. You can use your regular phone line. You won't hurt it, and who wants to talk on the phone when you're using your modem anyway.

GIVE A MAN A FISH
Please forgive me. I'm not invoking the Bible to sell you a modem. But, truth is truth. You can buy most of the programs you'll buy but requires someone to sell you a fish each day.

With a modem you can fish forever so you'll continue to quench your thirst for knowledge and entertainment forever. And, you won't be alone. Enclosed with your modem will be step by step instructions on how to use the bulletin boards. So, don't be the first. Get your feet wet. Everyone is friendly and glad to help once you're on line.

HAVE I LOST YOU YET?
First, I may have hit you with some Next Page Please
Every professional modem bills itself as 'Hayes Compatible'. But the big question is, how much does it really cost to make a top-of-the-line 1200 baud modem? Or, who's getting rich?

For DAK's new breakthrough price of just $119.95, you'll not only be getting a duck that quacks properly to Hayes modems, but sings like a nightingale to your pocketbook. It can save you a fortune in time with its extra features.

**DUCK SOUP**

Any computer with an RS232 standard serial port, will work flawlessly with this powerful automated modem.

I've owned a Hayes 1200 baud modem for about 4 years, I just unplugged it and plugged in ADC's to operate my Hewlett-Packard dumb terminal which I use at home to monitor DAK's computer.

The only differences I noted were improved monitor sound, more screen displays and a help menu. And, oh yes, one last extra. I use a few local data bases whose phone lines are always busy.

Well, ADC's intelligent modem recognizes a busy signal, hangs up and keeps retrying the number every 30 seconds.

There are less important (to me) extras like day, date and time, an extra phone jack and auto tone/pulse switching.

**1200 BAUD POWER**

The ADC Modem will communicate at 1200 baud (about 120 characters per second) or 300 baud (about 30 characters per second) automatically, depending on the link at the other end.

It comes with a modular phone cord that you simply connect to any standard modular jack. And, it uses standard Bell 103 and 212A protocols. (Don't worry.) It operates in half or full duplex.

For DAK's intelligent Auto-Answer, Auto-Dial Modem risk free with your credit card, call toll free or send your check for DAK's market busting price of just $119.95 plus $6 P&H. Order No. 4334. CA res add tax.

**Super Bonus:** Now you can try a Pay Data Base for Free. Compuserve's $39 (they charge about $6.25 per hour) is included. DAK's market busting price of just $119.95 plus $6 P&H. Order No. 4334. CA res add tax.

For your Apple IIe, you'll need a serial interface with an RS232 port, a cable and a modem program. It's all yours for just $69.95 P&H. Order No. 4357.

**1200 BAUD SMART DUCK**

**RISK FREE**

For business or pleasure, you'll communicate, gather information and save time. If you aren't 100% satisfied, simply return it in its original box to DAK within 30 days for a courteous refund.

To Order Your ADC 1200 BAUD Intel- ligent Auto-Answer, Auto-Dial Modem risk free with your credit card, call toll free or send your check for DAK's market busting price of just $119.95 plus $6 P&H. Order No. 4334. CA res add tax.

HAYES, IBM, and Apple IIe & II IC are registered trademarks of Hayes Microcomputer Products, International Business Machines and Apple Computer.

**You have a full range of entertainment thrown in as an extra bonus.**

DAK INDUSTRIES INC.

Call Toll Free. Full Credit Card Orders Only
24 Hours A Day 7 Days A Week
1-800-315-0800

For Toll Free Information, Call 5AM-7PM Monday-Friday PST Technical Information...1-800-272-3200

Any Other Inquiries......1-800-423-2866

8200 Remmet Ave., Canoga Park, CA 91304
**Cable Controller Improved**

Get all the cable channels on any TV or video recorder with this all new wireless infrared remote control cable tuning system. And at just $699, we're sure to break the cable market wide open.

By Drew Kaplan

If you've got cable, we've got it all. Now you can tune in up to 72 cable channels on any TV or VCR from your favorite easy chair.

The Universal Cable Controller receives all VHF Low Band channels 2-13 and VHF Mid-band 14(A)-22(I).

Plus, it tunes the Super Band VHF channels 23(J)-36(W) and Hyper Band channels from 37-73. You'll get a lot of entertainment for our breakthrough price.

Just imagine all the exciting shows that are fed right to your TV but can't be tuned in. And, even cable compatible TVs and VCRs, usually only have 10 or 12 presets. So, unfortunately, you have to choose only your favorites.

With the Cable Controller you won't have to choose. You can instantly tune in up to 72 channels all the time, anytime. So, your choice of entertainment will never be restricted.

**MOVIE CHANNELS**

If there are movie channels on your cable and they're not scrambled, the Controller is all you need. If they're scrambled, you'll need the cable company's box.

Note: Check with your cable company before viewing anything at all, to see if they require you to pay a fee.

**SPORTS PLUS**

There are lots of 'Super Channels' broadcast on cable. On the all sports channel you'll watch 'World Class Sports' whenever you wish. All Movie Channels give you entertainment at all hours.

And 'Super Stations' from New York and Atlanta give you major city TV for cities other than your own. Plus, there's Cable News Network for a world wide perspective on the news and much more. Why not see what's on your cable?

**ONLY FOR CABLE**

If you don't have cable, the Cable Controller isn't for you. It only finds extra channels when you are connected to a cable. And, it doesn't tune in UHF.

But, if you're on cable, your cable company is rebroadcasting UHF over unused VHF channels. So with the Cable Controller tuner, you'll get it all.

**TOTAL RANDOM ACCESS TUNING**

The wireless infrared remote handset does it all. It switches both the TV and the Controller on and off and selects your channels. And, look at this.

If you like to watch two ball games and switch between them as I do, there's a special 'Alt' switch that lets you flip back and forth with the touch of a button.

Plus, you can select favorite channels for step tuning. So, you can tune all channels or just your favorites with the step tuning controls. I have 4 movie channels on my cable and I love to step tune through them during commercials.

For all other channels, you'll enjoy total random access tuning. You can go directly from channel 2 to 28. Or you can step tune one channel at a time.

Once you've set your own TV to channel 3, you can just forget it. Any fine tuning is handled from the wireless infrared remote handset. And you'll have microprocessor controlled synthesized tuning for the finest picture.

You'll see the number of the station that you have selected displayed on the command base. And, you can tune channels either from the remote or the base.

Color tints, volume, brightness and contrast are all controlled by whatever method you now use.

**INSTALLATION**

Nothing to it. All cable systems use 75 ohm round cable. Simply unscrew the end from your TV and screw it into the Controller base input.

Then screw in an identical cable (included) between the Cable Controller and your TV. Finally, plug your TV's AC plug into the Controller and the Controller's AC plug into the wall.

**WHAT IT IS**

The Cable Controller is actually a very sophisticated, all electronic VHF TV tuner/receiver. It's really like a TV set without a picture tube.

Since it's all electronic, you won't be getting snow from dirty tuning contacts and loss of fine tuning as the set ages.

The Controller tunes all the possible stations that your cable can broadcast, something that would be very expensive to build into standard TVs, because not all TVs are going to be used on cable.

**GREAT FOR VIDEO RECORDERS**

Now you can record off cable. With the Cable Controller hooked to your video recorder, you can open the world of cable to your video recorder too.

Cable compatible video recorders that don't even tune in 72 channels can cost much more. Plus, if you use your cable compatible VCR as a tuner for your TV, you can't record one cable channel while you watch another.

You can feed both your TV and video recorder. Or, you can separate them so you really can watch one program and record another.

**WHAT IT ISN'T**

It isn't one of the infamous 'black boxes' you might have read about that illegally decode various 'Pay TV' channels. On cable, most of the programming isn't scrambled, it's just found outside the tuning range of the average TV.

So, if there is a Pay TV channel that is scrambled, or is only unscrambled on one TV in your house, the Controller is not made and should not be used to tune it in without paying.

Actually 'Cable Compatible' TVs and video recorders do basically the same thing as the Cable Controller, but cable tuning is usually an added feature that often doesn't cover as many channels.

The Cable Controller is made and backed by a standard limited warranty from Universal Security Instruments Inc.

**TRY THE WORLD OF CABLE RISK FREE**

Relax up to 25 feet away. Change channels, adjust the fine tuning or turn your set on or off. Explore the vast number of cable channels available to you.

Try it risk free. If you aren't 100% satisfied, simply return it in its original box within 30 days for a refund.

To order your Universal 72 Channel Cable Controller with Wireless Infrared Remote Control risk free with your credit card, call toll free or send your check for DAK's market breaking price of just $699 plus $6 for postage and handling. Order Number 4870. CA res add tax.

There's a whole new world of entertainment waiting for you just off your normal TV tuning range. With the Cable Controller, you can sit back in your favorite easy chair and tune in the world.

**DAK INDUSTRIES INC.**

Call Toll Free For Credit Card Orders Only 24 Hours 7 Days a Week 1-800-325-0800

For Toll Free Information, Call 6AM-5PM Monday-Friday PST

Technical Information...1-800-272-3200

Any Other Inquiries...1-800-423-2866

8200 Remmet Ave., Canoga Park, CA 91304
**Computer PT Boat**

"It's a swift, incisive, 5 pound powerhouse armed with MicroPro's powerful Wordstar Word Processing and Calc Spreadsheet Programs. This 64K briefcase portable is ready to sink battleship sized desk PCs. Add 2 modems, more software and a superb near letter quality printer, and it's a $1,968 retail value, price blasted to just $499."

By Drew Kaplan

Imagine a microcassette drive with a file with high speed access to the beginning of the specific file you want. It knows exactly where each file is. Now, you'll NEVER waste time when you are stuck waiting, traveling on a train, a plane, or sitting in a hotel room.

So, whether you're a writer and/or a programmer or an accountant, which I'm not, you can run spreadsheets and models with the 16,384 cell Calc program.
Geneva Continued

fit, and more in just about an hour. Plus there's a scheduler program for setting up appointments with day by day calendar screens that you can print out. Of course, there's a vast reservoir of programs you can buy or download for free from electronic bulletin boards by using the included modems.

IT GOES WHERE YOU GO

During the day, you can use it at your desk, in the warehouse or in the field for work. It's simply great for writing, inventory taking or sales forecasting.

At night, take it home to finish a project. Then using its internal modem, you can study your stock portfolio or log onto bulletin boards to check the latest price of gold, the status of your stocks, play games or download new programs.

And look at this bonus! If you're at all shy about using modems, we've included some great things for Genevas.

HOT LINK

You can directly connect this Epson computer to any IBM PC or Clone or virtually any other computer with a serial interface and any standard communication program, simply by using its cable. You can download (receive) a file from your desk PC to the Epson to take with you, or upload (send) a file from the Epson to your desk PC for your secretary.

In fact, this system is an incredible replacement for a secretary's typewriter. Portable WordStar will let you edit, correct and even move paragraphs or sentences at will. A letter won't have to be retyped and reproofed if a change is made.

If you already use WordStar, you know why it's the most popular word processing program in the U.S. with an estimated base of 3,000,000 users.

If you use another program, don't despair. You can still send the file. You'll just have to use it under the commands of your program.

ALL THE THINGS YOU'LL GET

Epson's 64K Geneva Computer has a suggested retail of $995. It is just 1.87" high, 11.58" wide and 8.42" deep. It has 3 CPUS. It has 72 keys. Plus 'Number Lock', lets you have a standard 10 key pad for fast entry of numerical data.

You'll have up to 10-20 uninterrupted hours of computing from its internal ni-cad batteries. Then it will automatically shut down. Even after battery-low shutdown, your memory will be protected by the internal backup battery.

Of course, the AC adapter/charger is included. So, you can operate from AC or DC to suit your needs.

The $995 Computer comes complete with 4 powerful software programs plus a group of Utility Programs. The programs are stored on ROM Chips (see below) that simply slip into either of 2 sockets on the back of the computer. Again, like a hard disk, these ROM chips are fast and load automatically. You get Portable WordStar, Portable Calc and Portable Spreadsheet. Plus you get a powerful form of Basic. This system can run virtually any CP/M programs.

There are two ports on the back of the Geneva. One is a serial port for the optional disk drive(s). The other is a fully programmable RS232 serial port for the super printer we have included. Or, you can use it to communicate with other computers and external modems. Of the total 64K in this computer, you can actually store files in a 24K RAM disk. The balance of RAM is used for running your programs. But, look!

THE FLYING WEDGE

Epson makes a $360 accessory (I've included) called a Multi-Unit, which gives you an added 64K RAM disk. It's a small wedge that attaches to the bottom of the computer and doesn't increase its footprint on your desk at all.

And there's more. Inside the Multi-Unit Wedge is the 300 baud auto-answer, auto-dial, Tone & Pulse Modem. It comes with a modular phone cable that you plug into any standard phone jack.

You'll also get Epson's $129 acoustic coupler modem (included). It fits on pay phone and hotel room handsets.

PRINTER HEAVEN

We've acquired a superb $299 List Price NLQ (Near Letter Quality) printer from Seikosha, Epson's sister company. It can take single sheet plain paper or letterhead or fan fold computer paper.

And its printing is so good that I think Near Letter Quality doesn't do it justice. It's fast, quiet and easy to use. It's AC powered. It features Bold, Underline, Condensed and Expanded Type capabilities.

Just imagine working at your desk, on the patio or in a hotel room. I actually wrote an ad on a flight from Atlanta to Boston. I'm 100% sold on this computer. If you're not 100% satisfied with its typing or computing or communications capabilities, simply return it in its original boxes within 30 days to DAK for a refund.

To order your Epson Geneva 64K portable computer complete with Portable WordStar, Calc, Scheduler, Basic and CP/M Utilities, On-Board Direct Access Microcassette Deck, Built-In Ni-Cad Batteries, AC/Charger Adaptor, Extra 64K RAM Disk Wedge with 300 Baud Modem, External 300 Baud Acoustic Modem, Communication Software, NLQ Sheet and Fanfold Printer, plus Cable and Connectors, forget the suggested retail price of $1,968. Call toll free or send your check for DAK's incredible close-out price of just $499 plus $18 for P&H. Order Number 4610. CA res add tax.

OPTIONS FOR EVERYONE

For massive storage we have Epson's state of the art 3½" floppy disk drive. It's rated at 320K. It has internal Ni-Cad Batteries and an AC Adaptor/Charger. Epson's retail is $599, plus $19 for the Cable and $17 for the Utility Disk for the Drive. It plugs directly into the Geneva's serial port and boots automatically. This $635 value is yours for just $189 ($5 P&H). Order No. 4614.

A box of 10 Double Sided Double Density 320K Floppy Disks is just $34 ($1 P&H). Order No. 4615.

High Grade 30 Minute Microcassettes are just $2 (50¢ P&H). Order No. 4616. 60 Minute Microcassettes are just $3 (50¢ P&H). Ord. No. 4617.

The Seikosha printer comes with a unique long life ribbon (up to 2½ million characters). Extra ribbons are just $7 ($1 P&H). Order No. 4618.

You can get a list of software that DAK stocks for the Geneva, including Ashton-Tate's dBase II, and the step by step instructions with your computer.

For your desk, your home or for the great outdoors, you'll be able to write, forecast, and compute with mammoth power and in real style. Like a PT Boat, computer moves in fast and does the job while it lets you escape the chains of traditional deskbound PCs.
Instant You, Digitally

Forget complicated answering machines. Forget worn out announcement tapes. Now you can simply touch a button and record your voice digitally on computer RAM. It’s an incredibly easy to use breakthrough, for just $49.90.

By Drew Kaplan

It’s hassle free. And, its flawless digital reproduction of your voice is almost scary.

Now you can record your own voice on computer chips by simply touching a single button. Now you’ll never again have to match your message to a continuous loop cassette.

If you’re like me, recording a message on an answering machine is really an intimidating hassle.

Besides all the buttons you have to push, you have to rewind the tape, wait, and then play it back to see how your message sounds.

Well, with this all new digital breakthrough, simply push one button to record any outgoing announcement up to 15 seconds long.

Then, push another button to instantly play it back. It’s totally hassle free.

In fact, it’s so easy that you’ll feel comfortable changing your flawlessly recorded announcement to suit your hourly needs. And, talk about flexibility, wow!

Now you can effortlessly change your message whenever you wish. So, if you’re only out in the yard, you can tell callers you’ll be available at 2:20 PM. With a normal machine, they wouldn’t know if you’d be back in 20 minutes or 20 days, so they might not leave a message.

So, in addition to standard answering machine features, you can instantly catch calls if you’re down the street, in the shower, taking a nap, or getting the mail.

PRIVACY AND SANITY PLUS

Now you can really protect your privacy. Never before has an answering machine been so easy to use that you’ll use it when you’re at home too.

When you’re home, you can ‘screen’ calls. Your new answering machine will answer the phone and you’ll hear who’s leaving a message. If you want to talk to the caller, just pick up the phone.

Now you can answer only when you want without missing important calls. This is a superb necessity, not just a convenience at the Kaplan household.

It seems that as soon as we sit down to dinner, the phone starts ringing. Now, we can hear who’s calling (of course we can turn down the volume if we wish) and take away, not to mention our dinner.

I used to take the phone off the hook during dinner, but aside from the danger of missing an emergency call from someone, I’ve been told it’s really rude.

If someone tries to call and gets a busy signal, they tend to keep dialing, thinking that we’re talking. Well, have I got news for you. We can have the best of both worlds with this incredible new answering machine.

GREAT SOUND PLUS

OK, it’s really just like a conventional answering machine. But, it’s incredibly easier to use than any machine I’ve seen.

When you touch the ANN. REC. (Announcement Record) button, you instantly record your voice on the machine’s computer chips. So there are no moving parts to wear out, or tape to hiss or mess up the incredible fidelity.

EASIEST EVER

There are no complicated controls. Installation consists of simply plugging in its standard modular phone jack and its AC plug (both included).

There’s even a modular jack on the back of the answerer for your phone. And, a 9V battery (not included) backs up your announcement.

But, it’s virtually control free. There are no complicated controls, no sequences to remember. Just record your announcement or play back your messages.

Of course, there’s a volume control for playback. And, a built-in condenser mike lets you record your messages without anything to plug in.

Push the answer button to activate the machine. You can save or erase messages or fast forward or rewind to reheat a message. It’s all incredibly simple.

To make it really easy, there’s no remote pick-up, and the pretty colored handset I used in the picture isn’t included. It simply answers your phone with the best fidelity you’ve ever heard and with the least effort ever.

ALL THE USES

For an hour, a day, or a month, this new answering breakthrough will faithfully record your incoming messages. And with its lifelike digital fidelity, your callers are sure to be awed.

With its full size standard cassette, it will take up to 30 minutes of your messages with no minimum length for each. Now you’ll have total phone freedom and privacy at a breakthrough price.

It’s made by Answerex and with its digital announcement and standard cassette drive, it’s built to last. It’s backed by Answerex’s standard limited warranty.

YOUR VOICE IN LIGHTS

RISK FREE

It’s eerie. Wait till your callers hear your voice. They’ll be amazed. Wait till you see how easy it really is to use this incredible new machine.

If you’re not 100% satisfied, simply return it in its original box to DAK within 30 days for a courteous refund.

To order your Answerex Digital Answering Machine that answers in your own voice digitally and takes your variable length messages on a standard audio cassette, risk free with your credit card, call toll free or send your check for DAK’s breakthrough price of just $49.90 ($6 P&H). Order No. 4871. CA res add tax.

Now you can instantly change your announcement and thrill your callers with the digital fidelity of your voice.
Do you know who was philistine enough to license Buddy Holly's Oh Boy! for use in a Buick commercial? It was none other than ex-Beatle Paul McCartney. Perhaps to make amends, however, McCartney is the narrator of a new Sony video documentary on the life of the great Texas rock pioneer. Titled The Real Buddy Holly, the ninety-minute tape features interviews with Holly's family, members of his band, the Crickets, and the little Holly performance footage that still survives. McCartney, meanwhile, is hard at work on a more rock-oriented Garcia: riding high

Holly and McCartney: Buicks and a bio-pic

Pianist André Watts is celebrating the twenty-fifth anniversary of his debut this month by playing three concertos with the New York Philharmonic on January 13. The concert will be conducted by Zubin Mehta and telecast by PBS stations.

Watts will begin the program with Beethoven's Second Piano Concerto, which will be followed by Liszt's First and Rachmaninoff's Second. The Liszt, particularly, recalls Watts's debut since he played it on that occasion, at the age of sixteen. Leonard Bernstein conducted the Philharmonic at that concert, which was televised as well. A prolific recording artist (for Angel, at the moment), Watts in fact claims the distinction of having appeared in more televised recitals and orchestral concerts than any other pianist in this country.

Watts's latest Angel release is an album of Beethoven sonatas, including the Moonlight and the Appassionata.

Deutsche Grammophon probably has more major anniversaries and birthdays to celebrate this year than any other international classical record label. Herbert von Karajan celebrates his eightieth birthday in 1988 and marks his fiftieth year as a DG recording artist. Leonard Bernstein, now an exclusive DG artist, is seventy in August, and Karlheinz Stockhausen, who has come to be regarded as the label's house composer, celebrates his sixtieth birthday in the same month. On top of all this, DG will be observing its ninetieth anniversary as "the oldest continuously operating record label in the world."

To commemorate Karajan's birthday, DG plans to
celebrated by a worldwide telecast from Tanglewood, an observance to be coupled with the release of several new Bernstein recordings, including Puccini's La Bohème, recorded in Rome with an all-American cast.

