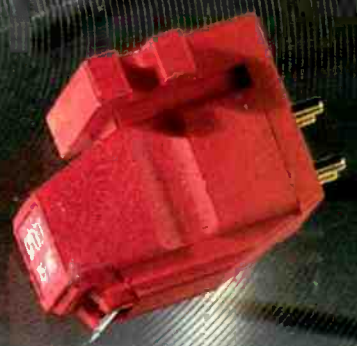


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Stereo Review

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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.

by Christie Barter and William Burton

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 on-site, 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 tele-

vision 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.



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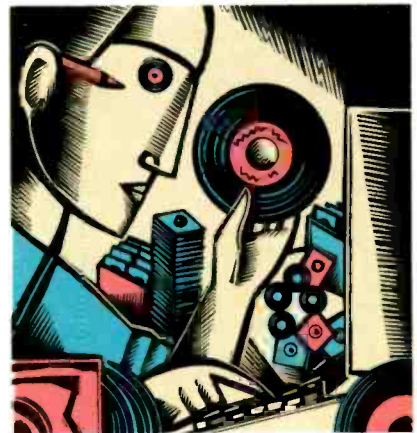
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Cover: Clockwise from top left, the Signet MR5.0ml, Ortofon X5-MC, Kiseki Purpleheart, and Denon DL-160; center, Audio-Technica AT160ML; see page 74. Design by Sue Llewellyn, photo by Robert Butler.

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.



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SPEAKING MY PIECE

by Louise Boundas



Collecting

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 that he was really dissatisfied with the turntable he had, but he was concerned, too. He'd been reading all these obituaries for the LP, and several people, among them a couple of audio dealers, had assured him that the turntable would be a thing of the past by 1990. What would happen if he had problems with his turntable in a few years? Would he be able to replace it? Shouldn't he get a spare? Should he stock up on cartridges?

Now, Harry has been collecting

records for decades, and he has put 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. □

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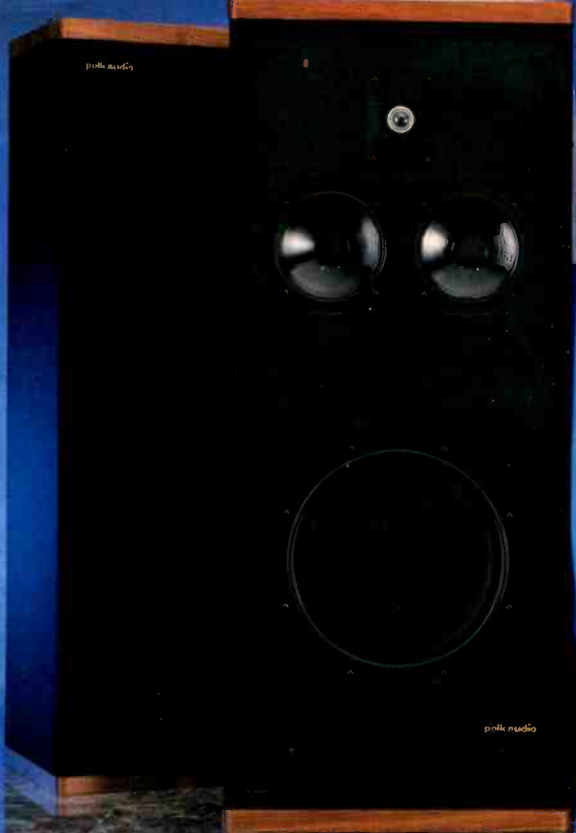
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System shown: KEX-M700, CDX-M100 trunk-mounted changer, JD-M100 6-disc magazine, wireless remote control.
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Stereo Review confirmed the unqualified sonic superiority of Matthew Polk's revolutionary 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.

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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.

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High Fidelity Magazine

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

"You owe it to yourself to audition them."

High Fidelity Magazine

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

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LETTERS

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
Staten 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.

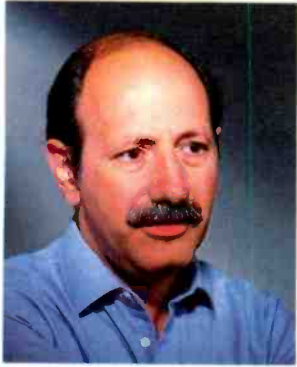
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“It’s no trick to make a great speaker when price is no object”

Andy Petite, chief designer, Boston Acoustics



The 3-way T830 Tower System.
It needs only 10 x 9¼" of
floor space, only 32" in height.
Suggested retail value: \$480 a pair.

“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.”

BostonAcoustics

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

NEW PRODUCTS

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 16 $\frac{5}{16}$ inches wide, 3 $\frac{5}{16}$ inches high, and 10 $\frac{7}{16}$ inches deep. Price: \$750. A remote control is optional (\$45). Na-

kamichi, Dept. SR, 19701 South Vermont Ave., Torrance, CA 90502. **Circle 120 on reader service card**

Nelson-Reed

The Model 8-02 floor-standing speaker system from Nelson-Reed has an 8-inch long-throw woofer, a 4-inch mid-range, and a ferrofluid-cooled $\frac{3}{4}$ -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 biamplified, 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 as 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 14 $\frac{1}{2}$ inches deep. Price: \$1,290 per pair. Nelson-Reed, Dept. SR, 15810 Blossom Hill Rd., Los Gatos, CA 95030.

Circle 121 on reader service card

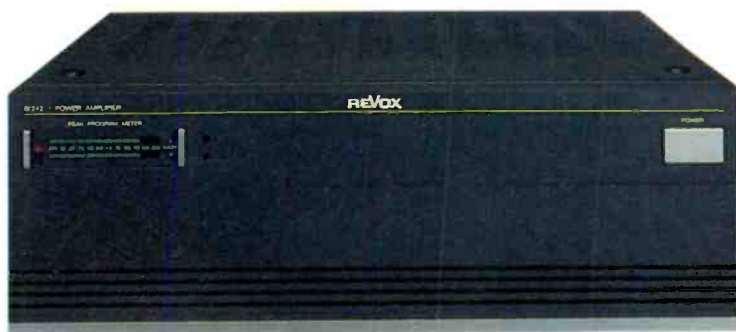


Revox

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 as 20 to 20,000 Hz ± 0.3 dB. Price: \$2,850. Studer Revox, Dept. SR, 1425 Elm Hill Pike, Nashville, TN 37210.

Circle 122 on reader service card



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.

Circle 123 on reader service card





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.



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



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!



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.



Built right from the ground up.



Kyocera Electronics, Inc., 100 Randolph Road, CN 6700, Somerset, New Jersey 08873-1284 (201) 560-0060
Kyocera Canada, Inc., 7470 Bath Road, Mississauga, Ont., L4T 1L2, Canada (416) 671-4300

CIRCLE NO. 72 ON READER SERVICE CARD

NEW PRODUCTS

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.

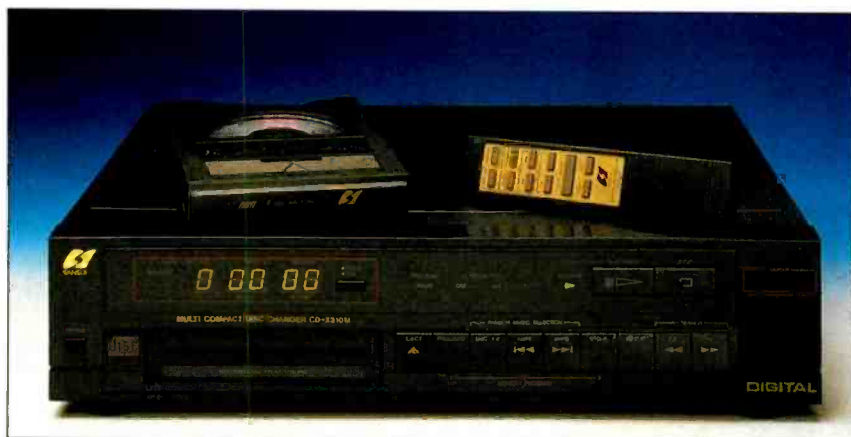
The S/series amplifiers are now biased so that they operate in pure Class A up to about 20 percent of their maximum output. The S/500 (shown), rated for 250 watts per channel into 8 ohms, now operates in Class A up to about 50 watts output. Redesignated as Class A/AB amplifiers, the S/200, S/300, and 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