W hen the Boston Pops reached its one hundredth anniversary in 1985, its current conductor, the noted film composer John Williams, led the orchestra in a highly successful transcontinental tour of the United States. In November 1987 the orchestra embarked on its first tour of Japan, and Williams was again at the helm. Ten concerts were scheduled in Osaka, Shizuoka, Yokohama, Tokyo, and Nagoya. Programs for the concerts in Japan included big-band favorites from the Pops' Philips album "Sing, Sing, Sing," Faure's Pavane and Rimsky-Korsakov's Capriccio espagnol from "Pops in Love," and music from Williams's film scores such as Jaws, Superman, and Star Wars. The Boston Pops' latest album is a greatest-hits compilation of Williams compositions called "By Request . . . ."

G ershwin albums have recently been flooding the market in observance of the fiftieth anniversary of the composer's death. Among the latest is Arabesque's "Mitch Miller Conducts Gershwin." Miller leads the London Symphony in An American in Paris, Rhapsody in Blue, and the Concerto in F, for which the piano soloist is David Golub. Miller toured with Gershwin as an oboist in an orchestra Gershwin put together in 1934 to acquaint audiences with some of his larger works. Miller points out in his liner notes that none of them succeeded with the critics. "The jazz critics said they were not jazz, and the symphony critics said they were not symphonic. Time has proven them wrong."

What kind of person was George Gershwin? According to Miller he was "very self-effacing and quiet. He did not have what we'd call a big aggressive personality. All he had going for him was his prodigious talent and craftsmanship. . . . That slight, unassuming young man with the cigar [was] a true original—a genius." And time has proven Miller right.

R ing in the New Year with Kathleen Battle! Among Deutsche Grammophon's latest releases is a "New Year's Concert from Vienna," recorded live a year ago, featuring the American soprano as soloist with the Vienna Philharmonic under Herbert von Karajan. The program comprises music by Johann Strauss père and his sons, Johann Jr. and Josef. You can also catch Battle in a New Year's Eve telecast on PBS by the New York Philharmonic conducted by Zubin Mehta. The concert includes works by Mozart, Suppé, Offenbach, and Lehár. For stay-at-homes in a partying mood, ProJazz has released a "New Year's Eve at Sweet Basil," recorded at the New York jazz club in 1985. Available only on CD, it offers a fifty-minute set by Art Blakey and the Jazz Messengers, which at the time included Terence Blanchard on trumpet, Donald Harrison on alto saxophone, and Mulgrew Miller on piano. .

T he redoubt able James Brown—aka Mr. Excitement, the Hardest-Working Man in Show Business, and Soul Brother Number One—must have a portrait, à la Dorian Gray, in an attic somewhere, getting older while he stays ageless. Now in his mid-fifties, Brown recently appeared at New York's legendary Apollo Theater. It was his first appearance there in sixteen years, and the guy was as athletic and exciting as ever. Polydor has just released a compact disc version of his "At the Apollo" album, an early Seventies classic originally on two LP's featuring Brown at his funkiest.

C hristmas Footnote: Like anyone else who's worn out four vinyl copies of the classic "Phil Spector's Christmas Album," we're happy to see that its Eighties equivalent—A&M's star-studded "A Very Special Christmas"—has been released in a very special format. Mobile Fidelity is making the album available on a 24k-gold UltraDisc, a type of CD that is said to have an extended life span with less need for error correction. Both A&M and Mobile Fidelity are donating all proceeds of the album to the Special Olympics. Bruce Springsteen, Run D.M.C., Madonna, U2, Sting, and other performers celebrated "A Very Special Christmas" by donating their services.
No other speaker manufacturer has the musical experience of M&K.

We are the only manufacturer that is also a digital recording label—constantly referencing the sound of our speakers to live professional musicians in a digital recording environment. When you hear the emotion and excitement of live music from an M&K speaker system, it is a direct result of our ability to engineer and perfect our speakers in our own recording studio.

M&K Sound is at the cutting edge in both loudspeaker and recording technology. RealTime Records (and its associated label Perpetua Records) has been a vital part of our company since 1974. We helped pioneer both direct-to-disc and digital recording, and, in 1983, we were the first U.S. label to release digital Compact Discs.

Satellite Speakers
Since 1978, M&K Satellite and Powered Subwoofer speakers have excited music lovers with a lifelike detail and clarity of sound unmatched by conventional speakers. And the compact size of M&K Satellites fits easily into virtually any environment or decor.

Each M&K Satellite has the unique and uncanny ability to reproduce the sharp transients and presence of live musical instruments. Close your eyes, and the speakers will seem to disappear. In their place, you'll hear instruments in a wide and deep three-dimensional space, reproduced with a precision that has astounded the most experienced audio reviewers. Above all, the sound is live.

Powered Subwoofers
Since 1974, music lovers worldwide have discovered deep bass by adding an M&K Subwoofer to their systems. Even without M&K Satellites, an M&K Powered Subwoofer, with its own internal amplifier, will make your music or video source come alive, adding much deeper bass response and a greater tactile sense of "punch" and "impact" to the sound.

When our engineers walk from the recording studio where musicians are performing, into the control room where M&K speakers are reproducing the music, the sound on both sides of the door is alive. That is the treat that awaits you from M&K speakers.

Systems from $250 to $2500 at select audio specialists nationwide. Call or write for speaker and CD literature.
Our greatest artists do not always please us. They are just as apt to surprise, puzzle, or even disappoint us—especially when we have grown comfortable with their work. Sting’s new solo album, “... Nothing Like the Sun,” is a case in point. It is a stylistic scaling-down just when we expected epic things.

Although Sting has marshaled virtually the same instrumental forces he used in “The Dream of the Blue Turtles,” “... Nothing Like the Sun” has almost none of the earlier set’s big, bold strokes. Instead, it represents a compression of form and technique. It’s less ambitious, more contemplative and monochromatic, as if Sting were working through his own Blue Period.

“... Nothing Like the Sun” is generous with its ideas, containing nearly an hour’s worth of music in twelve songs, and it is unplagoretic about them. For the most part, Sting works with one color here, in a kind of New Age riffing reminiscent of Pat Metheny or Weather Report. It is probably a better use of the group he’s assembled—Branford Marsalis, Kenny Kirkland, Manu Katché—than “Turtles,” which was criticized for using some of the best jazz musicians in the world to play pop. Here Sting applies layer after layer of electrifying drums, rippling percussion, and pounding bass to create a shimmering sound surface.

But if the music is seamless and largely unvarying, thematically the songs fall into distinct categories. The first three songs explore dreams and personality, the next three political subjects. Then there are three party tracks followed by a grab bag of leftovers and experiments.

The first half is the most consistently satisfying. The Lazarus Heart opens with a wall of sound—thundering rhythms crosscut with Marsalis’s brilliant sax lines and Sting’s searing vocals. Then come the harmonies of Be Still My Beating Heart and the dancing Englishman in New York. Marsalis is Sting’s alter ego in this album, stalking him everywhere, echoing his vocals, wrapping them in warm and white-hot tones, sometimes mocking them as well.

Sting’s political commentary mostly concerns Latin America, but the music ranges from the tumultuous backbeat and grinding guitar of History Will Teach Us Nothing to the mournful processional They Dance Alone and the slow Spanish-style acoustic guitar of Fragile. The three party songs are the weakest, perfunctory funk, but Sting rallies toward the end. Although the last three songs are pretty clearly tagged on to fill out the set, Sister Moon is a haunting blues ballad, The Secret Marriage an attempt at theatrical music, and Jimi Hendrix’s Little Wing a collaboration with bandleader Gil Evans, who has been doing jazz-band arrangements of Hendrix’s music for some fifteen years. Sting’s vocal on Little Wing is expansive and nostalgic, and the song is quite affecting.

If you’re looking for music on a grand scale, you won’t find it in “... Nothing Like the Sun.” In one sense, Sting has shed the mantle of the artist. He has turned over much of the album to his band, and the players respond with intensity and expressiveness. This music is much freer and roomier than the music of “Turtles.” If it is less monumental than we expected, it is also less controlled and calculated. But don’t get too comfortable with it: Sting will undoubtedly surprise us again.

Mark Peel

STING: “... Nothing Like the Sun.” Sting (vocals, bass, guitar); Manu Katché (drums); Kenny Kirkland (keyboards); Mino Cinelu (percussion, Vocoder); Branford Marsalis (saxophone); other musicians. The Lazarus Heart; Be Still My Beating Heart; Englishman in New York; History Will Teach Us Nothing; They Dance Alone (Gueca Solo);
There are two tests for of a system.

As you know, a/d/s/ began life as a speaker company. But it was only a matter of time before our interest in accurate musical reproduction led us to think seriously about the electronic portion of a sound system.

As you can plainly see, the R4’s displays are extremely legible and easy-to-read from anywhere within a wide viewing angle. The unit provides you with full information about its operating status, so you know what you’re doing and not flying blind.

What we wondered was whether we could improve upon that which was available at the time. The results appeared first in this country in 1983.

The R4 gives you true multi-room capabilities, while the RC1 provides the means to control the system no matter what room you’re in.

Lean, spare and understated, the Atelier Series was an articulation of our belief that high-grade electronic components needn’t look like laboratory instruments. Nor require an engineering degree to coax into operation. Nor surrender to the indignities of planned obsolescence.

That philosophy today finds its expression in the Atelier R4 and its perfectly matched family of components.

A new class of component, as a look under the hood will attest.

At first glance, the R4 may appear to be a receiver. And it’s true that the unit functionally incorporates the classic elements of that category of product. But beyond the impressive amplifier, pre-amplifier and tuner sections, the R4 bears about as much resemblance to a receiver as a BMW 735 does to a motor scooter. A look inside will illustrate the point.

We draw your attention first to what you’d least expect to find in a high fidelity product—a computer. Specifically, a microprocessor designed by a/d/s/ to provide a level of functionality never available before. For example, you can program the R4 to automatically turn on any combination of sources within your Atelier system for listening and recording, whether you’re at home or off an extended vacation.

When you are at home, you’ll appreciate the fact that the R4 can give you access to any source from any room in your house—

The R4. Its slim, spare design gives little hint of the technological sophistication and sonic power that reside inside.

all by remote control. And when we say control, we mean control. With the RC1, you can control the nuances of every remote-ready Atelier component in your system—the compact disk player, the cassette deck, the tuner, even Atelier components which have yet to leave the drawing boards at a/d/s/.

If you’re a computer buff, you’ll be pleased to know you have the option of controlling Atelier functions by connecting your pc to the RS-232 port in the R4.

With the RC1 remote control unit, you can control every important function of every remote-ready Atelier component. You can do it standing up, sitting down or lying on your back. It issues more than 200 different commands.
Pertinent to the subject of control is the large scale integrated chip that's embedded within the R4's control circuit. This chip makes it possible for you to control volume, bass and treble settings in precise, digital increments—channel to channel, and with none of the variation in levels that are typical of "twirl-knob" systems.

The sonic purity is uncommon because the design is uncommon.

The R4's preamp signal paths are unusually noise free. That's because all circuits have been painstakingly protected from stray radiation by ample amounts of shielding—one of just many steps we've taken to preserve the extremely low distortion of the amplification stages.

As audio purists, we also feel compelled to tell you that the R4's microprocessor exists entirely outside the path of the audio signal. In other words, it keeps to itself, which is as it should be.

The FM portion of the R4 is as impressive as everything else about the unit. Finetuning is done in small, digital increments, which results in superb signal acquisition—the best possible, in fact—and eliminates distortion and "fuzzy" reception. Working down the signal chain, we come to the IF amps. Their bandwidth has been carefully designed to yield exceptional selectivity. Finally, stereo decoding is, in a word, impeccable. The result: optimum stereo separation.

As for the prodigious amount of power the R4 produces for its size, that was accomplished thanks to our use of a proprietary rail-switching technology that automatically and instantaneously increases power for high-energy music transients—well beyond its rated 75 watts per channel.

When you need more power, we have more amplifier. Our PA4 amp provides 150 watts per channel, and nearly double that amount when bridged. Whether you use one or two PA4's in tandem with the R4, operation remains completely automatic. Moreover, you don't surrender any of your remote control capabilities—a fact that nicely differentiates Atelier from its competitors.

One final point deserves to be repeated. When we entered the electronics arena in 1983, our stated goal was to produce superb audio equipment that never became outdated. The R4 is the product of that vision, and it won't.

For more information about any a/d/s/ products, phone a/d/s/, toll-free, at 1-800-345-8112. (In PA, call 1-800-662-2444.)

CIRCLE NO. 92 ON READER SERVICE CARD

The Atelier system of electronic components. From top to bottom, the R4, the CD4 compact disk player, the C4 cassette deck and the PA4 power amp. That's even an Atelier storage module they're sitting on.
BEST RECORDINGS OF THE MONTH

Fragile; We'll Be Together; Straight to My Heart; Rock Steady; Sister Moon; Little Wing; The Secret Marriage.A&M SP 6402 two LP's, © CS 6402 one cassette, © CD 6402 one CD (55 min).

SALONEN Conducts SIBELIUS

The new CBS recording of Sibelius's Fifth Symphony by the Philharmonia Orchestra under Esa-Pekka Salonen, the youngest of today's Finnish conductors to achieve international recognition, does honor to the composer's masterly score. A particular merit of Salonen's reading is his exquisite control of dynamics and color, which is evident from the very first pages. Everything is deliberately understated. Salonen doesn't cut loose with the full orchestral armament in the first movement until the tutti reprise of the main theme, an approach that imparts to the music a sense of unfolding and growth as inevitable as the process of nature itself.

The finale, too, with its famous ostinato horn figure, is never allowed to degenerate into bombast as it has in too many other readings. The scurrying strings in the opening of the finale suggest to me nothing so much as the ocean's "catspaws" in a Maine harbor on a gusty day. With the six hard-driven hammer-blow chords at the end, built on the harmonic scheme of the ostinato horn theme, Salonen and the Philharmonia bring the work to a richly fulfilling close.

The filler piece, the opulently scored Pohjola's Daughter, gets a taut and brilliant treatment, although Salonen tends to drive the music a bit too hard toward the final climax. In this work as in the symphony, the Philharmonia is in peak form, and the recorded sound is equal to the best I have ever heard from EMI's Abbey Road studio—gloriously transparent yet powerful. Given the extraordinarily wide dynamics of these performances, particularly the pianissimo at the end of Pohjola's Daughter, there can be no question about the sonic benefits of digital recording.


SPRINGSTEEN TACKLES LOVE AND SEX

It's tempting to call "Tunnel of Love," Bruce Springsteen's remarkable new album, a sort of "Nebraska" for yuppies. After all, here Springsteen is writing mostly about himself rather than the blue-collar characters he usually chronicles, and he's unafraid to announce, "I got all the bonds, baby, that the bank could hold." And musically, with its bare-bones arrangements and somber, even elegiac mood, it does recall that earlier solo record, though in a rock-and-roll context.

So it's tempting. But, of course, it's wrong. What "Tunnel of Love" is, actually, is the Boss on love and sex, two subjects he's shied away from over the years, and when he's working full out, which he is for most of the record, it's close to brilliant. There's Spare Parts, sort of the flip side of Madonna's Papa Don't Preach. There's Tougher Than the Rest, with its great ominous organ and Duane Eddy guitar lines. And there's One Step Up, a beautifully concise sketch of a dying marriage, When You're Alone, one of the most profoundly blue songs I've ever heard, and even Ain't Got You, a rousing Bo Diddleyish stomper that gets the album off to a deceptively funny start.

True, there's also some dross: Cautious Man sounds like a "Riv-er" out-take, and the central conceit of Two Faces is a little trite (although you may appreciate the Lou Christie reference). Mostly, though, this is a very smart and quietly innovative set of songs from a guy who, among other splendid things (like being a terrific multi-instrumentalist), has got to be regarded as one of the two or three most versatile pop songwriters around.

"Tunnel of Love" may not be the...
MASTERPIECE:
A work of excellence from Hitachi.

THIS AWARD WINNING HI-FI CD CONSOLE LOOKS SLEEK AND SOUNDS SENSATIONAL

The pros agree. The MXW51's extraordinary engineering and design earned the 1987 Electronic Industry Association Award. This Masterpiece was also singularly honored with Omni magazine's I-D-E-A Award.

You will be more than dazzled by the sleekness of this audio system's European design and the full magnitude of its sound. It has a compact disc player, dual cassette deck, digital tuner and powerful (50W/ch) amplifier integrated into a unit barely 3" high. Feather-touch controls and luxuriously easy infrared remote control make commanding this versatile performer a cinch. Enjoy double auto reverse, 5-band graphic equalizer, Dolby® noise reduction and a 20-station AM/FM memory. Each of the custom Euro-Design speakers combines 8" woofer, 5" mid-range and 1" tweeter to provide sound that wins prizes from everyone who hears it. Treat yourself to a real masterpiece of audio art...the MXW51!

CIRCLE NO. 13 ON READER SERVICE CARD

HITACHI
A Work Leader in Technology
BRUCE SPRINGSTEEN: Tunnel of Love. Bruce Springsteen (vocals and instruments); the E Street Band (vocal and instrumental accompaniment).

Not that it is all drive and nervous energy, by any means. The big tune in the opening movement of the quartet sings out with all the warmth of heart Schumann must have felt when he conceived it, and the lyrical cello tune in the quintet is as convincing as the vigorous episodes in these superb players' affectionate but basically straightforward approach. Some of the cello phrases in both works might have been a little more eloquent, but better an occasional understatement than an excess of “interpretation.” Indeed, both performances are stunning reminders that the most effective interpreters are the ones with the good sense simply to avoid getting in the music's way.

There is nothing labored here: Elegance and spontaneity go hand in hand in the sort of music making that doesn't merely “reach out” but actually draws the listener into the experience. The sound quality is ideal in the same sense of “not getting in the way.” Focus and balance are so well judged that you are aware only of the life and warmth in the music itself. This one will take some effort to beat. Richard Freed

SCHUMANN:
The conductor Ernest Ansermet once remarked for him it made absolutely no difference whether he was performing before an audience or in a studio. There may not be many other musicians for whom that can be true, but apparently it works that way for Emanuel Ax and the Cleveland Quartet. Their new RCA recording of Schumann's Piano Quartet and Piano Quintet conveys all the enlivening spirit and happy give-and-take that marked the live performances they gave of these works in Washington, D.C., a month or two before they recorded them in Rochester, New York, in November 1986.

This wonderful release completes the survey of the big Romantic piano quintets that Ax and the Cleveland Quartet began together a dozen years ago with their outstanding account of the Dvořák Quintet in A Major, and it may be regarded as a true culmination. There is a pulse in these performances that is quite different from the one you feel in Ax’s recordings of the Beethoven and Brahms cello sonatas with his frequent associate Yo-Yo Ma. Expansiveness and poetic reverie are the prevailing elements in those performances, while here there is an altogether more propulsive element, a more exuberant sweep quite in keeping with the youthful character and impetuosity of the works themselves.

There is nothing labored here: Elegance and spontaneity go hand in hand in the sort of music making that doesn't merely “reach out” but actually draws the listener into the experience. The sound quality is ideal in the same sense of “not getting in the way.” Focus and balance are so well judged that you are aware only of the life and warmth in the music itself. This one will take some effort to beat. Richard Freed

SCHUMANN: Piano Quartet in E-flat Major, Op. 47; Piano Quintet in E-flat Major, Op. 44. Emanuel Ax (piano); Cleveland Quartet. RCA © 6498-2-RC (57 min).

Cleveland Quartet: poetic

NOW ON CD
Compact discs of previously released LP's

POPULAR

□ BLONDIE: Autoamerican. CHRYSALIS VK 41290 (mid-price). Deborah Harry's "impressive" fifth album (Best of Month, April 1981).


□ SCOTT JOPLIN: The Entertainer; Elite Syncopations. BIOGRAPH BCD 101 and 102. Digital recordings from piano rolls made by the greatest of all ragtime composer-pianists in the early years of this century.

□ SHE LOVES ME (Jerry Bock--Sheldon Harnick). POLYDOR 831 968-2. Original Broadway cast of 1963, headed by Barbara Cook, Barbara Baxley, Daniel Massey, and Jack Cassidy. Long-awaited rerelease of a beloved score, complete on one CD (73 min).


CLASSICAL


□ LALO: Symphonie espagnole.


PARTICIPATE IN
THE STEREO REVIEW
BUYER POLL

Stereo Review wants to know more about our readers: how much equipment you buy (and how often), how much you spend on it, what sort of product features you like. That will help us create a better, more informative magazine, specially geared to your tastes and preferences.

To gather this important information, we've created the Stereo Review Buyer Poll. And we need your help to make it work.

If you've bought any equipment within the past 30 days, we'd like you to participate (see instructions below). We'll use the information you give us to keep manufacturers up to date on the buying habits of stereo enthusiasts—the most knowledgeable group of audio buyers in the country. And in the long run, that will mean better service for you.

HOW TO PARTICIPATE
You can participate in the Stereo Review Buyer Poll by sending in the Reader Service Card appearing next to this page. We've provided space for you to list any equipment purchased in the past 30 days. Any kind of audio/video equipment qualifies.

For example:

Home Audio Components
- Amplifier
- Receiver/Tuner
- Speakers
- Turntable
- Cassette Deck
- Equalizer
- CD player

Portable Stereo
- Portable Cassette Player
- Portable CD Player
- Headphones

Car Stereo
- Tuner
- Cassette Deck
- Speakers

Home Video
- VCR
- Camcorder
- Videodisc Player
- Stereo TV

Published in Stereo Review: October 1989

Fill in the type of equipment, manufacturer, model number, and price you paid. Include all the equipment you bought this month. Then print your name and address and drop it in the mail (we pay the postage). It's that simple!

LOOK FOR THE BUYER POLL EVERY MONTH
The Stereo Review Buyer Poll will appear in every issue—just check the Table of Contents for that month's location. You can participate in any month in which you purchased audio/video equipment.

Of course, even if you don't join our Poll, you can still send in the Reader Service card to get information about products advertised in that month's issue.

We hope you'll participate regularly in the Stereo Review Buyer Poll. Your answers are important to us—and you'll find the resulting benefits important to you.

Thanks for helping us out!
The McIntosh XRT 22 Loudspeaker System delivers

The McIntosh XRT 22 is the purest expression of the loudspeakers scientist's endeavors. It is the one right combination of component parts that has eluded the diligent search for the loudspeaker bridge to the dominion of reproduced musical reality. The high-frequency radiator column is an illustration of the right combination. The 23 tweeter elements can reproduce 300 watts of input power at 20 kHz, with the lowest measured intermodulation distortion. Because each tweeter mechanism handles a small quantity of the total power, extremely low quantities of distortion are developed. The total column radiates the energy in a half cylindrical time co-ordinated sound field. The low distortion, transparency of sound, coherence of sound images, definition of musical instruments, and musical balance is simply a revelation that you must experience.
Discs and tapes reviewed by
Chris Albertson, Phyl Garland, Alanna Nash, Mark Peel,
Steve Simels

BEAT FARMERS: The Pursuit of Happiness. Beat Farmers (vocals and instrumen-
tals); Nicky Hopkins (piano); Steve Berlin (saxophone); other musicians. Hollywood Hills; Ridin'; Dark Light; Make It Last; Key to the World; God Is Here Tonight; and five others. CURB/ MCA MCA-5993, © MCAC-5993, © MCAD-5993 (39 min).

Performance: Clunky
Recording: Okay

What we have here, at least theoretically, is supposed to be cowpunk. I think. But it's hard to pigeonhole exactly. True, there's a lot of whiny harmonica, but there's also a lot of Stonesish guitar. If you had to compare this band with another one, it might well be the old J. Geils Band—with a twang. That said, "The Pursuit of Happiness" is more or less unmemorable both musically and lyrically. Neither the presence of legendary keyboardist Nicky Hopkins nor the one good song, "Tom Waits' Rosie," can alleviate the aura of uninspired competence that is the album's principal distinguishing characteristic. S.S.

BEE GEES: ESP. Bee Gees (vocals and instrumen-
tals); instrumental accompaniment.

Recording: Very good

I'm not sure why so many hibernating rock stars have felt it was safe to come out of hiding over the last two years, but there has certainly been a flood of them—Aerosmith, the Monkees, Eric Clapton, Steve Winwood, George Harrison, and now the Bee Gees. The brothers Gibb haven't recorded since 1981, but they really should have taken a sabbatical after " Spirits Having Flown" in 1979 and spared themselves the unpleasant chore of being the Bee Gees at the same time the Sex Pistols were being the Sex Pistols. The musical atmosphere has recently been much more conducive to the Bee Gees' slick disco-

EXPLANATION OF SYMBOLS:

- DIGITAL-MASTER LP
- TAPE CASSETTE
- COMPACT DISC (TIMINGS ARE TO NEAREST MINUTE)

MELLENCAMP

JOHN COUGAR MELLENCAMP'S new record, "The Lonesome Jubilee," while recognizably rock-and-roll, is in many ways a variant of Bruce Springsteen's folkish "Nebraska": an uncompromising look at real life and at real people for whom recent years have not exactly been a bed of roses. In fact, "Lonesome Jubilee" departs from the landscape of "Nebraska" only in its flashes of humor and its infectious rhythms. As they used to say on American Bandstand, "It's got a good beat, and you can dance to it."

And as they still say on Magnum P.I., I know what you're thinking: Yawn, not another downbeat, populist, heartland-rock album from an extremely rich pop star far removed from the concerns of the people he professes to speak for. To which I would reply: Well, kind of. What keeps "Lonesome Jubilee" from having an air of condescension is that it's anchored in traditions as venerable in their blue-collar American way as the black South African rhythms of Paul Simon's "Graceland."

The sound of "Lonesome Jubilee," like that of Mellencamp's last album, "Scarecrow," is largely acoustic, heavy on the accordion and fiddle, but still driven by the explosive drumming of Kenny Aronoff. It's rock-and-roll informed by echoes of the Childe ballads, Appalachian mountain music, and earthy country songs as much as by the kind of Sixties frat rock Mellencamp cut his teeth on. Imagine the blues-singing cowboys of the Rolling Stones' "Let It Bleed" twenty years later, and you'll have a hint of what's going on here. Rootsy, yes, but within a genuinely original context.

Lyrically, the album is not entirely convincing. The songs that try to make a Big Statement seem underdeveloped at best and a bit hackneyed at worst. Nothing here matches the drama of Springsteen's "State Trooper," and the overall sense of quiet desperation sometimes verges on affectation. But strictly as music, this is an impressive piece of work, especially from a guy who used to bill himself, with commendable candor, as an American Fool. If it isn't quite The Grapes of Wrath, you have to admire the attempt.

Steve Simels

JOHN COUGAR MELLENCAMP: The Lonesome Jubilee. In John Cougar Mellencamp (vocals, guitar); vocal and instrumental accompaniment. Paper in Fire; Down and Out in Paradise; Check It Out; The Real Life; Cherry Bomb; We Are the People; Empty Hands; Hard Times for an Honest Man; Hotdogs and Hamburgers; Rooty Toot Toot. MERCURY 832 465-1, © 832 465-4, © 832 465-2 (41 min).
pop. In fact, while it's easy to underestimate the influence "Main Course" and "Saturday Night Fever" have had on pop music since the anti-disco backlash of the early Eighties, the sweeping, contrapuntal dance rhythms of those records can be heard on everything from Michael Jackson's "Thriller" to most of Battle's synth-pop.

Although the cover photo on "ESP" looks a lot like that on U2's "The Joshua Tree," no one is going to mistake Robin Gibb for Bono. "ESP" is crammed with prototypical Bee Gees high harmonies and pulsating dance rhythms. It's as if they never left. There are no surprises in this album, but there are plenty of nice moments: the irresistible chorus of "higher and higher" in ESP, a textbook hook if there ever was one; the lively, anthemic, hard-swinging You Win Again (I can't wait for the marching-band arrangement at the Orange Bowl half-time show); the Byzantine vocal line of Giving Up the Ghost; and the white-bread funk of Backtafunk, which could almost bring John Travolta back from limbo. The Bee Gees' sappy side is also represented: Live or Die, for example, with its peculiar breathy, staccato vocal.

The Bee Gees probably meant something by these songs—their press release says this is a concept album about ESP—but that's really beside the point. The important thing is that the group chose to forge ahead in the record business, and they made a pretty good pop album in the process.


Performance: Interesting
Recording: Generally excellent

After forty-two years, Carousel remains Rodgers and Hammerstein's most glorious score, with the melodies of one great song flowing into another. Songs? Maybe arias would be a more appropriate word, for Carousel's extended musical sequences (totaling about three minutes more than the amount of dialogue in the show) do indeed approach almost operatic dimensions in a few places. For the first time on records, this new recording offers really complete versions of the duets If I Loved You (nearly thirteen minutes) and When the Children Are Asleep as well as snippets of other music that is usually omitted.

More complete than ever this version may be, but in a year in which fidelity to "original versions" has become a recording trend, it does not use the show's original orchestrations by Don Walker. Those were denied to MCA's producer, Thomas Z. Shepard, because of an exclusivity arrangement with another producer (whose recording plans, ironically, got aborted). So Shepard got Roland Shaw and three other topflight London arrangers to put together new orchestrations that sound appropriately Broadwayish, if also occasionally more schmaltzy.

Shepard also assembled an interesting if not entirely successful cast. Barbara Cook has sung both Julie and Carrie wonderfully in previous productions, but she now sounds much too mature vocally for Julie. The unusually slow tempo with which she sings If I Loved You gives it an arresting, Puccini-like depth, but a similarly slow tempo for What's the Use of Wond'rin' makes it sound like a dirge.

The deeper-than-usual tones that opera basso Samuel Ramey brings to the role of Billy seem both refreshing and pleasing at first, until they lose effectiveness as a result of Ramey's surprisingly underplayed characterization. Canadian mezzo Maureen Forrester sings Nettie with spirit, but her once-luscious voice sounds frayed and distressingly uneven. Best of all are the recording's two non-Americans, England's David Rendall and Sarah Brightman, who not only sing splendidly but also create completely convincing characters as Mr. Snow and Carrie. Paul Gemignani, a Broadway pro, conducts with as much authority as his uneven cast makes possible.

The recording itself is sonically first-rate, with good balance between vocal and instrumental elements. Noticeable, however, is the fact that the opening Carousel Waltz was recorded in a different studio from the rest of the album, with a bit drier sound than the warmer ambience that marks the other selections. All in all, this new Carousel may not displace the original-Broadway-cast or movie-soundtrack albums, but it does offer more of Carousel's great score than any earlier version, plus clearly superior sonics—which, by themselves, makes this recording worth a place in any show buff's record collection.

M.P. TERENCE TRENT D'ARBY: Introducing the Hardline According to Terence Trent D'Arby. Terence Trent D'Arby (vocals, keyboards, percussion); vocal and instrumental accompaniment. If You All Get to Heaven; If You Let Me Stay; Wishing Well; I'll Never Turn My Back on You (Father's Words); Dance Little Sister; Seven More Days, and four others. COLUMBIA BFC 40964, © BCT 40964, © CK 40964 (47 min).

Performance: Green
Recording: Good

What happens when you combine a brilliant, gritty, authentic soul voice (Continued on page 137)
LOOK AT WHAT'S HAPPENED TO THE PRICES ON MOVIES!

NOW LOOK AT WHAT THE CBS VIDEO CLUB OFFERS! ANY 4 MOVIES FOR ONLY $24.99 EACH!

PLUS SHIPPING/HANDLING WITH MEMBERSHIP

BACK TO THE FUTURE 214172

JAGGED EDGE 1813542
GANDHI 1536422
A ROOM WITH A VIEW 3815012
VOLUNTEERS 6508642
LIGHT OF DAY 4946412
ROMAN HOLIDAY 1231802
JEANNE D'ARC 2332102
GREAT EXPECTATIONS 1708702
HLS, THE WITH THE SHOW 6072522
JUNIOR 6487232
EL CID 1052852
FIELD OF STARS 1723052
FANTASY ISLAND 6653012
MIDNIGHT COWBOY 6504242
CAMERON 6004012
BATTLE FOR THE PLANET 2035212
THE GODFATHER 0081522

THE SOUND OF MUSIC 6034972
THE BRIAR PATCH 4611032
THE WITNESS 6517032
COOL HAND LUKE 6523052
FROZEN RIVER 6521072
SHAKESPEARE IN LOVE 6520012
THE GODFATHER 0081522
THE GODFATHER 0081522

PRICES ON MOVIES!

THE MOVIE CLUB holds over 2,000 titles; from the very newest releases to classical favorites. Our regular Club prices currently range from $79.95 to $29.95, plus shipping and handling; and we also offer a selection of lower-priced video-cassettes, down to $14.95. Your only membership obligation is to buy six movies for as little as $29.95 each—and you may cancel membership anytime after doing so.

How the Club operates: about every four weeks (up to 15 times a year) we send you the CBS Video Club Magazine, reviewing our Director's Selection, plus many alternate movies. And up to four times a year, you may also receive offers of Special Selections, usually at a discount off regular Club prices. For a total of up to 17 bargaining opportunities.

Choose only the movies you want: if you want the Director's Selection, don't do a thing—it'll arrive automatically. If you'd prefer an alternate, movie or none at all, just mail the card always provided by the date specified.

You'll always get the best movie—see Advance Selection box in the coupon.

There's no membership fee for joining, nor do you have to buy a lot of movies. Just six more within the next three years. And you'll have no problem in finding six movies you want, because our library holds over 2,000 titles; from the very newest releases to classical favorites. Our regular Club prices currently range from $79.95 to $29.95, plus shipping and handling; and we also offer a selection of lower-priced video-cassettes, down to $14.95. Your only membership obligation is to buy six movies for as little as $29.95 each—and you may cancel membership anytime after doing so.

How the Club operates: about every four weeks (up to 15 times a year) we send you the CBS Video Club Magazine, reviewing our Director's Selection, plus many alternate movies. And up to four times a year, you may also receive offers of Special Selections, usually at a discount off regular Club prices. For a total of up to 17 bargaining opportunities.

Choose only the movies you want: if you want the Director's Selection, don't do a thing—it'll arrive automatically. If you'd prefer an alternate, movie or none at all, just mail the card always provided by the date specified.

You'll always get the best movie—see Advance Selection box in the coupon.

There's no membership fee for joining, nor do you have to buy a lot of movies. Just six more within the next three years. And you'll have no problem in finding six movies you want, because our library holds over 2,000 titles; from the very newest releases to classical favorites. Our regular Club prices currently range from $79.95 to $29.95, plus shipping and handling; and we also offer a selection of lower-priced video-cassettes, down to $14.95. Your only membership obligation is to buy six movies for as little as $29.95 each—and you may cancel membership anytime after doing so.

How the Club operates: about every four weeks (up to 15 times a year) we send you the CBS Video Club Magazine, reviewing our Director's Selection, plus many alternate movies. And up to four times a year, you may also receive offers of Special Selections, usually at a discount off regular Club prices. For a total of up to 17 bargaining opportunities.

Choose only the movies you want: if you want the Director's Selection, don't do a thing—it'll arrive automatically. If you'd prefer an alternate, movie or none at all, just mail the card always provided by the date specified.

You'll always get the best movie—see Advance Selection box in the coupon.
Monumental

Pioneer's Revolutionary 40" Projection Monitor

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...

An explanation of what our Dynamic Focus circuit, Interlace Optimizer circuit, Time Compression Border Correction circuit and Wideband Comb Filter do to give you video with 560 lines horizontal and 400 lines vertical resolution—pictures so sharp you can practically count the blades of grass in a meadow...

Or just how our Direct-Coupled Liquid-Cooled Lens System, Single Front-Surface Mirror, Dynamic Picture Optimizer, 160mm Power Lenses and Super High Voltage CRT's work together to yield a once-unreachable 350 foot-lamberts of brightness.

Or how our High Voltage Stabilization circuit, Dynamic Gamma Circuitry and Dynamic Black Level Correction circuit deliver superior contrast, contrast so startling you've never seen the likes of it before.

Or why our Color Noise Reduction circuit and Double-Sided Black Matrix Lenticular Screen result in dazzling, true-to-life color.

You may gather from all this that we take video very seriously at Pioneer. So that you can have the finest picture ever seen on a projection monitor. With blacker blacks, whiter whites. Greater contrast and truer color. Plus the sharpest picture you've ever seen, period. Pictures as bright and sharp and clear when seen way off to the side as they are when viewed straight-on.

The SD-P401 is of course fully cable-capable. Stereo-capable too, with its MTS decoder. It has all the inputs and outputs needed for the most complex A/V system. And it's only 23 inches deep.

If you're impressed with what went into this monitor, you'll be doubly delighted to see what comes out of it. So see the SD-P401 at your Pioneer dealer today, and see for yourself why this big picture is today's revolution in high resolution. For more information, call 1-800-421-1404.

©1987 Pioneer Electronics (USA) Inc., Long Beach, CA  Actual closed-circuit picture shown.

CIRCLE NO. 70 ON READER SERVICE CARD
Brilliance.
Diamandis Communications Inc.

has acquired all of the assets of the

CBS Magazine Division

for

$650,000,000

The undersigned initiated and assisted in negotiating this transaction, structured the financing, and purchased a combination of all of the senior and subordinated notes and, together with management, substantially all of the equity necessary to complete the acquisition.

Prudential Capital Corporation
(Formerly PruCapital, Inc.)

Prudential-Bache Capital Funding

October 1987
with a hard-edged, visionary, highly stylized brand of rock? In the case of "The Hardline According to Terence Trent D'Arby," you get a mess. D'Arby is the ex-boxer, expatriate American who has become the favorite of just about every rock critic in the U.K. The reason is simple: The guy can flat out sing. D'Arby will remind you at various times of Otis Redding, Marvin Gaye, Smokey Robinson, and even James Brown. His voice is soul personified, aching and backbreaking at the same time. But as this debut album demonstrates, he isn't content to work the soul fields; he is determined to wed that voice to music that is tough and uncompromising. Trouble is, he misses about as often as he hits.

While "The Hardline" does contain some truly great songs—the bristling funk of I'll Never Turn My Back on You and the chain-gang guitar of Seven More Days—D'Arby also has a tendency to wander off aimlessly and at extreme lengths. Songs like Wishing Well and If You All Get to Heaven are shapeless and endless, and his mannered a cappella solo in Smokey Robinson's Who's Loving You, while full of real feeling, is often out of key. D'Arby is going to be great once he figures out which tricks are simply mannerisms and which he can develop into a legitimate stylistic approach. But "The Hardline" just isn't as good as you want it to be.

MINKY FLORES: Rosie Flores (vocals, guitar), vocal and instrumental accompaniment. Crying over You; Lovin' in Vain; God May Forgive You (But I Won't); The Blue Side of Town; Heartbreak Train; I Gotta Know; and four others. Repress 25626-1. © 25626-4.

Performance: New kid in town. Recording: Good

In the tradition of Dwight Yoakam and George Hillbill, here comes singer-songwriter Rosie Flores, two-stepping her way out of the Los Angeles neo-country fold and setting her sights on the Big Time. A graduate of several California country-rock bands (her last group effort was with the Screamin' Sirens), Flores, a native of San Antonio, comes to Warner Bros. under the guidance of producer/arranger Pete Anderson. Flores thus wed traditional hard-country and vintage rockabilly with original material, some of which she wrote herself and some of which comes her way via various members—Paul Kennerley, Hank DeVito, Albert Lee—of the Emmylou Harris camp.

As a songwriter, Flores fares best when she's held in check by a co-writer, and as a singer she's alternately sweet and strong, not distinguishing herself so much with timbre or technique as with her mastery of the traditional style. Anderson has unearthed a number of dusty gems for her and surrounded her with pickers who know how to turn a good album into something special. In all, LIZA MINNELLI'S seventeen sold-out performances last spring at New York's Carnegie Hall broke the house record for the longest run by a single performer. The pressures on her must have been tremendous, not only because of the personal problems she has (not so secretly) sought to overcome these past few years but also because she was playing the house where her mother scored one of her greatest triumphs back in 1961 (preserved, of course, in a now-classic album).

Well, Liza can relax. She, too, was triumphant, as is clear from her new double-length set, "Liza Minnelli at Carnegie Hall." It is easily one of the best live-performance albums anyone has made in the last decade. It shows that, as a singer, Minnelli has developed into her generation's Judy Garland, Ethel Merman, Mary Martin, and Al Jolson all in one. Like them, she seems to give 200 percent in every performance, especially when she's belting out such songs as Some People with a visceral energy and intensity that know few bounds. Then she turns around and weaves a most delicate vocal web with an intimate ballad like Harold Arlen's I Never Has Seen Snow or leads us merrily through the comic saga of Shirl and Norm in Ring Them Bells. Most important, whatever the decibel level at which Minnelli operates, there's an understanding of what each individual song is all about. Combine that with her innate musicality, faultless sense of rhythm, and impeccable choice of material, and you've got a singer who takes a back seat to no one today when it comes to standard pop or show music.

For the most part, this is an exceptionally well-planned and well-executed program. Minnelli uses Richard Rodgers's The Sweetest Sounds to lead off a delightfully tongue-in-cheek segment in which she seeks to restrain her self-described "socko, boffo, pow" style for the more "classical" aura of Carnegie Hall. She then proceeds to sing an impossibly sedate Too Toot Too Tootsie with a string-quartet backing and Buckle Down Winsocki with a solo-harp accompaniment, before finally letting loose with a rollicking rendition of Alexander's Ragtime Band. She also works the Minnelli magic on such neglected gems as Jerome Kern's Lonely Feet, Jerry Herman's I Don't Want to Know, and Kurt Weill's Here I'll Stay. Best of all is a medley of songs Kander and Ebb have written specifically for Minnelli over the years, including Cabaret, City Lights, But the World Goes 'Round, and New York, New York.

At times Minnelli strives too hard to fulfill her audience's expectations, and in so doing she both disorients the music and compromises the otherwise excellent sound engineering. But these momentary lapses can easily be forgiven when the music making is as sizzingly exciting as it is here.

ROY HEMMING
JENNIFER HOLLIDAY: Get Close to My Love. Jennifer Holliday (vocals); instrumental accompaniment. New at 1; He Ain't Special (He's Just the One I Love); Get Close to My Love, I Never Thought I'd Fall in Love Again; and four others. GEFFEN GHS 24150, © MSG 24150, © 2-24150 (39 min).

Performance: A fabulous finale
Recording: Excellent

Jennifer Holliday can belt out a dance tune with the best of them, but let’s face it: We usually sit through them, waiting politely for the big moments when she serves up one of those soul torchers that have been her calling cards ever since she stole the show in Dreamgirls with her unforgettable rendition of And I Am Telling You I’m Not Going. She doesn’t let us down on her new album, which works much better on the whole than her last two, perhaps because she herself served as executive producer, overseeing everything including the choice of songs.