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 15½ inches wide, 3½ inches high, and 13 inches deep, and it weighs 11¼ pounds. Price: \$400. Sansui, Dept. SR, 1250 Valley Brook Ave., Lyndhurst, NJ 07071.

Circle 125 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 (μ s) 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 μ s in most instances, making the deletions inaudible.

Frequency response is rated as 20 to

20,000 Hz \pm 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



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 state-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)

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Tina Turner: Break Every Rule • Two People, Typical Male, Back Where You Started, etc. Capitol DIGITAL 113333

Yes: The Big Generator • Love Will Find A Way, Rhythm Of Love, Big Generator, Almost Like Love, etc. Alco 144601

The Legendary Enrico Caruso • Vesti la giubba, Celeste Aida, Cielo e mar, La donna è mobile, etc. RCA 134274

Decade/Best Of Steely Dan • Rikki Don't Lose That Number, Reeling In The Years, Do It Again, 11 more. MCA 154135

Stravinsky, The Rite Of Spring • Detroit Symphony/Dorati. "Spectacular sonics." — Digital Audio London DIGITAL 115469

Kenny Rogers: I Prefer The Moonlight • Make No Mistake She's Mine (w/ Ronnie Millap), etc. RCA DIGITAL 162743

Rod Stewart: Greatest Hits • Do Ya Think I'm Sexy?, Tonight's The Night, Maggie May, Hot Legs, etc. Warner Bros. 133779

The Sound Of Music • Julie Andrews in the original soundtrack! Do-Re-Mi, My Favorite Things, more. RCA 100046

Starship: No Protection • It's Not Over ('Til It's Over), Nothing's Gonna Stop Us Now, etc. Grunt 163827

Perry Como: Today • Making Love To You, The Wind Beneath My Wings, The Best Of Times, You're Nearer, etc. RCA 114787



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. Music from Close Encounters, Superman, Star Wars, others. Philips DIGITAL 105392

La Bamba/Original Soundtrack • Los Lobos: Donna, La Bamba, more from Brian Setzer, Bo Diddley, others. Warner/Slash 120062

Brahms, Symphony No. 1 • Vienna Philharmonic Orchestra/Bernstein. DG DIGITAL 125224

Elvis Presley: The Sun CD • That's All Right, Good Rockin' Tonight, Milkcow Blues Boogie, Mystery Train, etc. RCA 272289

Kitaro: The Light Of The Spirit • Sundance, Mysterious Encounter, The Field, In The Beginning, etc. Geffen DIGITAL 164228

Andrew Lloyd Webber, Variations: more • Julian Lloyd Webber, cello. London Philharmonic/Maazel. Philips DIGITAL 115473

Lionel Richie: Can't Slow Down • All Night Long, Penny Lover, Running With The Night, Hello, etc. Motown 110767

Tomita's Greatest Hits • Also sprach Zarathustra, Bolero, Pachelbel Canon, Clair de lune, 10 more. RCA 253955

Jimi Hendrix: Kiss The Sky • Purple Haze, All Along The Watchtower, Voodoo Child, Are You Experienced, etc. Reprise 161349

Parton/Ronstadt/Harris: Trio • To Know Him Is To Love Him, Those Memories Of You, etc. Warner Bros. 114804

Phil Collins: No Jacket Required • Sus-sudio, One More Night, Don't Lose My Number, Take Home, Inside Out, etc. Atlantic 120771