There are pleasant moments to be found in “Get Close to My Love,” one of them being a wistful number called I Never Thought I’d Fall in Love Again, but they are merely preludes to the spectacular final track, the soul classic Givin’ Up. Holliday turns it inside out, unleashing a powerhouse of vocalized emotion. Her treatment is rooted in the Aretha Franklin tradition, with a gospel-style piano for support, but the awesome intensity of the interpretation is entirely her own. This cut, at least, is Holliday at her best.

P.G.

LYNYRD SKYNYRD: Legend. Ronnie Van Zandt (vocals); Steve Gaines (guitar); Garry Rossington (guitar); Allen Collins (guitar); Artimus Pyle (drums); vocal and instrumental accompaniment. Georgia Peaches: When You Got Good Friends, Sweet Little Missy, Four Walls of Raiford, Simple Man; and four others. MCA © MCA-42084, © MCAC 42084, © MCAD-42084 (46 min).

Performance: Respectable
Recording: Very good out-takes

When Ronnie Van Zandt sang, “I hope Neil Young remembers, a ‘Southern Man’ don’t need him around anyhow,” Lynyrd Skynyrd drew a rock-and-roll Mason-Dixon line behind which a whole generation of Southern rockers stood, thumbing their noses at the music “establishment.” If you stood on the Southern side of that line, “Legend” will be of considerable interest. This bit of Southern Boogie archaeology coincides with the tenth anniversary of the plane crash that killed Van Zandt, guitarist Steve Gaines, and other members of the band and crew. It’s eerie hearing Van Zandt’s vocals on these out-takes in a cleaner, sharper, better-produced musical setting than he ever had when he was alive.

These songs never made it to Lynyrd Skynyrd albums for a reason—they’re not quite up the group’s best work. When You Got Good Friends is a lukewarm Sweet Home Alabama. Sweet Little Missy tries to be an Allman Brothers jam but winds up straining. And songs like Georgia Peaches, Simple Man, and Truck Drivin’ Man are genre pieces (though Four Walls of Raiford anticipates by some ten years the popularization of the Vietnam war). But even second-class Lynyrd Skynyrd will sound good to that big Southern contingent that’s badly underrepresented on the rock charts these days.

M.P.


Performance: Lively
Recording: Raw

Here comes Susan Marshall, wearing snakeskin boots, snakeskin-print pants and top, and making her debut on Reptile Records. The girl’s into slither. No matter where her head’s at, though, her music’s a rough-and-ready hybrid of country-rock—not exactly cowpunk but close to it. Marshall doesn’t have much of a voice—or much of a band, for that matter, even though Duane Eddy, the King of Twang, shows up, only to sound uninspired. On top of that, the album is badly recorded and mixed, making Marshall sound like the first victim on “Open Mike Night.” Nonetheless, it’s an interesting program: Tim Hardin’s Tribute to Hank Williams leads right into the old Freddie North hit (S)He’s All I Got, followed by a reworking of I Think We’re Alone Now by Tommy James and the Shondells. Along the way, there’s a nod to Jesus and some good ol’ countrified cheatin’, not an odd juxtaposition in Nashville. Marshall has a long way to go before she’s able to do something substantial, but there’s a lot of energy here, and a little reptilian bite to boot.

A.N.

MR. MISTER: Go On. Richard Page (vocals, bass); Steve George (keyboards, soprano saxophone, vocals); Steve Ferris (guitar); Pat Mastelotto (drums). Stand and Deliver, Healing Waters, Dust, Something Real (Inside Me/Inside You), The Tube, Control, Watching the World, Power Over Me, Man of a
Deceptive Engineering

Obvious but very deceptive...
You'll probably notice our 50-watt RX-533 offers obvious features such as Digital AM/FM cassette/radio with Dolby® B & C noise reduction, 24-preset stations, preset scan, tape program search, separate bass & treble tone controls, etc., and of course, it's removable!

But you'll probably overlook the not-so-visible but specially engineered features such as FM optimizer II circuitry designed for superior FM reception and built-in Automatic Radio Monitor for filling the void with music while you are fidgeting with your tape. Special cassette features such as "Auto Azimuth Correction System" rotates the tape head 180 degrees whenever tape direction changes to keep perfect azimuth alignment, Keyoff Pinch Roller Release minimizes wear and tear of tape pinch roller and DC servo motor accurately controls tape movement thus minimizing wow and flutter.

Plus pre-amp outputs and CD/AUX input capability designed for flexible system expansion, two-tone illuminated control panel guarantees easy viewing and identification and replaceable Lithium back-up battery helps protect and store information in the microprocessor.

Though not in plain view, these state-of-the-art engineering innovations are obviously what you have come to expect from a company with over 11 years of manufacturing experience.

Coustic...a sound investment.

Coustic®
4260 Charter Street
Vernon, CA 90058-2596
(213) 582-2832

© Coustic 1987
© Dolby is a registered trademark of Dolby Laboratories.
Mr. Mister is the kind of band Tipper Gore would approve of, and, frankly, if I had kids, I'd sure rather have them listen to Mr. Mister than Motley Crue. In the endless wave of packaged pop entertainment, these guys at least have values. They manage to extoll Christian themes without ever mentioning God, which is rather a neat trick, and they come down hard on materialism, selfishness, and my favorite villain, television.

But the values that are really important on a rock record are musical ones, and on this count Mr. Mister is professional but predictable. "Go On" has the kind of monumentally produced mega-Top 40 sound that works so well in movie themes. Which is why I'd let Mr. Mister take my daughter to the movies, but I'd rather she danced with the Screaming Blue Messiahs.


Performance: Bloomin'/lovely
Recording: Excellent

At last, Kiri Te Kanawa has found a popular show appropriate to her cross-over career goals. In contrast to her recent miscastings in recordings of South Pacific and West Side Story, she brings both credibility and an appropriate musical style to the role of Liza Doolittle in Lerner and Loewe's musical adaptation of Shaw's Pygmalion.

No re-creation is ever likely to displace an original-cast album in the affections of most show goers, butremakes can be refreshing to hear when they're done as well as this one is, under John Mauceri's crisp and spirited musical direction, using the original orchestrations. Dame Kiri's I Could Have Danced All Night is the highlight. She sings it as brightly and infectiously as anyone has since Julie Andrews. I can't vouch for the authenticity of her Cockney accent in the early sequences, but her Wouldn't It Be Lovely is musically enchanting. She comes a cropper only with Just You Wait, which she croons without any sign of the requisite anger or peevishness in her voice.

Just You Wait falls especially flat since it follows Jeremy Irons's stinging version of I'm an Ordinary Man. In his first major musical role, Irons is a delightful surprise. Admittedly, Loewe wrote the Higgins music for the limited vocal range of Rex Harrison, but the songs still require an actor who can carry a tune—and stay in tune. Irons does both quite ably. His voice may not have the range of color or rich depth of Harrison's, but he is vocally pleasing and dramatically riveting throughout.

Another happy surprise is Sir John Gielgud as Col. Pickering. Yes, he does sing (not just speak) a few lines in The Rain in Spain and You Did It, and quite adequately, too. American tenor Jerry Hadley sounds properly upper-crust and ardent with Freddy's On the Street Where You Live, and Warren Mitchell cuts loose rousingly with Doolittle's Get Me to the Church on Time. Though none of the new cast surpasses Andrews, Harrison, Holloway, and the rest of the original company, this is a lovely version of a great show. Roy Hemming

THE SMITHS: Strangeways, Here We Come. Morrissey (vocals); Johnny Marr (guitars, piano); Andy Rourke (bass); Mike Joyce (drums). (guitars, piano); Andy Rourke (bass); Mike Joyce (drums). A Rush and a Push and the Land Is Ours; I Started Something I Couldn't Finish; Death of a Disco Dancer; Girlfriend in a Coma; Stop Me If You Think You've Heard This One Before: and five others. SIRE 25649-1, © 25649-4, © 25649-2 (36 min).

Performance: High anxiety
Recording: Good

Johnny Marr continues to create melodic, acoustic-based pop music that's cheerful, hummable, and high-spirited. But singer-lyricist Morrissey has gone off the deep end. "Strangeways, Here We Come" is a meat cleaver of an album—a vicious, raging, stream-of-consciousness tirade set to tuneful songs that could almost be nursery rhymes. For Morrissey it's no longer a question of sexual alienation or ambiguity, of socialism or vegetarianism. This guy is just plain nuts. Some examples: In Paint a Vulgar Picture, Morrissey of socialism or vegetarianism. This guy is just plain nuts. Some examples: In Paint a Vulgar Picture, Morrissey says, "I can't vouch for the authenticity of her Cockney accent in the early sequences, but her Wouldn't It Be Lovely is musically enchanting. She comes a cropper only with Just You Wait, which she croons without any sign of the requisite anger or peevishness in her voice.

Just You Wait falls especially flat since it follows Jeremy Irons's stinging version of I'm an Ordinary Man. In his first major musical role, Irons is a delightful surprise. Admittedly, Loewe wrote the Higgins music for the limited vocal range of Rex Harrison, but the songs still require an actor who can carry a tune—and stay in tune. Irons does both quite ably. His voice may not have the range of color or rich depth of Harrison's, but he is vocally pleasing and dramatically riveting throughout.

Another happy surprise is Sir John Gielgud as Col. Pickering. Yes, he does sing (not just speak) a few lines in The Rain in Spain and You Did It, and quite adequately, too. American tenor Jerry Hadley sounds properly upper-crust and ardent with Freddy's On the Street Where You Live, and Warren Mitchell cuts loose rousingly with Doolittle's Get Me to the Church on Time. Though none of the new cast surpasses Andrews, Harrison, Holloway, and the rest of the original company, this is a lovely version of a great show. Roy Hemming

THE SMITHS: Strangeways, Here We Come. Morrissey (vocals); Johnny Marr (guitars, piano); Andy Rourke (bass); Mike Joyce (drums). A Rush and a Push and the Land Is Ours; I Started Something I Couldn't Finish; Death of a Disco Dancer; Girlfriend in a Coma; Stop Me If You Think You've Heard This One Before: and five others. SIRE 25649-1, © 25649-4, © 25649-2 (36 min).

Performance: High anxiety
Recording: Good

Johnny Marr continues to create melodic, acoustic-based pop music that's cheerful, hummable, and high-spirited. But singer-lyricist Morrissey has gone off the deep end. "Strangeways, Here We Come" is a meat cleaver of an album—a vicious, raging, stream-of-consciousness tirade set to tuneful songs that could almost be nursery rhymes. For Morrissey it's no longer a question of sexual alienation or ambiguity, of socialism or vegetarianism. This guy is just plain nuts. Some examples: In Paint a Vulgar Picture, Morrissey threatens his lover with suicide: "Don't come to the house tonight, because you'll slip on the trail of my bespattered remains." In Girlfriend in a Coma, it's not clear whether Morrissey has assaulted the woman ("there were times when I could have strangled her") or just refuses to visit her because he doesn't want to deal with the scene.

There are real issues buried somewhere in all of this, but Morrissey's reaction to them is wildly exaggerated and inappropriate. I imagine Marr spinning out these wonderful guitar arpeggios and twisting, odd chord progressions—and all the time nervously watching Morrissey on the corner of his eye, hoping that the Smiths' tormented singer doesn't come at him with an axe. M.P.
Prism Effect

What has prism effect, a refractive phenomenon, to do with audio equipment?
Nothng, except that it is the simplest analogy to describe what our sophisticated XM-3 Mobile Electronic Crossover does to audio signals.

When an ordinary ray of white light passes through a prism, it is systematically separated into the primary colors of the spectrum—optically much more aesthetic than the original light.

Similarly, when an audio signal enters the XM-3, the original signal is then separated, via various controls, to the front and/or rear tweeters, midranges and sub-woofers, creating distinctive bands of the audio frequency spectrum that are space and user-specific.

Specially engineered features such as Front and Rear Pre-Amp Inputs and Front and Rear Outputs as well as a constant Sub-Woofer Output, Asymmetrical Electronic Crossover which has two high-pass (32-400 Hz variable) crossover points for the front and rear outputs and a low-pass (32-400 Hz variable) crossover point for the sub-woofer output, Woofer/Enclosure Equalization engineered for optimizing bass response, Phase Inverter allowing the sub-woofer output to be shifted 180 degrees out-of-phase to compensate for in-vehicle acoustical abnormalities and Frequency Multiplier Switch which, by multiplying crossover points for the front channel, transforms the XM-3 from a BI-AMP SYSTEM to a TRI-AMP SYSTEM, etc., all contribute to create the PRISM EFFECT and make the XM-3 the most versatile electronic crossover ever manufactured for automotive use.

Coustic...a sound investment.

4260 Charter Street
Vernon, CA 90058-2596

*Patent pending
© 1987 Coustic
CIRCLE NO. 68 ON READER SERVICE CARD
NEW GRASS REVIVAL

LAST time we heard from New Grass Revival, the virtuoso quartet had just seen the release of its first major-label album, "On the Boulevard" on Capitol, and was bucking to translate its fifteen-year cult status into mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.

New Grass stands a better chance of hitting the airwaves. The band's new release, "Hold to a Dream," is a poppy but eclectic collection of songs from outside writers, respectively Don Cook and Gary Nicholson, Jesse Winchester, Nicholson and Wendy Waldman, and Radney Foster and Bill Lloyd.

The irony of the band's new mainstream acceptance—or at least commercial country airplay. The catch, of course, was that the band refused to compromise itself musically but still hoped to cultivate general appeal for the new-grass genre—a style of music that the band is generally credited with inventing. Leader and fiddler/mandolinist/guitarist Sam Bush defines it as "contemporary music played with bluegrass-style instruments." As it turned out, "On the Boulevard" was a critical smash, but the singles didn't chart as well as the band had hoped.
Remote Possibilities

With the remote control of the Dragon II Mobile Security System, the possibilities are tremendous.

With the simple touch of a button, the Dragon II will, by remote control...
- Lock/Unlock your doors
- Continuously monitor your hood, trunk, doors and windows against tampering
- Release your trunk or activate another Dragon Security System in a second car
- Blink your parking lights rapidly for 30 seconds so you can easily locate your car even in a large, crowded parking lot

But just touch the car and the Dragon II will...
- Activate a very loud siren
- Blink your parking lights rapidly for visual warning
- Instigate an unpleasant sounding siren inside the Passenger Compartment
- Bypass the Starter Relay to prevent unauthorized starting of your car
The remote controlled Dragon II Mobile Security System does all this and MUCH, MUCH MORE...
Go get one and enjoy the possibilities.
Coustic...a sound and secure investment.

Dragon II Features:
- Two-Channel Remote Control Transmitter
- Selectable Automatic/Remote Arming/Disarming
- Audible Status Signal with Defeat
- LED Status Indicator with Prior Attempt Indication
- Electro-Magnetic Transducer (EMT)† Motion and Shock Sensor
- Multi-Sensor System
- Starter Bypass Relay
- Remote Panic Alarm
- Valet Parking Override
- External Antenna Connector
- Automatic Door Lock/Unlock Interface*
- Courtesy Light Interface*
- Parking Light Interface*
- Trunk Release Interface*

Dragon I Features:
- Remote Control Transmitter
- Audible Status Signal with Defeat
- LED Status Indicator with Prior Attempt Indication
- Electro-Magnetic Transducer (EMT)† Motion and Shock Sensor
- Multi-Sensor System
- Starter Bypass Relay
- Remote Panic Alarm
- Valet Parking Override
- External Antenna Connector

*Optional relay(s) required.
†Patent pending.

Coustic
4260 Charter Street
Vernon, CA 90058-2596

© Coustic 1987
Jesse Colin Young: The Highway Is for Heroes

In his first album in five years, Jesse Colin Young, former leader of the Sixties folk-rock configuration the Youngbloods, comes across as something of a curiosity. In an attempt to reconcile his roots in acoustic folk music with a sound for the Eighties, Young has, he says in the promotional material, “given myself permission to be an artist, and to let my vision create music instead of letting my intellect control it.” That’s shorthand for saying he’s thrown discipline to the wind. There are a couple of simple, bouncy tunes (When You Dance, T-Bone Shuffle) that get the blood flowing (and then apply a tourniquet just as quickly), but a number of the tracks, including the title song, Before You Came, and The Master, strike moody, troubled poses.

Stylistically, Young aims for some Suzanne Vega (Erica) and airily arrives at the suggestion but not the quirky brilliance. He also hits hard at Kenny Loggins, achieving neither Loggins’s intensity nor joyous release. Here and there, for old times’ sake, perhaps, he even makes a half-hearted stab at social consciousness. Mainly, however, this is a predictable progression from Young as California hippie to Young as displaced, disillusioned dreamer. Eighties style—a man desperate to make a connection in his life and in his music and pathetically unsure of how he got so far astray. A.N.

Diane Schuur: raw talent

STEVE GADD: The Gadd Gang

The Gadd Gang’s membership is an indication of its quality. Session leader Steve Gadd is a prolific recording artist who has played percussion for Bonnie Raitt, Ashford and Simpson, Ron Carter and Carla Bley. Cornell Dupree’s mean blues guitar serves as a perfect complement to the sassy piano and organ playing of Richard Tee. And the bassist is none other than the versatile Eddie Gomez. All but Gomez recorded together a decade ago as members of a classy jazz-fusion group called Staff.

The foundation for the song is solid blues-based jazz that brings back fond memories of the Sixties without sounding dated. The mood is established immediately by the strutting indigo treatment of Bob Dylan’s Watching the River Flow, which opens the set, and is reafirmed at the end by a romping rendition of the Bill Doggett oldie Honky Tonk that segues into an all-too-brief fragment of Ray Charles’s wonderful I Can’t Stop Loving You. Everything in between hits the mark with just as much punch. Here’s hoping the Gadd Gang stays together for a while.

DONALD HARRISON AND TERENCE BLANCHARD: Crystal Stair

Terence Blanchard (trumpet); Donald Harrison (saxophones); Cyrus Chestnut (piano); Reginald Veal (bass); Carl Allen (drums). Enidcott; Slam; God Bless the Child; Duck’s Revenge; and five others. COLUMBIA FC 40830, © FCT 40830, © CK 40830 (40 min).

Performance: Excellent

Recording: Very good

The title “Crystal Stair” derives from Mother to Son, a 1926 Langston Hughes poem that encourages perseverance, which is exactly what jazz musicians need to have in ample supply these days when the lure of higher material reward for other endeavors is stronger than ever. Terence Blanchard and Donald Harrison are commendably uncompromising in their approach to jazz. Part of a new breed of jazz purists, they carry on a tradition that has its roots in their home town of New Orleans, and if they needed encouragement to stay on the less-popular, acoustic side of the fence, they undoubtedly found it during their stay with Art Blakey’s Jazz Messengers. I suspect that further encouragement will come from the reaction to this, their fourth album as co-leaders. It reflects continued inspiration and the kind of growing maturity that is bound to lead to the top of those stairs. C.A.
These new equalizer amplifiers from Coustic add a new dimension to car audio. By including either the model EQ-1010 or the model EQ-1020 in your mobile audio system you can program 4 different spectral settings into memory for instant recall. You no longer need to fumble with mechanical sliders until you discover the best settings for each musical style. With a Coustic equalizer, if you are listening to your favorite classical FM station and you need 1 or 2 dB of bass boost while leaving all other functions flat, you can program memory 1 for recall by a simple touch of a button. If your prized jazz cassette recording has too much noise, just cut 15 KHz by 2 or 3 dB and enter the setting into memory 2 for recall.

The EQ-1010 and EQ-1020 have built-in spectrum displays, to indicate the music's spectral density for easy identification of frequencies needing a boost or a cut. Both the EQ-1010 and EQ-1020 have an auxiliary input for digital compact disc players. The EQ-1020 also has dbx* noise reduction, which is 100 times more effective than Dolby** when listening to dbx-recorded music.

All of these features, plus built-in high power, makes Coustic...a sound investment.

---

*dbx is a registered trademark of dbx Inc.

COUSTIC
4260 Charter Street
Vernon, CA 90058-2596
213/582-2832
UNLESS YOUR WOOFERS CAN ACCELERATE TO 80 MPH, STOP ON A DIME, AND GO INTO REVERSE INSTANTLY, YOU'RE DRIVING THE WRONG SPEAKERS.

Most loudspeakers are not built to be driven. Push them too hard and they can overheat, fall out of alignment, or simply breakdown. Altec Lansing's "Voice of the Highway" loudspeakers however, are built to withstand even the toughest driving conditions.

From the very first note, our woofer cones can flash forward at between 70 to 80 mph, stop and reverse, up to 5000 times a second.

Most woofers are neither light enough nor rigid enough to handle this kind of pressure. But because we mold our cones from a woven carbon fiber cloth, they can move like lightning without losing their shape. Producing music that sounds just the way it was meant to sound. Rich, pure, and distortion free.

Standard features also include polyimide voice coils that resist distortion even at high operating temperatures; unique double dampers to maintain perfect alignment; and a Thermo-Isolated™ speaker frame that protects your speaker from wide temperature variations.

Ultimately though, these are speakers that need to be experienced. For your nearest dealer and information, call 1-800-ALTEC 88*

Then select your favorite track, and come in for a test drive.

*In PA, call 717-296-HIFI in Canada, call 416-496-0587 or write to 265, Hood Road, Markham, Ontario L3R 4N3.

CIRCLE NO. 60 ON READER SERVICE CARD
Few jazz recordings are awarded the coveted Gold Records the Recording Industry Association of America hands out for million-dollar sales, but if the criteria included the total sales of a particular record over a period of years, including all reissues, many jazz recordings would surely qualify. Every few years, such classic jazz sides as Coleman Hawkins's Body and Soul, Louis Armstrong's West End Blues, and Count Basie's One O'Clock Jump are reissued in one form or another, which is an indication of their enduring appeal. Jazz records generally sell at a slower pace than pop music, but the market for them is fairly steady. In short, jazz is desirable catalog material, and no company seems to be more aware of this than Atlantic, a label that probably deserves a place in the Guinness Book of Records for most anthologies compiled per decade. The latest of these is "Atlantic Jazz," a collection of twelve albums of reissues on both LP and CD.

Although Atlantic became widely known as a rhythm-and-blues label, its catalog has always to a large degree reflected the catholic tastes of its two founders, Ahmet and Nesuhi Ertegun. In the Forties, the Ertegun brothers, sons of the Turkish ambassador to the United States, were avid jazz collectors, so avid, in fact, that they went into the record business. As a result, Atlantic's vaults contain some of the most memorable jazz and rhythm-and-blues sides of the past forty years, and the new collection offers musical substance as well as a wealth of wonderful sounds.

The complete set is broken down into twelve categories, one for each album, such as "New Orleans," "Bebop," "Fusion," and less familiar titles like "Post Bop" and "Kansas City." This pigeonholing results in some striking anomalies. The gospel-tinged jazz of Yusef Lateef is included in the "Soul" collection, but Aretha Franklin, the acknowledged Queen of Soul, turns up in an album devoted simply to "Singers." Dave Brubeck is represented, in the "Piano" album, only by a brief and atypical solo.

Most of the music in this series is very good, though, and some of it is excellent. The music in "Soul" and two of the better albums, "Singers" and "Piano," is spread across two LP's that contain tracks not included on the corresponding single CD's, which is a surprising switch. The "New Orleans" set contains excellent examples of that city's music as it sounded in 1962 in the hands of old-timers like Jim Robinson, Percy Humphrey, Louis Cottrell, and Alcide ("Slow Drag") Pavageau. The same set also includes some New York recordings and one 1971 track by the Turk Murphy revival band.

One of the better sets is "Kansas City," blessed with some memorable cuts by Vic Dickenson, Buck Clayton, and Jay McShann. The "Avant-Garde" set is dominated by Ornette Coleman, John Coltrane, and Roland Kirk, with some Art Ensemble of Chicago thrown in along with Charles Mingus's wonderfully satirical Wednesday Night Prayer Meeting. "Avant-garde" is, of course, a relative term, and what we hear on these sides seems fairly accessible now.

The "Bebop," "Post Bop," "West Coast," and "Mainstream" albums all contain worthy tracks, as does "Introduction," which has some slow numbers by Herbie Hancock, Gary Burton, Keith Jarrett, Charles Lloyd, and Hubert Laws.

The sound ranges from good to superb, and most of the sets feature well-written liner notes. Chris Albertson


McShann: Hootie Blues; Confessin' the Blues; Jumpin' at the Woodside. Buster Smith: E-Flat Boogie; Buster's Blues. T-Bone Walker: Evenin'. ATLANTIC 81701-1, @ 81701-2 (51 min).


CRUTCHFIELD FREE Stereo Catalog

Refer to the Crutchfield catalog before buying your next car stereo, home stereo, or video product:

• 116 pages of helpful articles, consumer tips, charts, and installation guides.
• Color photos, complete descriptions and technical specifications on hundreds of the finest brand name products.
• You get more value shopping with Crutchfield:
  • Toll-free product advice, ordering, and customer service.
  • 24 hour shipping.
  • Absolute satisfaction guaranteed.
  • Full 30-day return privileges.
  • Discount prices on Sony, Pioneer, JVC, Teac, Proton, Advent, Jensen, Clarion, Concord, Sherwood, Canon, Infinity, and many more!

Call or send this coupon now for your FREE Catalog

800-336-5566

In Virginia call 800-552-3961.
"Is the tide coming in or going out?"

"I don't know. The last thing I remember is you turning up the stereo."

That's the way it happens. The clean, clear sound of Pyle Driver® car stereo speakers will surround your customers and create extra sales for you.

The new Pyle Driver Pounder® systems make superior sound a reality in virtually any type vehicle. Innovative features like heavy duty woofers, volume-weighted passive radiators, high fidelity dome tweeters, and low-leakage 12 dB crossovers are computer matched and hand built into custom tuned enclosures.

That same dedication to quality is built into Pyle's new Digital Demand amplifiers. Powerful yet distortion free, Pyle Digital Demand amplifiers provide the purest sound possible.

Share the momentum and success of Pyle — let Pyle Driver® car stereo speakers and electronic components surround you with more sales and more profit.

For the name of the Pyle representative nearest you, write or call:
Pyle Industries, Inc. • 501 Center St. • Huntington, IN 46750 • (219) 356-1200
MAHLER'S EIGHTH

A real sense of occasion surrounds the release by Denon of Mahler's Eighth Symphony in a performance by Eliahu Inbal and the Frankfurt Radio Symphony Orchestra. It tops off the complete Mahler symphony cycle Denon recorded in Frankfurt over the remarkably short period of twenty-one months, during which Inbal conducted all nine symphonies at the recently restored Alte Oper. The new release also completes the first digitally recorded Mahler cycle available on compact disc (including the Adagio of the unfinished Tenth Symphony, released with the Ninth in October).

But any performance of Mahler's monumental Eighth Symphony, recorded or not, is an occasion. The work calls for an enormous orchestra plus two mixed choirs, a boys' chorus, and eight vocal soloists. When Mahler conducted the first performance of the work in Munich in 1910, he presided over 850 choristers and 170 orchestral musicians, which led the concert promoter to advertise it as the "Symphony of a Thousand," a name it has kept to this day.

The forces Inbal assembled in Frankfurt came to something like 700 in number, which presented a considerable challenge to Denon's engineering team but one they were happily prepared to meet. From the earliest planning stages in 1984, this Mahler project was predicated on an unusually close working relationship between the record company and the orchestra, a subsidiary of the Hessisches Rundfunk (Hesse Radio), which was the co-producer. As the nine symphonies, for the most part performed and recorded in sequence, grew more and more complex musically and called for ever increasing numbers of musicians, Denon developed the technology to go along. Thus, by the time they came to the Eighth, the engineering setup was highly sophisticated.

Denon's engineers still held to their one-point recording technique, using a single pair of stereo microphones optimally placed in the vast space of the Alte Oper (over one million cubic feet), but they introduced some two dozen strategically placed accessory microphones, selectively used to elicit detail as needed. These satellite microphones were fed through a specially designed digital time-delay circuit to insure that they would all be in phase with the pair of main microphones. The result, as heard in this recording, is absolutely stunning — sound that is rich in body yet utterly transparent and immaculately balanced across the truly impressive dynamic range that digital technology and the CD make possible.

The performance is equally impressive, from the celebratory fervor of the opening hymn, "Veni, Creator Spiritus" ("Come, Holy Spirit"), to the gathering ecstasy of the final scene from Goethe's Faust, which constitutes the symphony's second part (and two-thirds of its playing time). It is the kind of performance you will discover echoing in your inner ear and stirring thought and emotion long after the work's apocalyptic final chord has died away.

Inbal's Mahler is very special. It is always directly stated and unconcealing in forcefully projecting both the light and dark written into the music, and it is marked, particularly in the Eighth Symphony, by the galvanizing effect his exalted vision has on the huge forces involved. The Frankfurt Radio Symphony obviously has this music in its blood. The several choral units, which were brought in from radio stations all over West Germany, are all professional groups (even the children's chorus, which is on the Hesse Radio payroll), and they sound it. Among the vocal soloists, Kenneth Riegel and Hermann Prey are especially distinguished, but all are in top form. In sum, this recording of the Eighth, like the cycle as a whole, is a remarkable undertaking, splendidly realized by everyone concerned.

Chrisie Barter


EXPLANATION OF SYMBOLS:
- = DIGITAL MASTER LP
- = TAPE CASSETTE
- = COMPACT DISC (TIMINGS ARE TO NEAREST MINUTE)
Fields, Neville Marriner cond. Philips 0 416 385-1, © 416 385-4, @ 416 385-2 (56 min).

Performance: Predominantly bland
Recording: Good

Neville Marriner’s view of Beethoven’s Pastoral Symphony strikes me as blandly citified. There’s not much exultation upon our arrival in the country. The brook is rather soporific, and though the peasant dance and storm are reasonably virile, again there’s not much of the transcendent in the Thanksgiving hymn. Much more convincing and decidedly up Marriner’s interpretative alley is The Consecration of the House, with its gorgeously ceremonial opening and brilliant fugal textures in the best late-Beethoven manner. The recorded sound is excellent throughout, but if you want an all-digital Pastoral, look for the recordings by Günter Wand, Gerard Schwarz, or Klaus Tennstedt.

D.H.

BOYCE: Eight Symphonies. The English Concert, Trevor Pinnock cond. Archiv 0 419 631-2 (60 min).

Performance: Sparkling
Recording: Excellent

The shadow of Handel fell heavily on William Boyce (1711-1779), as it did on so many English Baroque composers, but at the same time Boyce’s music looks forward to the developing Classical idiom. By virtue of his fine craftsmanship, keen sense of melody, and bubbling energy, Boyce turned out a body of works uniquely his own, among them these eight delightful symphonies. The performances by the English Concert under Trevor Pinnock are just as bubbly and energetic as the music. S.L.

BRAHMS: Piano Quartet No. 1, in G Minor, Op. 25. Murray Perahia (piano); members of the Amadeus Quartet. CBS 0 M 42361, © MT 42361, © MK 42361 (40 min).

Performance: Excellent
Recording: Exemplary

While the Deutsche Grammophon recording of Schubert’s String Quintet reviewed in December was the last recording made by the entire Amadeus Quartet (augmented in that case by cellist Robert Cohen), this recording involving three of its four members was actually taped three months later, in the summer of 1986. It was thus the very last recording made by the violinist Peter Schmidlof, whose death last August brought to an end the Amadeus Quartet’s four decades of distinguished activity without a single personnel change. The Amadeus had recorded the Schubert twice before, and Schidlof, with violinist Norbert Brainin and cellist Martin Lovett, recorded this Brahms quartet seventeen or eighteen years ago with Emil Gilels for DG.

This valedictory performance with Murray Perahia stresses even more dramatically the contrasts and paradoxes of the music itself, for it manages to be at once more expansive and more intense than the earlier one. It is an unselfconsciously dramatic response to what is, after all, a highly dramatic work. The opening movement is invested with a sense of weight that dictates a pacing somewhat slower than the norm, and the concluding Rondo alla zingarese seems more exciting than ever because it is so full of fire. The performance is, in short, surely the most stimulating and satisfying account of this work in recorded form since the remarkable one by Georges Szolchany with members of the Hungarian Quartet on a Turnabout LP that had much too short a catalog life. The recording itself, one of CBS’s very best in the realm of chamber music, is exemplary in its balance, detail, and overall richness.

R.F.


Performance: Forthright
Recording: Very good

While Christoph von Dohnányi’s previous recordings with the Cleveland Orchestra have been released by either Telarc or London in this country, he and the orchestra make their debut on the German-based Teldec label with this new recording of the Brahms Fourth. The change in label and production team, however, has in no way compromised the high quality of the recorded sound characteristic of previous Dohnányi-Cleveland recordings, especially given the fine acoustics of Cleveland’s Masonic Auditorium.

Dohnányi’s performance of this last of Brahms’s symphonies is forthright, with a rock-steady pulse and ample drive if not the passion of, say, Leonard Bernstein. Dohnányi pays special attention to clarity of texture, and he delivers an abundance of tonal beauty. The famous string-section reprise in the slow movement and the great solo-flute variation in the finale are striking examples. If you want classic Brahms set forth in a truly state-of-the-art recording, this one, particularly on CD, will fill the bill very nicely.

D.H.

COPLAND: Old American Songs, Sets 1 and 2; Canticle of Freedom; Four Motets. Mormon Tabernacle Choir; Utah Symphony Orchestra, Michael Tilson Thomas cond. CBS 0 M 42140, © MT 42140, © MK 42140 (50 min).

Performance: Good
Recording: Good

Released in honor of Aaron Copland’s eighty-fifth birthday, this recording offers able performances of mostly unfamiliar music. The familiar part is the first set of Old American Songs—The Boatmen’s Dance, The Dodger, Long Time Ago, Simple Gifts, and I Bought Me a Cat. These have been well known and well loved over the years, especially in William Warfield’s recordings of the original solo versions with accompaniment, piano or orchestral, by the composer. The less-familiar second set includes The Little Horses, Zion’s Walls, The Golden Willow Tree, At the River, and Ching-a-ring Chaw. The well-crafted choral arrangements of both sets were done under the composer’s supervision. Aside from some muddiness at the beginning of Set 2, the performances by the Mormon Tabernacle Choir are excellent, and the orchestral accompaniment is in good hands with conductor Michael Tilson Thomas.

Canticle of Freedom is an honestly

CHRISTOPH VON DOHNYANI: CLASSIC BRAHMS

© 4.43678, © 8.43678 (42 min).
What The Experts Say About Magnat® MSP Loudspeakers

On Our Hardwoods & Lacquers
"The cabinet is handsomely finished on its sides and rear in satin-finish walnut or...in piano-lacquer mahogany." Stereo Review
"Everything about the appearance points to solid construction and elegant design." Tom Krehbiel, Syndicated Audio Critic

On Our Patented Soft-Metal Tweeters
"Only a bat, dog or cat would be likely to detect its upper limits." Stereo Review
"Light and rigid...the 'soft' metal alloy provides damping to absorb and dissipate extraneous resonances." Ovation

On Our Ribbon-Wire Voice Coils
"The close packing of the ribbon wire enables the Magnat drivers to have about 40 percent more copper in their magnetic gaps than drivers made with conventional round wire." Stereo Review

On Our Overall Performance
"Poorly engineered recordings are exposed as non-musical shams, while excellent recordings come vibrantly to life..." Tom Krehbiel, Syndicated Audio Critic
"The MSP 300 is a strikingly smooth, sweet-sounding speaker...it just plain sounds good!" Stereo Review
"In both depth and width of the perceived musical arena, these speakers are hard to localize. They tend to produce consistent sonic images beyond their positions and to the rear — a rarity." AudioVideo
"...a sonic experience that utterly belies the modest-looking source." Ovation

Magrat MSP Series loudspeakers are available in models from $195 each to $645 each. For more information, send us the coupon!

Send me a brochure on Magnat MSP Speakers
Name ..........................................
Address ..........................................
City ..................... State ............. Zip .......... 
SR188

Magnat
Germany's Number One Brand Of High-Performance Speakers
Box 808 Marblehead, MA 01945 (617) 639-1400

*Suggested retail, actual price may vary. © Magnat is a registered trademark of Magnat Elektronik, GMBH & Co. KG
CIRCLE NO 56 ON READER SERVICE CARD
Impressive, says Stereo Review.

Signet SL-100 Definitive Image™ Loudspeaker

"Compared with many other speakers, on first hearing the Signet SL-100 had a warm character, with an impressively deep bass output. At higher frequencies the sound was seamlessly blended and well dispersed.

Overall, the Signet SL-100 impressed us with its superb bass, especially for its size, and its ability to provide clean, well dispersed sound at high volume levels. Altogether, a very nice job!"


For your copy of the complete review, literature, and the name of your nearest Signet dealer, write today.

Signet
4701 Hudson Drive, Stow, OH 44224

CIRCLE NO. 36 ON READER SERVICE CARD

DUTILLEUX: Symphony No. 1; Symphony No. 2 ("Le Double"). Orchestre de Paris, Daniel Barenboim cond. Erato @ ECD 75362 (58 min).

Performance: Splendid Recording: Vivid

It hardly seems too great an exaggeration to suggest that the two symphonies of Henri Dutilleux constitute the cornerstone of the post-Roussel French symphonic tradition. Regrettably, we rarely get to hear either of them in U.S. concert halls but have had to depend almost entirely on recordings for our acquaintance with them. They provide the sort of contrast with each other in structure, texture, and substance that make it musically valid, as well as convenient, to have them together on the same disc and even to listen to them one after the other.

The First, introduced in 1951, comprises four movements but is hardly conventional, opening with a passacaglia and closing with a particularly fanciful set of variations. The Second, which came along eight years later, is in three movements and is called Le Double because it is scored for a "double orchestra"—a sort of latter-day permutation of the concerto grosso in which the second ensemble is a group of a dozen solo instruments. But even though one of those solo instruments is a harpsichord, there really isn't any sort of Baroque character in the music; it is quite of its time and emphatically reflects the personality of its composer. It is good to have these two important works performed with the conviction Daniel Barenboim brings to them and recorded as vividly as they are in this Erato CD.

R.F.

DVORÁK: Violin Concerto in A Minor, Op. 53 (see SIBELIUS)

HANDEL: Messiah. Lynne Dawson (soprano), Catherine Denley (contralto), David James (counter-tenor), Maldwyn Davies (tenor), Michael George (bass). The Sixteen Choir and Orchestra, Harry Christophers cond. Hyperion/Harmonia Mundi USA @ A-66251 two LP's, @ KA-66251 two cassettes, @ CDA-66251 two CD's (141 min).

Performance: A bit uneven Recording: Bright live takes

This new Messiah was recorded live in London last December—actually compiled from four different performances under the direction of Harry Christophers. Christophers, who looks about thirty in a recent photograph, formed his chorus in 1977 and his orchestra in 1985, but why the ensemble is called...
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 Schottz® 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.

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 Schottz® 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.

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 Schottz® 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.
The Sixteen" I have no idea, and there is not a word about it—or about any of the performers—in the notes.

The chorus in this version, based more or less on the Dublin premiere in 1742, numbers nineteen, and so does the orchestra (if we don’t count the organ). These numbers would suggest an approach emphasizing intimacy and detail rather than grand effects, but such reduced forces often benefit from a crispness and flexibility that can give the music a more direct, convincing sound. The overture and Pifa—are pretty lifeless. He has one superb solo singer, soprano Lynne Dawson, and I’m glad that she, instead of the superb solo singer, soprano Lynne Daw-

Fortunately, none of the other soloists are on their level.

The "Hallelujah" chorus has a winning freshness, with tidy, unexcrescent unison trills, but it does lack body, and the opening soprano lines in "For unto us a Son is born" are virtually unintelligible even though the chorus is recorded so far forward that the orchestra is pretty much covered. That balance is regrettable, for the orchestral playing seems to be on a consistently high level—stylish and assured, bringing to the performance (with the exceptions noted) an enlivening character that the singing, collectively, never quite matches.

Questions of balance aside, the recorded sound is quite good, with enough brightness and transparency to give the performance every chance, and Simon Hughes provides a great deal of illumination in his comprehensive annotation. What it all comes down to, though, is that there are several more satisfying recordings of this work, others that realize its essentially joyous character more fully. R.F.

HINDEMITH: When Lilacs Last in the Dooryard Bloom’d. Jan De Gaetani (mezzo-soprano); William Stone (baritone); Atlanta Symphony Chorus and Orchestra, Robert Shaw cond. Telarc © CD-80132 (62 min).

Performance: Sympathetic
Recording: Fine

Walt Whitman wrote his huge, magnificent poem When Lilacs Last in the Dooryard Bloom’d as an elegy for a martyred president, Abraham Lincoln, and as a hymn of reconciliation for a war-weary country. Paul Hindemith set it, on a commission from Robert Shaw for his Collegiate Chorale, as a memorial for President Franklin Delano Roosevelt and the dead of World War II. Shaw has been associated with this modern masterpiece ever since, and given the text’s association with the Civil War, there is some irony in the fact that he recorded it in Atlanta, where he is music director of the Atlanta Symphony.

I tend to prefer Hindemith’s earlier music, but a few of his American works do rank with those he produced in the earlier part of this century. I would count this one among them. Subtitled A Requiem for Those We Love, it is a big piece, over an hour in length, and, as always with Hindemith, the mastery of the materials is astonishing. His setting of English is totally idiomatic—better, I am tempted to say, than that of many

The next time an ad turns you on, turn to the Free Information card!
FOR UNDER $600 YOU CAN OWN AN AMPLIFIER JUDGED TO HAVE THE EXACT SOUND CHARACTERISTICS OF AN ESOTERIC $3000 MODEL.

Bob Carver recently shocked the staid audiophile world by winning a challenge that no other amplifier designer could ever consider.

The new M-1.0t was judged, in extensive listening tests by one of America's most respected audio-phile publications, to be the sonic equivalent of a PAIR of legendary, esoteric mono amplifiers which retail for $3000 each!

CARVER'S GREAT AMPLIFIER CHALLENGE. Last year, Bob Carver made an audacious offer to the editors of Stereophile Magazine, one of America's exacting and critical audio publications. He would make his forthcoming amplifier design sound exactly like ANY high-priced, esoteric, perfectionist amplifier (or amplifiers) the editors could choose.

In just 48 hours. In a hotel room near Stereophile's offices in New Mexico! As the magazine put it, "If it were possible, wouldn't it already have been done? Bob's claim was something we just couldn't pass up unchallenged."

What transpired is now high fidelity history. From the start, the Stereophile evaluation team was skeptical ("We wanted Bob to fail. We wanted to hear a difference.") They drove the product of Bob's round-the-clock modifications and their nominees for 'best power amplifier' with some of the finest components in the world. Through reference speakers that are nothing short of awesome. Ultimately, after exhaustive listening tests with carefully selected music ranging from chamber to symphonic to high-impact pop that led them to write, "... each time we'd put the other amplifier in and listen to the same musical passage again, and hear exactly the same thing. On the second day of listening to his final design, we threw in the towel and conceded Bob the bout. According to the rules... Bob had won."

BRAIN CHALLENGES BRAIN. Below is a photo of the 20-pound, cool-running M-1.0t. Above it are the outlines of the pair of legendary mono amplifiers used in the Stereophile challenge. Even individually, they can hardly be lifted and demand stringent ventilation requirements. And yet, according to some of the most discriminating audiophiles in the world, Bob's new design is their sonic equal.

The M-1.0t's secret is its patented Magnetic Field Coil. Instead of increasing cost, size and heat output with huge storage circuits, Magnetic Field Amplification delivers its awesome output from this small but powerful component. The result is a design with the dynamic power to reproduce the leading edge attacks of musical notes which form the keen edge of musical reality.

A Design for the Challenges of Modern Music Reproduction. The M-1.0t's astonishingly high voltage/high current output and exiguous operation features make it perfect for the demands of compact digital discs, video hi-fi and other wide dynamic range playback media. The M-1.0t:

- Has a continuous FTC sine-wave output conservatively rated at 200 watts per channel.
- Produces 350-500 watts per channel of RMS power and, bridged, 800-1100 watts momentary peak power (depending on impedance).
- Delivers 1000 watts continuous sine wave output at 8 ohms in bridging mode without switching or modification.
- Is capable of handling unintended 1-ohm speaker loads without shutting down.
- Includes elaborate safeguards including DC Offset and Short Circuit Power Interrupt protection.

Share the results of Victory. We invite you to compare the new M-1.0t against any and all competition. Including the very expensive amplifiers that have been deemed the M-1.0t's sonic equivalent. You'll discover that the real winner of Bob's remarkable challenge is you. Because world class, superlative electronics are now available at reasonable prices simply by visiting your nearest Carver dealer.

SPECIFICATIONS: Power, 200 watt/channel into 8 ohms 20Hz to 20KHz, both channels driven with no more than 0.15% THD. Long Term Sustained RMS power, 500 watts into 4 ohms, 350 watts into 8 ohms. Bridged Mono power, 1000 watts into 8 ohms. Noise, -110dB IHF A-weighted. Weight, 20 lbs.
### Teac Cassette Deck Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Sale Price</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teac D-525C</td>
<td>Dolby B/C Double Auto Reverse</td>
<td>$139.95</td>
<td>$149.00</td>
</tr>
<tr>
<td>Teac W-660R</td>
<td>Dolby B/C &amp; C Double Auto Reverse</td>
<td>$259.95</td>
<td>$299.00</td>
</tr>
<tr>
<td>Teac V-550X</td>
<td>Dolby B/C &amp; dbx Double Auto Reverse</td>
<td>$179.95</td>
<td>$249.00</td>
</tr>
<tr>
<td>Teac R-606X</td>
<td>Auto Reverse Stereo</td>
<td>$209.95</td>
<td>$249.00</td>
</tr>
<tr>
<td>Teac R-505</td>
<td>Auto Reverse Stereo</td>
<td>$159.95</td>
<td>$169.00</td>
</tr>
<tr>
<td>Teac V-770</td>
<td>3-Head Pro Stereo</td>
<td>$269.95</td>
<td>$299.00</td>
</tr>
</tbody>
</table>

### Equalizer Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Sale Price</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teac EQ-A20</td>
<td>Graphic Spectrum Analyzer</td>
<td>$89.95</td>
<td>$120.00</td>
</tr>
<tr>
<td>AudioSource EQ-One II</td>
<td>10-band per channel</td>
<td>$249.95</td>
<td>$349.00</td>
</tr>
<tr>
<td>Teac W-660C</td>
<td>Dolby Stereo Double</td>
<td>$199.95</td>
<td>$249.00</td>
</tr>
</tbody>
</table>

### Dubbing Cassette Decks

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Sale Price</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technics RS-122</td>
<td>Dolby B/C &amp; C</td>
<td>$139.95</td>
<td>$169.00</td>
</tr>
<tr>
<td>Technics SL-BD22</td>
<td>Semi-Automatic Tumble</td>
<td>$77.75</td>
<td>$179.00</td>
</tr>
<tr>
<td>Technics SL-J33</td>
<td>Direct Drive Programmable Tumble</td>
<td>$149.95</td>
<td>$249.00</td>
</tr>
</tbody>
</table>

### Turntable Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Sale Price</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDK SA/SAX 90</td>
<td>Soft Cover 10-Pack Special</td>
<td>$16.95</td>
<td>$19.95</td>
</tr>
<tr>
<td>TDK HD-01</td>
<td>Electronic Tape Head Demagnetizer</td>
<td>$12.95</td>
<td>$19.95</td>
</tr>
<tr>
<td>TDK MAX 90</td>
<td>Metal Bias Tape 90</td>
<td>$10.99</td>
<td>$12.99</td>
</tr>
</tbody>
</table>

### Compact Disc Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Sale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIRI SINGS</td>
<td>GERSHWIN</td>
<td>$12.99</td>
</tr>
<tr>
<td>John McGlinn</td>
<td>The New Princess Theater Orchestra</td>
<td>$6.99</td>
</tr>
</tbody>
</table>

### Phono Cartridges

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Sale Price</th>
<th>List Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shure V-15 Type V-MR</td>
<td>Deluxe Micro Ridge Phono Cartridge</td>
<td>$129.95</td>
<td>$175.00</td>
</tr>
<tr>
<td>Audio Technica AT40ML</td>
<td>Linear contact cartridge</td>
<td>$69.95</td>
<td>$175.00</td>
</tr>
<tr>
<td>Audio Technica AT-152MLP</td>
<td>Linear contact P-mount</td>
<td>$99.95</td>
<td>$175.00</td>
</tr>
<tr>
<td>Audio Technica AT-211EP</td>
<td>High Quality P-mount cartridge</td>
<td>$119.95</td>
<td>$175.00</td>
</tr>
<tr>
<td>Shure M97E</td>
<td>Universal P-mount</td>
<td>$19.95</td>
<td>$29.95</td>
</tr>
<tr>
<td>Shure M104E</td>
<td>Universal P-mount cartridge</td>
<td>$26.95</td>
<td>$34.95</td>
</tr>
<tr>
<td>Shure M114E</td>
<td>Hypertypical cartridge</td>
<td>$149.95</td>
<td>$249.00</td>
</tr>
<tr>
<td>Shure V-15 IV/MR</td>
<td>Microgroove standard mount</td>
<td>$69.95</td>
<td>$129.95</td>
</tr>
<tr>
<td>Stanton LSQ0AL</td>
<td>Disco cartridge</td>
<td>$199.95</td>
<td>$299.00</td>
</tr>
<tr>
<td>Stanton 680E</td>
<td>Pro disco cartridge w/extra stylus</td>
<td>$149.95</td>
<td>$249.00</td>
</tr>
<tr>
<td>Stanton 500ALDP</td>
<td>Disco cartridge w/extra stylus</td>
<td>$124.95</td>
<td>$199.95</td>
</tr>
<tr>
<td>Audio Technica AT322P</td>
<td>P-mount cartridge</td>
<td>$139.95</td>
<td>$229.00</td>
</tr>
</tbody>
</table>

### More Popular Classical Music

- Maurice: Sound Track (RCA 6018) $12.99 CD/$6.99 LP/Cass
- Dancers: Sound Track (CBS 25656) $12.99 CD/$6.99 LP/Cass

---

**CIRCLE NO. 39 ON READER SERVICE CARD**
Stereo Headphones

Beyerdynamic DT-990
- Audiophile Stereo Headphones
- Open-back headphones with an extended frequency response of 5-35,000 Hz.
- Unique moving coil assembly for exceptional detail.
Sale Price $159.95 LIST $200

Audio Accessories

Terk FM-8500
- Indoor Omnidirectional FM Stereo Antenna
- Fm free reception.
- Adjustable gain control.
- Filter allowing signal by up to 24 hours.
- One-year warranty.
Sale Price $49.95 LIST $69

Technics SL-P220
- Remote Control Compact Disc Player
- High resolution digital filter.
- Double sampling.
- Wireless remote with variable.
Sale Price $189.95 LIST $249

Audio Specaker Specials

Wharfedale "Diamond"
- Bookshelf Loudspeaker
- 10-inch woofer with a 2-inch tweeter.
- Handles up to 100 watts.
-Sold separately.
Sale Price $495 LIST $699.95

Technics SL-P520
- Advanced Technology CD Player
- 2-speed search.
- 20-track random.
- Convenient wireless remote.
Sale Price $124.95 LIST $199

Audio Specaker Specials

Technics SA-5410
- Remote Control Stereo Receiver
- 100 watts/channel.
- AM/FM digital tuner.
- 4-speed search.
- 2-way direct digital remote.
Sale Price $349.95 LIST $599

Stereo Receiver Specials

Technics SA-290
- Digital AM/FM Stereo Receiver
- 50 watts/channel.
- LCD digital display.
- Program memory.
Sale Price $154.95 LIST $399

Sherwood S-2750CP
- Digital AM/FM Stereo Receiver
- 50 watts/channel.
- LCD digital display.
- Tape monitor.
Sale Price $174.95 LIST $499

VHS Movie Specials

CINDERELLA
- 18.95 Each
- And many more titles available.
KHATCHATURIAN'S FIREWORKS

Aram Khatchaturian's razzle-dazzle Piano Concerto of 1936 was a vehicle that helped launch the meteoric career of the short-lived piano virtuoso William Kapell, and Kapell's celebrated recording of it with Serge Koussevitzky and the Boston Symphony is still available on LP. But now Chandos has released a knockout, state-of-the-art digital recording of the piece with a performance to match by pianist Constantine Orbelian and the Scottish National Orchestra under Neeme Järvi.

Orbelian was born in San Francisco but studied both in Moscow and at the Juilliard School in New York. He simply plays the living daylights out of the concerto, exhibiting fingerwork of Horowitzian brilliance and seemingly unlimited stamina (there is precious little rest time for the soloist in the work's thirty-six-minute playing time). The orchestral accompaniment also has all the requisite fireworks. The music overall is gorgeously vulgar, but it's great fun to listen to, cinematic gestures and all. I was particularly intrigued to hear clearly, for the first time, the unusual solo played on the novelty instrument for which it was written, the flexatone, which adds special color to the slow movement (more often than not a vibraphone is substituted).

The concerto is coupled with Khatchaturian's best-known pops-concerto standbys, the Sabre Dance and other excerpts from his ballet Gayne, as well as the five Offenbachian pieces he composed as incidental music for Lermontov's play Masquerade. These, too, come off splendidly under Järvi's direction, and the highly resonant Glasgow recording locale does wonders in terms of increasing the sonic amplitude and brilliance of the whole production. The music is definitely not fare for the fastidious taste, but for fun and sonic thrills this recording is not to be missed.

David Hall

KHATCHATURIAN: Piano Concerto; Masquerade, Suite; Gayne, Suite. Constantine Orbelian (piano); Scottish National Orchestra, Neeme Järvi cond. CHANDOS/HARMONIA MUNDI U.S.A. © ABRD 1250, © ABTD 1250, © CHAN 8542 (62 min).

RAM KHATCHATURIAN'S FIREWORKS

was particularly intrigued to hear clear-listen to, cinematic gestures and all. gorgeously vulgar, but it's great fun to requisite fireworks. The music overall is chestral accompaniment also has all the thirty-six-minute playing time). The or-tle rest time for the soloist in the work's unlimited stamina (there is precious lit-Horowitzian brilliance and seemingly concerto, ply plays the living daylights out of the Juilliard School in New York. He sim-but studied both in Moscow and at the tra under Neeme Järvi.

Pianist Constantine Orbelian

 RECORDING: Admirable

Performance: Dedicated

Technical mastery is always to be expected from Hindemith; what sets this piece apart is the evident depth of feeling. Rarely in Hindemith's later mu-sic is the balance between expressive detail and big form so perfectly worked out. The intertwined motifs of the lilac, the hermit thrush, and the evening star are simultaneously emotional metaphors, literary emblems, and evocative devices. Whitman's musical ways of using poetic images obviously appealed to Hindemith, who transformed them in a most moving way into a setting that is fully worthy of the epic scale of the poem. It is an unlikely combination— the unconventional, visionary, free-spirited American Romantic poet and the proper Central European crafts-man/professor/composer—but it somehow resulted in a work that expands or extends the vision of the poem that inspired it.

Jan De Gaetani's enunciation of the text is not always clear (fortunately, texts are provided), but her singing is unalloyed gold. William Stone is excellent, and the Atlanta forces under Shaw's sympathetic direction catch both the monumentality and the humanism of what is probably Hindemith's best American work.

Eric Salzman


Performance: Dedicated

Technical mastery is always to be expected from Hindemith; what sets this piece apart is the evident depth of feeling. Rarely in Hindemith's later mu-sic is the balance between expressive detail and big form so perfectly worked out. The intertwined motifs of the lilac, the hermit thrush, and the evening star are simultaneously emotional metaphors, literary emblems, and evocative devices. Whitman's musical ways of using poetic images obviously appealed to Hindemith, who transformed them in a most moving way into a setting that is fully worthy of the epic scale of the poem. It is an unlikely combination— the unconventional, visionary, free-spirited American Romantic poet and the proper Central European crafts-man/professor/composer—but it somehow resulted in a work that expands or extends the vision of the poem that inspired it.

Jan De Gaetani's enunciation of the text is not always clear (fortunately, texts are provided), but her singing is unalloyed gold. William Stone is excellent, and the Atlanta forces under Shaw's sympathetic direction catch both the monumentality and the humanism of what is probably Hindemith's best American work.

Eric Salzman


Performance: Dedicated

Technical mastery is always to be expected from Hindemith; what sets this piece apart is the evident depth of feeling. Rarely in Hindemith's later mu-sic is the balance between expressive detail and big form so perfectly worked out. The intertwined motifs of the lilac, the hermit thrush, and the evening star are simultaneously emotional metaphors, literary emblems, and evocative devices. Whitman's musical ways of using poetic images obviously appealed to Hindemith, who transformed them in a most moving way into a setting that is fully worthy of the epic scale of the poem. It is an unlikely combination— the unconventional, visionary, free-spirited American Romantic poet and the proper Central European crafts-man/professor/composer—but it somehow resulted in a work that expands or extends the vision of the poem that inspired it.

Jan De Gaetani's enunciation of the text is not always clear (fortunately, texts are provided), but her singing is unalloyed gold. William Stone is excellent, and the Atlanta forces under Shaw's sympathetic direction catch both the monumentality and the humanism of what is probably Hindemith's best American work.

Eric Salzman


Performance: Dedicated

Technical mastery is always to be expected from Hindemith; what sets this piece apart is the evident depth of feeling. Rarely in Hindemith's later mu-sic is the balance between expressive detail and big form so perfectly worked out. The intertwined motifs of the lilac, the hermit thrush, and the evening star are simultaneously emotional metaphors, literary emblems, and evocative devices. Whitman's musical ways of using poetic images obviously appealed to Hindemith, who transformed them in a most moving way into a setting that is fully worthy of the epic scale of the poem. It is an unlikely combination— the unconventional, visionary, free-spirited American Romantic poet and the proper Central European crafts-man/professor/composer—but it somehow resulted in a work that expands or extends the vision of the poem that inspired it.

Jan De Gaetani's enunciation of the text is not always clear (fortunately, texts are provided), but her singing is unalloyed gold. William Stone is excellent, and the Atlanta forces under Shaw's sympathetic direction catch both the monumentality and the humanism of what is probably Hindemith's best American work.

Eric Salzman


Performance: Dedicated

Technical mastery is always to be expected from Hindemith; what sets this piece apart is the evident depth of feeling. Rarely in Hindemith's later mu-sic is the balance between expressive detail and big form so perfectly worked out. The intertwined motifs of the lilac, the hermit thrush, and the evening star are simultaneously emotional metaphors, literary emblems, and evocative devices. Whitman's musical ways of using poetic images obviously appealed to Hindemith, who transformed them in a most moving way into a setting that is fully worthy of the epic scale of the poem. It is an unlikely combination— the unconventional, visionary, free-spirited American Romantic poet and the proper Central European crafts-man/professor/composer—but it somehow resulted in a work that expands or extends the vision of the poem that inspired it.

Jan De Gaetani's enunciation of the text is not always clear (fortunately, texts are provided), but her singing is unalloyed gold. William Stone is excellent, and the Atlanta forces under Shaw's sympathetic direction catch both the monumentality and the humanism of what is probably Hindemith's best American work.
The following plot along.

As Verité, Hildegard Behrens easily encompasses the sometimes difficult tessitura of the part: her long apos
trophe in Act II, is incisive and stirring, and it brings a sense of high drama to the pro
cedings. The writing for solo voices is divided between heightened declamation and long, flowing melodic lines. Conductor Michel Plasson deserves great credit for molding the huge work into a listenable whole, and he has full support from the chorus, orchestra, and soloists. There is no doubt that this is his performance, and deservedly so, for he is a major conductor whom we are now hearing more and more via recordings on several labels.

As Bonté, Beauté, and Souffrance, respectively, Anne Salvan, Michèle Lagrange, and Nathalie Stutz
tausch is not for every collector, but I recommend it as an example of the fusion of neo-Romanticism and Matthew Arnold referred to as "poisonous" in art.

R.A.


My first experience of Josito Jaime Laredo as a violist is a positive one. Laredo's view of the Mendelssohn symphonies is superb; the lyrical-Romanticism of the first and third movements is handled in a festive manner without lapsing into empty pomp. The second movement is beautifully shaded, and the tarantella finale comes off with plenty of zing without getting hectic. The intricate development sections in the fast movements of both symphonies are crystal clear in texture, in large measure because the orchestra performing them is approximately the size of the one Mendelssohn himself presided over at the Leipzig Gewandhaus. The orchestra's size also gives the ensemble's fine woodwinds a chance to shine. I regret only that Laredo did not see fit to have a left-right Cisnian layout for his violins, but the Glasgow City Hall acoustics are both warm and pleasingly resonant.

D.H.

MOZART: Le nozze di Figaro. Thomas Allen (baritone), Figaro; Kathleen Battle (soprano), Susanna; Margaret Price (soprano), Countess; Jorma Hynninen (soprano), Count; Ann Murray (mezzo-

(Continued on page 162)

STEREO REVIEW JANUARY 1988 161
## Cassette Deck Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEAC V550X</td>
<td>$185</td>
</tr>
<tr>
<td>SHERWOOD S289RDR</td>
<td>$199</td>
</tr>
</tbody>
</table>

- DOLBY B+C+dbx
- 2-MOTOR, AUTO BIAS
- AUTO REVERSE DUBBING
- HIGH SPEED, DOLBY B+C

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>JVC DDVR77BK</td>
<td>$219</td>
</tr>
<tr>
<td>TEAC V770</td>
<td>CALL</td>
</tr>
<tr>
<td>TEAC V970X</td>
<td>CALL</td>
</tr>
</tbody>
</table>

- QUICK AUTO REVERSE
- DOLBY B+C+HX PRO
- 3-HEAD, FINE BIAS CONTROL

## Car Stereo Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLARION 700EQA</td>
<td>$99</td>
</tr>
<tr>
<td>CLARION 8401RT</td>
<td>$149</td>
</tr>
</tbody>
</table>

- 7-BAND AMP/EQUALIZER
- IMAGE RESTORATION
- DIGITAL, 18 PRESETS
- PRESET SCAN, CLOCK

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>JENSEN JTX300</td>
<td>$58PR.</td>
</tr>
</tbody>
</table>

- 6 x 9 TRIAX
- HIGH POWER HANDLING

## Disc Player Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANYO CP10</td>
<td>$159</td>
</tr>
<tr>
<td>TOSHIBA XRV22</td>
<td>$189</td>
</tr>
<tr>
<td>TEAC PDM600</td>
<td>$295</td>
</tr>
<tr>
<td>BOSE 501IV</td>
<td>CALL</td>
</tr>
</tbody>
</table>

- PORTABLE DISC PLAYER
- 16-TRACK PROGRAMMING
- DUAL DISC PLAYER
- BEST BUY—WAS $499

## Speaker Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELESTION DL-4</td>
<td>$99EA.</td>
</tr>
<tr>
<td>CELESTION DL10</td>
<td>$269EA.</td>
</tr>
<tr>
<td>BOSE 501IV</td>
<td>CALL</td>
</tr>
<tr>
<td>EPI 10&quot; 3-WAY</td>
<td>$89EA.</td>
</tr>
</tbody>
</table>

- 2-WAY BOOKSHELF
- TOP RATED BRITISH SPEAKER
- 3-WAY FLOOR STANDING
- ALUMINUM DOME TWEETER

## Wisconsin Discount Stereo

2417 W. Badger Rd.
Madison, WI 53713

**Buy from the oldest, most trusted mail order firm in the country.**

**WDS MEANS SERVICE:**

1. We have one of the finest service centers in the country—with its own 800 number.
2. Buyer Protection Plan on every product. (Ask salesperson for details.)
3. Buy from the oldest, most trusted mail order firm in the country.
4. We care before and AFTER the sale.

**WDS SPECIAL PURCHASE:**

- SANYO CP10 $159
- TOSHIBA XRV22 $189
- TEAC PDM600 $295
- BOSE 501IV CALL
- EPI 10" 3-WAY $89EA.

**SPEAKER SPECIALS:**

- CELESTION DL-4 BELOW DEALER COST
- CELESTION DL10 BELOW DEALER COST

**SPEAKER SPECIALS:**

- DUAL D/A CONVERTORS
- ZD (Zero Distortion) CIRCUITY
- DUAL D/A CONVERTORS

**DISCOUNT HOTLINE 1-800-356-9514**

**WE SELL MOST MAJOR BRANDS—AT 1:**

**CAR STEREO SPECIALS**

- CLARION 700EQA $99
- CLARION 8401RT $149

**DISC PLAYER SPECIALS**

- SANYO CP10 $159
- TOSHIBA XRV22 $189
- TEAC PDM600 $295
- BOSE 501IV CALL!

**SPEAKER SPECIALS**

- CELESTION DL-4 $99EA.
- CELESTION DL10 $269EA.

**SPEAKER SPECIALS**

- 210 WTS
- CDH TWEETER
# Video Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panasonic PV2700</td>
<td>$219</td>
<td>12-Function Remote, HQ, Multi-Event Timer</td>
</tr>
<tr>
<td>RCA 3-Head</td>
<td>$269</td>
<td>Jitter-Free Special Effects, On-Screen Programming</td>
</tr>
<tr>
<td>Zenith VM6300</td>
<td><strong>CALL!</strong></td>
<td>NEW VHS-C Format, High-Speed Shutter</td>
</tr>
<tr>
<td>Sharp VCC20</td>
<td>$988</td>
<td>High-Speed Shutter, 6:1 Zoom, CCD</td>
</tr>
<tr>
<td>GE 99806</td>
<td>$1049</td>
<td>Includes Case &amp; Tripod</td>
</tr>
<tr>
<td>Marantz VR560 HQ</td>
<td>$529</td>
<td>4-Head MTS HIFI, Remote Programming</td>
</tr>
<tr>
<td>GE 97885</td>
<td>$779</td>
<td>Top of the Line Digital, 4-Head MTS HIFI</td>
</tr>
<tr>
<td>Marantz SR360</td>
<td>$119</td>
<td>Digital, 25 Watts/CH, 5-Band EQ, 16 Presets</td>
</tr>
<tr>
<td>Sherwood S2750CP</td>
<td>$179</td>
<td>55 Watts/CH, 5-Band EQ, Surround Sound</td>
</tr>
<tr>
<td>Technics SAR410</td>
<td>$359</td>
<td>Remote Controlled, 100 Watts/CH, 7-Band EQ</td>
</tr>
<tr>
<td>JVC RX9VBK</td>
<td>$399</td>
<td>120 Watts/CH, Wireless, 32 Presets, 10-Memory EQ</td>
</tr>
<tr>
<td>Recoton Fred</td>
<td>$69</td>
<td>Universal MTS Decoder, Works with Any TV</td>
</tr>
<tr>
<td>Wireless 100</td>
<td>$199</td>
<td>AC Powered 12 Watt/CH</td>
</tr>
<tr>
<td>Maisco AM300E</td>
<td>$209</td>
<td>High Performance Mixer, 2 Phono+6 Ins, 5-Band EQ</td>
</tr>
<tr>
<td>CINEMA SURROUND</td>
<td>$129</td>
<td>Built-in Amp, 5-Band EQ, 3 VCR Hook-Ups</td>
</tr>
<tr>
<td>Technics SLQD33</td>
<td>$189</td>
<td>Includes SHURE V15, Quartz D.D. Turntable</td>
</tr>
<tr>
<td>Shure V15 V MR</td>
<td>$128</td>
<td>Stanton 500AL, Stanton 681EEE</td>
</tr>
</tbody>
</table>

# Camcorder Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHS Format</td>
<td>$589</td>
<td>10 Lux, CCD, Pan Focus System</td>
</tr>
<tr>
<td>Zenith VM6300</td>
<td><strong>CALL!</strong></td>
<td>Brand New VHS-C Format, High-Speed Shutter</td>
</tr>
<tr>
<td>Sharp VCC20</td>
<td>$988</td>
<td>High-Speed Shutter, 6:1 Zoom, CCD</td>
</tr>
<tr>
<td>GE 99806</td>
<td>$1049</td>
<td>Includes Case &amp; Tripod</td>
</tr>
<tr>
<td>Marantz MTS HIFI</td>
<td>$389</td>
<td>Random Access Tuner, 4/14 Day Timer, HQ</td>
</tr>
<tr>
<td>4-Head MTS HIFI</td>
<td>$419</td>
<td>MTS, 26 Function Remote, Remote Programming</td>
</tr>
<tr>
<td>Sharp VCC20</td>
<td>$988</td>
<td>High-Speed Shutter, 6:1 Zoom, CCD</td>
</tr>
<tr>
<td>RCA 3-Head</td>
<td>$269</td>
<td>Jitter-Free Special Effects, On-Screen Programming</td>
</tr>
<tr>
<td>Technics SAR410</td>
<td>$359</td>
<td>Remote Controlled, 100 Watts/CH, 7-Band EQ</td>
</tr>
<tr>
<td>JVC RX9VBK</td>
<td>$399</td>
<td>120 Watts/CH, Wireless, 32 Presets, 10-Memory EQ</td>
</tr>
</tbody>
</table>

# Receiver Specials

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marantz SR360</td>
<td>$119</td>
<td>Digital, 25 Watts/CH, 5-Band EQ, 16 Presets</td>
</tr>
<tr>
<td>Sherwood S2750CP</td>
<td>$179</td>
<td>55 Watts/CH, 5-Band EQ, Surround Sound</td>
</tr>
<tr>
<td>Technics SAR410</td>
<td>$359</td>
<td>Remote Controlled, 100 Watts/CH, 7-Band EQ</td>
</tr>
<tr>
<td>JVC RX9VBK</td>
<td>$399</td>
<td>120 Watts/CH, Wireless, 32 Presets, 10-Memory EQ</td>
</tr>
<tr>
<td>Recoton Fred</td>
<td>$69</td>
<td>Universal MTS Decoder, Works with Any TV</td>
</tr>
<tr>
<td>Wireless 100</td>
<td>$199</td>
<td>AC Powered 12 Watt/CH</td>
</tr>
<tr>
<td>ATUS AM300E</td>
<td>$209</td>
<td>High Performance Mixer, 2 Phono+6 Ins, 5-Band EQ</td>
</tr>
<tr>
<td>Cinema Surround</td>
<td>$129</td>
<td>Built-in Amp, 5-Band EQ, 3 VCR Hook-Ups</td>
</tr>
</tbody>
</table>

**Discount Hotline**

1-800-356-9514

Your satisfaction means everything to us:

1. We choose only quality products
2. All products brand new factory sealed with full manufacturer's warranty.
3. Speedy Service—Most orders shipped within 48 hours.
4. A fair approach to solving whatever problems arise.
soprano), Cherubino; Kurt Rydl (bass), Bartolo; Mariana Nicolesco (soprano), Marcellina; others. Chorus of the Vienna State Opera: Vienna Philharmonic Orchestra. Riccardo Muti cond. ANGEL ∙ DSC-47978 three LP's, @ 4D3S-47978 three cassettes, @ CDCC-47978 three CD's (166 min).

Performance: Admirable
Recording: Unusually 'present'

This Angel release is the latest of three relatively recent recordings of Mozart's Le nozze di Figaro. The earliest, Georg Solti's elegant, even courtly, reading on London, dates from 1981. The crisp, lively performance convincingly portrays Figaro as a crafty schemer and an ardent lover and a very personable fellow. Kathleen Battle, a Mozartian stylist of the first magnitude, employs her delicate, near-flawless voice not only to spin out affecting arias but also to weave a characterization of Susanna that is warm, pert, fun-loving, and attractively self-assured. As the Count. Finnish-born Jorma Hyninnen uses his sturdy, liquid baritone to create a suave, fatuous, philandering, and ultimately penitent aristocrat—in short, a believable character. Hyninnen also tosses off the fioratura of "Hai già vinta la causa!" with apparent effortlessness. His wronged and long-suffering Countess is sung with golden tone and high style by Margaret Price, who has developed into a major vocal artist and a thoughtful interpreter of any role she undertakes. As in every notable performance, there is the impress of a single personality—in this case, that of Riccardo Muti. His conducting flows with the life of Mozart's wondrous score, now skipping, now pensive, now laughing, now somber, and, at last, ending joyfully. Muti is a remarkable stylist—as, indeed, are Solti and Marriner. How, then, to choose between these three recordings? Since I find Solti's Figaro and Countess somewhat pallid, I would opt for Muti or Marriner. But between them, it is hard to choose: neither of them fails to inform Mozart's lively, ageless score.

R.A.

SCHUMANN: Piano Quartet in E-flat Major, Op. 44 (see Best of the Month, page 129)

SHOSTAKOVICH: Symphony No. 6, in B Minor, Op. 54; Symphony No. 9, in E-flat Major, Op. 70. Vienna Philharmonic Orchestra. Leonard Bernstein cond. DEUTSCHE GRAMMOPHON 0 419 771-1, 0 419 771-4, 0 419 771-2 (65 min).

Performance: Stirring
Recording: Good

Leonard Bernstein's performances of both these Shostakovich symphonies are highly individual but also deeply stirring. A profoundly tragic and hauntingly atmospheric opening largo occupies more than half the total performance time of the Sixth; in sharp contrast, the remaining two movements are a virtuosic scherzo with undertones of sharp irony and a whisking-in-the-dark presto finale in Russian quickstep style. Bernstein's new recording of this score, his second, takes the darkest view of it that I have yet experienced. This darkness stems in part from his pacing of that opening movement, which runs a full six minutes longer than in the recording by Yevgeny Mravinsky, who conducted the symphony's world premiere in 1939. The great interpretive problem facing any conductor in this movement is to communicate its deeply tragic character without losing the line and organic flow. something that comes perilously close to happening in Bernstein's reading. The middle movement too is a more shadowy and menacing affair than in most performances I have heard. While the positive is accentuated in the finale, it rings hollow, as I am sure Bernstein intended.

The five-movement Ninth Symphony, first of Shostakovich's post-World War II works in the genre, is treated more as a kind of divertimento, but Bernstein's more sober-sided view of the music offers valid alternative insights. Particularly haunting is the second movement, which under Bernstein's baton becomes something of a valse triste.

The playing of the Vienna Philharmonic, both thoroughly at home with Mozart, sing and play with just the right fervor.

As in every notable performance, there is the impress of a single personality—in this case, that of Riccardo Muti. His conducting flows with the life of Mozart's wondrous score, now skipping, now pensive, now laughing, now somber, and, at last, ending joyfully. Muti is a remarkable stylist—as, indeed, are Solti and Marriner. How, then, to choose between these three recordings? Since I find Solti's Figaro and Countess somewhat pallid, I would opt for Muti or Marriner. But between them, it is hard to choose: neither of them fails to inform Mozart's lively, ageless score.

In A Minor, Op. 53. Shlomo Mintz (violin); Berlin Philharmonic Orchestra. James Levine cond. DEUTSCHE GRAMMOPHON 0 419 618-1, 0 419 618-4, 0 419 618-2 (67 min).

Performance: Fiery
Recording: Splendid

The combination of "hot" tone and consummate virtuosity that Shlomo Mintz brings to the Sibelius Violin Concerto calls to mind the legendary Heifetz–Beecham collaboration of 1935. Indeed, it is not Mintz alone who evokes this memory but also the superb contributions by James Levine and the Berlin Philharmonic, which is in top form and backed by wonderful recorded sound. In contrast, say, to the craggy playing of Viktoria Mullova in her recent Philips recording with Seiji Ozawa and the Boston Symphony, Mintz brings something of a wild gypsy manner to the outer movements and absolutely spellbinding tonal warmth to the slow movement. A fine performance for those who want maximum heat and high voltage.

The Dvořák concerto is a cut or so below the Sibelius in musical interest, but it does have an entrancing slow movement. Mintz's violinistic style is, if anything, even more suited to this score than to the Sibelius. And, again, Levine and the Berliners contribute sterling support. The recorded sound is not only gripping in its realistic imaging and enormous dynamic range, but the balance between soloist and orchestra is perfectly calculated in terms of what is called for by the music.

D.H.

SIBELIUS: Symphony No. 5, in E-flat Major, Op. 82; Pohjola's Daughter, Op 49 (see Best of the Month, page 126)

SVENDSEN: Symphony No. 1, in D Major, Op. 4; Symphony No. 2, in B-flat Major, Op. 15; Two Swedish Folk Tunes for String Orchestra. Gothenburg Symphony Orchestra, Neeme Järvi cond. BIS/QUALITON IMPORTS @ CD 347 (71 min).

Performance: Top drawer
Recording: A-1!

Johan Severin Svendsen (1840-1911), Edvard Grieg's slightly senior Norwegian contemporary, was his graduation year at the Leipzig Conservatory when he completed his D Major Symphony, which was promptly and successfully performed in Oslo and hailed by Grieg in a newspaper review. Svendsen subsequently became the finest Scandinavian orchestral conductor of his generation, but when he decided in 1883 to accept the post of conductor of the Royal Theatre Orchestra in Copenhagen, Grieg bitterly lamented the loss to Norwegian music, for it effectively marked the end of Svendsen's composing career.

Svendsen's Romance for Violin and Orchestra, Op. 26, the Norwegian Artist's Carnival, and the four Norwegian
Rhapsodies have enjoyed a measure of international popularity, but his two symphonies remain virtually unknown outside of Scandinavia. They make for delightful listening, however. The spirited first movement of the D Major Symphony gives way to a serene, romance-style slow movement with a beguiling horn solo. The Norwegian folk element enters in the scherzo, and the finale, all verve and brilliance, is elegantly structured in the bargain. The B-flat Symphony is a bit more sober-sided in its two opening movements, but it becomes quite uninhibitedly “Norwegian,” though in a romantic-classical manner, in the scherzo and finale. The two lovely Swedish folk-song arrangements date from 1876, the same year as the B-flat Symphony. The second of the melodies is an earlier version of the song that was adopted as Sweden’s national anthem.

All of these lovely works are performed by the Gothenburg Symphony under Neeme Järvi with loving care, and Bis has recorded them beautifully. Heaven-storming masterpieces the Svendsen symphonies may not be, but they can provide a delightful change from the Schumann–Mendelssohn repertoire. I hope that this Bis CD, with wide international distribution, will win them many new fans.

D.H.

**Collection**

**MICHALA PETRI: Recorder Sonatas.**


Performance: **Brilliant**

Recording: **Very good**

For those who feel that all recorder sonatas and all recorder players sound alike, here is a refreshingly varied album by Michala Petri, perhaps the finest recorder player we have today. The Bach Sonata in G Minor is a transposition of his E Minor Sonata for flute and continuo. Johann Christian Schickhardt, a recent discovery from the Baroque period, wrote masses of chamber music, mostly for flute with or without other instruments. Like Telemann’s, his music is uneven, but, as in the sonata here, it can be quite arresting. Telemann and Handel are handsomely represented, and even Frederick the Great’s contribution is worthy of such illustrious company.

Petri’s playing is technically brilliant, constantly in tune, and seemingly effortless. Although somewhat lacking in articulation and bound by the expressiveness of her instrument, it is a joy to hear. And George Malcolm’s sparkling, tastefully inventive continuo playing provides full support.

S.L.
ADVERTISED IN PLAYBOY MAGAZINE AT $1,000.00 A PAIR, THESE SPEAKERS WERE AN AUDIOPHILE'S DREAM COME TRUE —

Close-Out Priced at $99.50 Each, They’re The Audiophile Steal of a Lifetime!

Applause's legendary Z-7000 behemoth 4-driver systems have astounded listeners with their muscular bass, uncanny mid-range projection, and sheer musicality. Now, at savings of $800 a pair, you can afford to learn how really top-of-the-line, world-class speakers can enhance the sound of all your audio components.

Imagine being able to sit in your own living room and listen to the stunning sonics of the Berlioz Requiem reproduced flawlessly. From the hushed, ethereal soft passages to the heaven-storming climaxes with the entire orchestra and chorus in their full glory. Or listening to the Stones or Madonna and feeling like you're at an actual live concert.

Sound exciting? Well, it is! And best of all, you won't need an entire new set of stereo components to do it. In fact, your total investment will be only $199! That's all it will cost you to add a pair of legendary Applause Z-7000 speakers to your present system. And remember, that's $199 a pair — not $199 each! These superb speakers were recently featured in full-page ads in Playboy Magazine at $1,000 a pair.

$800 A PAIR! You're actually able to buy these speakers for less than the manufacturer paid for the components alone. But, as fantastic as these savings are, the speakers you'll be adding to your home stereo are even more exciting!

STATE-OF-THE-ART AUDIO

It's no secret that speakers are the single most critical element in a stereo system. And, with today's marketing emphasis on complete rack systems, the point where the skimping occurs is usually the speakers. What a shame to take amplifiers, tuners, tape decks, turntables, and compact disc players with fantastic specifications, and then water them down to a sluggish, dull-sounding listening experience by hooking them up to unresponsive budget speakers. With a pair of these behemoth Applause Z-7000 4-driver units attached to your system, you won't believe your ears! And you won't believe that your present stereo components could sound so much better!

These speakers are legitimate, world-class audiophile components. Components that, at their regular price of $1,000 a pair, left audiophiles astonished by their matchless translation of all sound sources, including today's super hi-fi digital discs, tapes, and compact discs.

FOUR POWERFUL DRIVERS

You’ll feel the full, explosive storm of cellos and kettle drums from the specially designed 12-inch woofers with massive magnet structures that deliver every ounce of musical power. Yet, thanks to their long-throw cones and handcrafted rolled-foam edges, the low notes are never boxy or boomy. The bass is tight, clean, well-defined.

The most critical frequencies are the mid-range, because that’s where most of the music you listen to occurs. And that’s where the Z-7000’s really shine. Mid-range frequencies are fed through an electronically advanced first-order crossover network to a pair of perfectly imaged 5-inch mid-range drivers with ferro-fluid cooled voice coils. The presence and projection is uncanny. Listeners to the Z-7000 have often said they feel like they’re right in the orchestra because the individual instruments and voices are profiled so perfectly. And the highs, which go up to 22,000 Hz, are reproduced by an advanced low-mass precision tweeter. It features specially engineered wide dispersion that lets you experience the brightness and realism of your favorite music no matter where you sit in your listening area. Z-7000 speakers have a 25-year limited warranty. And they feature beautiful oak wood-grain cabinetry with handsome, removable black grill cloths.

REGISTERED CLOSE-OUT SAVINGS!

Dollar Wholesale Club has a staff of aggressive, knowledgeable hi-fi buyers who are constantly on the alert for great stereo values. And, when they heard that a prestigious Elec-

Dollar Wholesale Club

YES1 please rush me a matched pair of Applause Z-7000 speakers (advertised at $1,000 a pair) for only $199 — and also include my FREE Dollar Wholesale Club Membership Kit. I understand that if I'm not completely happy, I may return the speakers within 30 days for a prompt refund. In any event, my Dollar Wholesale Club Membership ($25 value) will be mine to keep, absolutely FREE.

Name
Address
City State Zip

Please send me Z-7000 speakers at $99.50 each (all shipping included).

Total 

Please check one:

[ ] Check or money order enclosed.
[ ] Please charge to my:
[ ] American Express  [ ] Visa
[ ] MasterCard

Card # MasterCard
Exp. Date 4-Digit No.

Signature

Please make check or money order payable to Dollar Wholesale Club.

Credit Card Orders call TOLL-FREE 1-800-342-SHOP
Mail to: Dollar Wholesale Club 1555 Regal Row Dallas, TX 75247
THE OTHER BOOKS IN THE HI-FI FIELD JUST CAN'T STAND UP TO STEREO REVIEW.

STEREO REVIEW
Total circulation: 531,739

When it comes to reach, STEREO REVIEW is bigger than Audio and High Fidelity combined.

Because we give readers more of what they want.

And when readers get more out of a magazine, so do advertisers.

Mass and class. Only STEREO REVIEW delivers both.

HIGH FIDELITY
Total circulation: 300,172

AUDIO
Total circulation: 150,103

Circulation source: ABC FAS-FAX ending 6/30/87

Stereo Review
WORLD’S LARGEST HI-FI MAGAZINE
Where to buy Polk Speakers

**AUTHORIZED DEALER LIST**

CA: Clements, Audio Connection - 8840 California Ave., Westlake Village, CA 91361
H: Heil of Malibu, Malibu, CA 90265
LA: Team, Small & Medium, 4211-111 Rialto Blvd., Los Angeles, CA 90067
N: Neuton, Audio Connection - 4211-111 Rialto Blvd., Los Angeles, CA 90067
M: Master Audio, 4211-111 Rialto Blvd., Los Angeles, CA 90067
C: Custom, 4211-111 Rialto Blvd., Los Angeles, CA 90067

del Mar: 2675-D El Camino Real, Carlsbad, CA 92008

del Mar: 2675-D El Camino Real, Carlsbad, CA 92008

**polk.com**

**B&B SYSTEMS, INC.**

1111111111111111111111111111111111111111

**PROTON-3D ACoustics-UNGo BOX**

**ENERGY - HAFLER - JENSEN - VIDEO**

**KLOSS-LUXMAN-NEC**

Call for store hours. (213) 664-0588

**IN MANHATTAN**

173 Broadway, New York City, NY 10003
(NW corner of Broadway and Cortlandt)
One Flight up Entrance on Cortlandt St.

**IN QUEENS**

184-10 Horace Harding Expwy.
Fresh Meadows, NY 11365
Ext 2511F Utica Parkway
(Three blocks from Bloomingdales)

**Bang & Olufsen® of Denmark**

B&O Beosystem® 5500

The Beosystem 5500 behaves as if it were one component. The remote Master Control Panel commands with a single touch the turntable, compact disc player, cassette deck and AM/FM receiver from anywhere in your room.

**FREE REMOTE CONTROL WITH AD**

no mailorder

AUTHORIZED DEALERS FOR:

ADS ALPINE MAD
BAND & OLUFSEN CARVER DIX
SOUND-FIELD-MK DCM-DENON
PROTON-3D ACoustics-UNGo BOX
ENERGY - HAFLER - JENSEN - VIDEO
KLOSS-LUXMAN-NEC

Call for store hours. (213) 664-0588

**IN MANHATTAN**

173 Broadway, New York City, NY 10003
(NW corner of Broadway and Cortlandt)
One Flight up Entrance on Cortlandt St.

**IN QUEENS**

184-10 Horace Harding Expwy.
Fresh Meadows, NY 11365
Ext 2511F Utica Parkway
(Three blocks from Bloomingdales)
**STEREO REVIEW**

**RETAIL MART**

**AUTHORIZED**

Audio Den Ltd.

---

**Authorized Sales and Service**

Residential • Commercial

**AUDIO AND VIDEO COMPONENTS**

- ADCOM
- A R TURNTABLES
- CALIFORNIA LABS
- CAMBER
- CONRAD JOHNSON
- C W O
- DUAL
- GRADO
- HAFLER
- KLIPSCH
- M I T CABLES
- MONSTER CABLES
- MOTIF
- NITTY GRITTY
- NAD
- NAKAMICHI
- N E C
- MAGNEPAN
- MERLIN
- SHURE ULTRA
- ORTOFON
- PARADIGM
- Pinnacle
- ROGERS
- SENNHEISER
- SONORAPH
- SOTA
- SPECTRAL
- STAX
- SYNTHESIS
- TERK
- THORENS
- VELODYNE
- VPI
- W ELL TEMPERED

SMITH HAVEN PLAZA

2021 NESCONSET HWY \(\text{RT 347}\)

LAKE GROVE, N.Y. 11755

(516) 360-1990

---

**CALL US!**

**QUALITY SERVICE**

**LOWEST SERVICE**

**AUTHORIZED DEALERS FOR:**

- ADS
- BOSTON ACOUSTICS
- DENON
- KEF
- BANG & OLUFSEN
- INFINITY
- ONKYO
- MONSTER CABLE
- CARVER
- DUAL
- AUDIO CONTROL
- KICHER
- SONY
- SONDSTREAM
- ORTOFON
- NEC
- VECTOR RESEARCH
- CRAIG
- HAFLER
- SENNHEISER
- SNOOPER
- CWD
- BLAUPUNKT
- NOVATEL

---

**A NOTICE TO OUR READERS**

**About Mail-Order Purchases**

**Protect Yourself by following these Ordering Suggestions:**

1. **Never send cash.** Always use a check, money order or credit card.

2. **Keep a copy of all transactions** especially cancelled checks, money order receipts and correspondence. For phone orders make a note of the order including merchandise ordered, price, seller's name, address and telephone number, salesperson's name, order date and expected delivery date.

3. **Understand the seller's return and refund policy** including the allowable return period and who pays the postage for returned merchandise.

4. **If you should have a problem with your order or merchandise,** write a letter to the seller with all of the pertinent information. Telephone complaints should be followed up with a letter of confirmation. Keep copies of all correspondence.

5. **If you have thoroughly followed up in writing with the seller on your problem and still are not satisfied,** contact the consumer protection agency in the seller's state or your local U.S. Postal Service.
Music Lovers Only

Audiofiles love TDS, but musicians swear by it. That's because our name, The Absolute Sound, is the sound of live music, and our goal is concert-hall realism in your living room. Award-winning newspaper Harry Pearson and his staff are in their 15th year as overseers of audio's High End, telling the truth—and nothing but—the state of the art.

What do you get for signing up? Equipment reports that tell more about how components really sound than mere specs ever could. CD and record reviews that define the beauties and the beasts of audiophile software. Investigative articles that Pulitzer Himself would be proud of. All this, from witty writers who say what they want—because they're protected from the heavy hand of advertisers by stringent editorial policies.

A six-issue subscription costs just $33 in the US or Canada. Single back issues are $7.50.
## Stereo Review

**Manufacturers Directory**

### FREE 1988 Loudspeaker Catalog!

Call or write for information about the world's leading name in Scandinavian loudspeakers.

Audio From Denmark
425 Huelet Road
Building 3 A & E
Northbrook, IL 60062
312-498-4648

---

**Car Stereo Review**

**Mail Order Mart**

lets you turn up the volume where your customers are.

Advertising to prime, heavy spending CAR STEREO REVIEW customers is no longer a luxury! Now, with mail order marketer's needs in mind, CAR STEREO REVIEW has launched Mail Order Mart, a new ad program to enable you to heavy up where your customers are. To sell surplus inventory, for example.

Set up shop in Mail Order Mart at economical rates!

In today's crowded, competitive market, you can't afford not to be heard by CAR STEREO REVIEW readers who are spending billions in dollars on equipment every year. And now, the economical new Mail Order Mart lets you tune in your most profitable customers.

To place your ad in Mail Order Mart, call Toll Free, today:

**(800) 445-6066**

---

**Classified Advertisers:**

The CBS CLASSIFIED MAGNET enables you to reach prime prospects for mail order products/services through low-cost Marketplace advertising.

To place an ad, or for further information or assistance, call Toll Free: **(800) 445-6066**

In New York State call: **(212) 503-5999**

Ask for Los Price
High-end and hard-to-find audio components. Low, low prices! AUDIO AMERICA (Virginia). Call 1-804-797-5861. 

HIGH END LOUDSPEAKER systems, speaker kits and the widest selection of raw drivers from the world's finest manufacturers. For beginners and audiophiles. Free catalog. A&S SPEAKERS, Box 7462-S, Denver, CO 80207. (303) 399-8609.

WE SELL MORE high performance speaker kits than anyone in the U.S. Free catalog. 1-800-356-2255 then, 1122. AUDIO CONCEPTS INC. 1631 Calleona St. La Crosse, WI 54601.

SING WITH THE WORLD'S BEST BANDS! An Unlimited supply of Backgrounds from standard stereo records! Record with your own voice or perform live with the backgrounds. Used in Professional Performance and connects easily to a home component stereo. This unique product is manufactured and sold exclusively by LT Sound - not sold through dealers. Call or write for a Free Brochure and Demo Record.


GET LOW PRICES ON ALL TYPES of audio equipment - including high-end and exotic products not normally discounted. Now we can SAVE YOU MONEY on the equipment you really want. Extensive selection - no need to settle for second choice. Thousands of satisfied customers worldwide. FAST DELIVERY available. All products feature USA manufacturer's warranty. Call us for price quotes or friendly, expert advice. Catalog $1.00 616-451-3868 VISAC/M/AMEX/DISCOVER/OPTIMA 225 OAKES SW • GRAND RAPIDS, MI 49503.

SERIOUS AUDIOPHILES DESERVE SERIOUS SERVICE. And that's what you'll get at Reference Audio Systems. We offer the best in high-end audio and the best in friendly service by our knowledgeable staff. From the latest CD player to a classic megawatt amplifier, you'll like our surprising-low affordable prices and fast shipping.

ORDER TOLL-FREE 1(800) 222-3465. DISCOUNTS! AR • AUDIOQUEST • BOSE • BOSTON • GRADO • HAFLER • HARMAN KARDON • JBL • LAST • LIVEWIRE • MONSTER CABLE • NITTY GRITTY • SONY • STAX • STRAIGHT WIRE • PLUS MORE. HCM AUDIO, 1600 BX MANGROVE, CHICO, CA 95926. (916) 345-1341.
DIRECT SIGHT AND SOUND, America's best kept audio and video secret, continues to please...Five years and over 40,000 customers later, we still offer the best in audio, video, and auto sound including stereos at incredible prices! We sell and service only U.S. warranty merchandise! Our staff is not only knowledgeable, but helpful and courteous in choosing the right component for you. Become one of the ELITE! Call 404-351-6772. Direct Sight and Sound, 3095 Bolling Way, Dept. S, Atlanta, GA 30305. MC/Visa/AMEX. COD with deposit.

HAFLER OWNERS, DYNA OWNERS, ALL MUSIC LOVERS! Audio by Van Alstine custom builds new higher performance circuits for you. Send $1.00 or call for 36 page catalog describing our amplifier, preamp, CD player, and audio-to-video memory systems. Lowest prices on a variety of superb components. COMMUNICATIONS ENGINEERING, 1831 Hyperion (SR), Hollywood, CA 90027. (213) 666-2380. Approved for Rubbermaid, Beauline, Nash, Home Improvement, more. Guaranteed! LOOK GREAT WITH PERSONALIZED FITNESS BOOK. INSTRUCTION is available. 

IMPEDANCE MATCHING PROBLEM?? SOLUTION: RUSSELL FMP INC - Connects up four of 4 ohm or 16 ohm speakers. Built-in impedance matching and level control transformers never allow impedance to fall below 4 ohms. 5 year warranty! Dealer inquiries. RUSSELL FMP INC, 135 McDouglas St., Portsmout, N.H. 03081. (603) 431-5282.

CASH FOR ALL TYPES of used Stereo equipment. We buy by phone THE STEREO TRADING OUTLET, 320 Old York Rd., Jenkintown, PA 19046. (215) 655-1652.

SAVE 40% ON HIGH-END home speakers, subwoofers, amplifiers. FREE CATALOG! RTRD, 3021 Sangamon Ave., Springfield, IL 62702. (217) 529-8793.

RECORDS: COLLECTORS' Soundtracks, Rare titles, speedy service. List $1.00 (refundable). Jemm's, P.O.Box #157, Gladstone, MI 49037. FREE CATALOG. CASSETTE and COMPACT DISC CATALOG. Features a tremendous selection of remastered LP new releases at discount prices. Many imports and smaller labels offered. Prompt delivery. Rose Records, Dept SR, 214 SO. Wabash Avenue, Chicago, IL 60604.

FREE PRINT & OUT-OF-PRINT RECORDS ALL CATEGORIES & NOSTALGIA VIDEO TAPES. Spectacular Catalog! $2.00 USA $3.00 Foreign. Serendipity Records, 4775 Durham Road, Guilford, CT 06437 USA.


FROM EDISON TO ELVIS (AND BEYOND) LP'S 78'5.455 etc. INSTRUCTION is available. CASH FOR ALL TYPES of used Stereo equipment. We buy by phone THE STEREO TRADING OUTLET, 320 Old York Rd., Jenkintown, PA 19046. (215) 655-1652.

RECORD: COLLECTORS' Soundtracks, Rare titles, speedy service. List $1.00 (refundable). Jemm's, P.O. Box #157, Gladstone, MI 49037. FREE CATALOG. CASSETTE and COMPACT DISC CATALOG. Features a tremendous selection of remastered LP new releases at discount prices. Many imports and smaller labels offered. Prompt delivery. Rose Records, Dept SR, 214 S0. Wabash Avenue, Chicago, IL 60604.

FREE PRINT & OUT-OF-PRINT RECORDS ALL CATEGORIES & NOSTALGIA VIDEO TAPES. Spectacular Catalog! $2.00 USA $3.00 Foreign. Serendipity Records, 4775 Durham Road, Guilford, CT 06437 USA.


FROM EDISON TO ELVIS (AND BEYOND) LP'S 78'5.455 etc. INSTRUCTION is available. CASH FOR ALL TYPES of used Stereo equipment. We buy by phone THE STEREO TRADING OUTLET, 320 Old York Rd., Jenkintown, PA 19046. (215) 655-1652.

RECORD: COLLECTORS' Soundtracks, Rare titles, speedy service. List $1.00 (refundable). Jemm's, P.O. Box #157, Gladstone, MI 49037. FREE CATALOG. CASSETTE and COMPACT DISC CATALOG. Features a tremendous selection of remastered LP new releases at discount prices. Many imports and smaller labels offered. Prompt delivery. Rose Records, Dept SR, 214 S0. Wabash Avenue, Chicago, IL 60604.

FREE PRINT & OUT-OF-PRINT RECORDS ALL CATEGORIES & NOSTALGIA VIDEO TAPES. Spectacular Catalog! $2.00 USA $3.00 Foreign. Serendipity Records, 4775 Durham Road, Guilford, CT 06437 USA.


FROM EDISON TO ELVIS (AND BEYOND) LP'S 78'5.455 etc. INSTRUCTION is available. CASH FOR ALL TYPES of used Stereo equipment. We buy by phone THE STEREO TRADING OUTLET, 320 Old York Rd., Jenkintown, PA 19046. (215) 655-1652.

RECORD: COLLECTORS' Soundtracks, Rare titles, speedy service. List $1.00 (refundable). Jemm's, P.O. Box #157, Gladstone, MI 49037. FREE CATALOG. CASSETTE and COMPACT DISC CATALOG. Features a tremendous selection of remastered LP new releases at discount prices. Many imports and smaller labels offered. Prompt delivery. Rose Records, Dept SR, 214 S0. Wabash Avenue, Chicago, IL 60604.

FREE PRINT & OUT-OF-PRINT RECORDS ALL CATEGORIES & NOSTALGIA VIDEO TAPES. Spectacular Catalog! $2.00 USA $3.00 Foreign. Serendipity Records, 4775 Durham Road, Guilford, CT 06437 USA.


FROM EDISON TO ELVIS (AND BEYOND) LP'S 78'5.455 etc. INSTRUCTION is available. CASH FOR ALL TYPES of used Stereo equipment. We buy by phone THE STEREO TRADING OUTLET, 320 Old York Rd., Jenkintown, PA 19046. (215) 655-1652.
Low COMPACT DISC prices—Schwann CD and COLOR CAT-
ALOGS: $5.00—Mini Catalogs $1.00—DUMARCS, P.O. BOX
6662-D GREENVILLE, SC 29609.
SAVE $5.50 ON NEW CD'S! Wide selection, most $9.99-13.99. FREE catalog. LASER SOUND DISCOUNTS,
Dept SR-11, Box 7151, Rochester, Minn 55903.
USED CD'S! Buy, Sell, Trade. FREE Catalog MEDIA EX-
CHANGE. P.O. Box 11659, Chicago, IL 60664-9778.
USE CD'S $6.95 UP. We pay $6.25-15.00 FREE TRADE
1 Free catalog. CCM: 1105 Webster, Sandy, Utah 84070-3516.
(801) 571-9766.
COMPACT DISCS—At low wholesale prices. Now in our 4th
year. FREE catalog 02 WAREHOUSE, 5246 Memorial Dr.,
Stone Mountain, GA 30083. (404) 292-5451.
FREE CD RECORDING OFFER FREE CATALOG "World's
Best Brass Catalog" (Fanfare) CRYSTAL RECORDS, Sed-
dero-Woolley, WA 98284.
TRY ULTRAPHON FOR THE BEST SERVICE AND THE
RIGHT PRICES.. DOMESTIC, POP 8 ROCK -$13.00. JAZZ &
ROCK-Woolley. WA 98284.
FREE CD RECORDING OFFER FREE CATALOG "World's
Best Brass Catalog" (Fanfare) CRYSTAL RECORDS, Sed-
nero-Woolley, WA 98284.
DISCFRAME transforms your CD collection into wall display-
PRICES START AT $8.99! WRITE: LASER LOCKER, BOX
LASER LOCKER, BOX 130-R6. PARA-
BUSINESS OPPORTUNITIES
gueen, IL 60064.
SILVER INTERCONNECT CABLES $19.95.
BALANCED twin lead-$29.95. PLUS $2.00 S & H.
Satisfaction guaranteed. Deluxe 12 gauge wire-0.50 per foot. Also Audio Quest, Grado, and Acoustic foam. WIRE WORKS, Box 5275,
Gainesville, FL 32602. (904) 376-5432.
BUSINESS OPPORTUNITIES
YOUR OWN RADIO STATION! AM, FM, cable, licensed-
unlicensed, transmitters! Broadcasting: Box 120-R6, Para-
dise, CA 95969.
START YOUR OWN speaker company in YOUR GARAGE. It's
easier than you think. Our advice is free. AMS Enterprises,
1007 Capello Way, Ojai, CA 93023.
by Ralph Hodges

Showtimes

It's a balmy mid-October Monday in New York, and the city and its phone lines seem to be recovering encouragingly from an onslaught that perhaps no other metropolis in the world has undergone: two major multiday audio shows running noisily and concurrently within a tiny piece of real estate that is one of New York's densest commercial centers.

First, the Audio Engineering Society (AES) convention took up its traditional every-other-year place in the New York Hilton, this year spilling over into the Sheraton Centre hotel. A few hours later, Stereo
de magazine, the eldest of the underground audiophile journals, opened its High End Hi-Fi Show at the Omni Hotel a short walk away. It is times like these that try flight attendants' souls as they struggle to weave their little luggage trolleys through elevators and lobbies that have suddenly become solid flesh. New York should be grateful that most audiophiles are too cheap for taxicabs.

Unlike such extravaganzas as the Consumer Electronics Shows, these events are open to the public. And when they occur simultaneously, as they did this year and will in the future, they offer an unmatched opportunity for dawn-to-dusk immersion in matters audio.

In the U.S., the AES convention comes in odd years to New York and in even ones to Los Angeles. It also turns up regularly in Europe and the Far East, so that traveling between conventions can become a full-time occupation. The heart of the conventions is the technical sessions at which researchers, many of great consequence, read papers and show slides. These sessions continue four days running for all of each day and half the night. Topics addressed at them include acoustics and psychoacoustics, all imaginable aspects of recording and playback technology and sound-system engineering, and digital concerns without end.

Aggravatingly but unavoidably scheduled for many of the same times are educational workshops where you can learn the fundamentals of subjective listening evaluation, tape-recorder alignment, or the production of a Dolby Stereo movie soundtrack. Also going on are standards-committee meetings, which outsiders have been known to crash to proselytize in behalf of, say, their preferred sampling rate for DAT (digital audio tape). Finally, there are manufacturers' exhibits where everything that ever handled a note from Bach or Streisand is on display and, often, on demo upstairs. While most of the gear is from the professional sector, it has become fashionable to consider certain consumer goods to be just as competent if not more so, and thus designer/manufacturers like Bob Carver and David Hafler show equipment too, in professional versions.

The AES tariff for nonmembers is a fairly steep $125 for all four days and admission to everything. There's not much, however, in serious audio these days that costs as little and offers such potential rewards.

The Stereophile high-end show at the Omni cost $15 for all three days or any fraction thereof, and they were packing them in. The organizers claim about 3,000 advance registrations before the doors opened and typically 1,000 at the gate each day. High-end audio lives—and so vigorously that one could easily have been trampled to death in there.

A great amount of the show's space was occupied by local dealers, who were evidently trusted by manufacturers to present their products favorably. True to their word, however, the organizers did produce a satisfactory number of audio wizards for public scrutiny; they were hiding out whenever possible, but they were there. I even came across Bob Schulein, a top-level Shure Brothers engineer/manager and former AES president, doing humble booth duty at a Home Theater demonstration. And he was turned on, too. That's class.

Although AES events at the Hilton caused me to miss them, educational opportunities were present at the Omni show as well. According to the handsomely produced directory/program, there were periodic lectures and open discussions by Stereophile staff members as well as blind listening tests for anyone wishing to participate. James Boyk, of the California Institute of Technology and Performance Recordings, discussed pianos and the recording thereof. He also sold T-shirts condemning transistors and digital audio that showed an eighth note in splints and bandages.

It has been too long since this country has had a real hi-fi show for consumers, and the throngs this one attracted, as well as my elbow-bruised ribs, bear testimony to a zeal unnaturally pent up. I commend the Stereophile show to you. It's scheduled to be back in New York next year about the same time and in Santa Monica somewhat earlier. If you attend, you can get down with the animals and boogie or get up with the savants and savor. Either way, if you're interested in audio you're sure to come away with something worthwhile.

Teac introduces a machine designed for people more interested in music than in black boxes. The Teac AD-4, CD/Cassette Deck Combo. On the left side we’ve installed our latest programmable compact disc player. On the right we’ve included one of our top of the line auto-reverse cassette decks with Dolby B and C noise reduction. To further simplify things, we made them both work via a wireless remote control. A 16-selection program lets you pick the selections you like on a compact disc and rearrange them in any order you prefer on your cassette. You can even listen to a disc while you’re taping from an outside source.

The Teac AD-4. All you ever wanted in a compact disc player, all you ever wanted in a cassette deck, all in one place.

TEAC®
Made In Japan By Fanatics.
THE
ONKYO
INTEGRA DX-530

Because digital and analog shouldn't mix

The primary objection many audiophiles find with the compact disc format is a harshness and stridency in the sound that tends to obscure the real world dynamics of the music. Onkyo was the first CD player designer to address this problem by developing our patented Opto-Coupling modules.

The Integra DX-530 is the newest ONKYO CD player to incorporate our exclusive Opto-Coupling technology, which prevents the leakage of Digital Signal Interference into the analog domain. By using fiber optics instead of conventional printed circuit wiring, the DX-530 ensures correct D/A conversion, and provides superb CD sound at an affordable price.

Complete programmability is enhanced by ONKYO's exclusive Random Music Calendar, a unique display which clearly shows programmed tracks in correct playback order. A 40 key wireless remote duplicates every control function, including motorized analog output level. Audition the Integra DX-530 at your ONKYO dealer, or write to ONKYO for a detailed brochure.

Artistry in Sound

ONKYO

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