Whitney Houston: Whitney 152854

Fleetwood Mac: Tango In The Night • Big Love, Seven Wonders, Little Lies, title song, Mystified, etc. Warner Bros. 154048

Kenny G: Duotones • Songbird, What Does It Take (To Win Your Love), etc. Arista 144343

Rimsky-Korsakov, Scheherazade • Vienna Phil./Previn. Philips DIGITAL 115415

Bon Jovi: Slippery When Wet • You Give Love A Bad Name, etc. Mercury 143465

Tchaikovsky, 1812 Overture; Romeo & Juliet; Nutcracker Suite • Chicago Symphony Orchestra/Solti. London DIGITAL 125179

Strike Up The Band—The Canadian Brass Plays George Gershwin • Title song, Porgy & Bess Suite, more. RCA DIGITAL 160640

Crosby, Stills, Nash & Young: Greatest Hits (So Far) • Suite: Judy Blue Eyes, Teach Your Children, etc. Atlantic 130230

Bach, Brandenburg Concertos Nos. 1-3 • The English Concert/Pinnock. Archly DIGITAL 115541

Madonna: Who's That Girl (Soundtrack) • Title song, Causing A Commotion, Can't Stop, others. Sire 100761

Dave Grusin: Cinemagic • Tootsie, Heaven Can Wait, On Golden Pond, Goonies, Three Days Of The Condor, etc. GRP DIGITAL 133316

The Police: Every Breath You Take—The Singles • Don't Stand So Close To Me ('86), title song, Message In A Bottle, etc. A&M 173924

Jimmy Buffet: Songs You Know By Heart: Greatest Hit(s) • Margaritaville, Come Monday, A Pirate Looks At Forty, etc. MCA 142157

Dvořák, Symphony No. 9 (New World) • Chicago Symphony Orchestra/Solti. "Superlatively good." —Gramophone London DIGITAL 115168

Eric Clapton: Time Pieces (The Best Of) • Layla, I Shot The Sheriff, After Midnight, Knockin' On Heaven's Door, etc. RSO 123385

Itzhak Perlman: Mozart, Violin Concertos Nos. 3 & 5 • Vienna Philharmonic/Lavine. "Ravishing." —Gramophone DG DIGITAL 115146

Whitesnake • Here I Go Again, Still Of The Night, Give Me All Your Love, Crying In The Rain, Bad Boys, more. Geffen 163629

Galway & Yamashita: Italian Serenade • Flute & guitar works by Paganini, Cimarosa, Giuliani and others. RCA DIGITAL 173824

Boston: Third Stage • Amanda, We're Ready, Can'tcha Say (You Believe Me), Still In Love, Holy Ann, etc. MCA 173392

Pops In Love • John Williams & The Boston Pops: Clair de lune, Gymnopédies Nos. 1 & 2, Pachelbel Canon, more. Philips DIGITAL 125230



The Cars: Door To Door 161593

U2: The Joshua Tree • With Or Without You, I Still Haven't Found What I'm Looking For, Red Hill Mining Town, etc. Island 153501

Mozart, Symphonies Nos. 40 & 41 (Jupiter) • Chicago Symphony Orchestra led by James Levine. RCA DIGITAL 104810

Genesis: Invisible Touch • Land Of Confusion, title song, etc. Atlantic 153740

Kiri te Kanawa: Blue Skies • Nelson Riddle arrangements of title song, Speak Low, How High The Moon, more. London DIGITAL 115035

Jascha Heifetz: Beethoven & Brahms, Violin Concertos • Classic performances, recommended by The New York Times! RCA 154208

Steve Winwood: Back In The High Life • Higher Love, more. Island 153271

Randy Travis: Always And Forever • Forever And Ever Amen, Too Gone Too Long, more. Warner Bros. 163917



John Cougar Mellencamp: The Lonesome Jubilee 134420

Wagner, Orchestral Highlights From Wagner's Ring • Vienna Philharmonic/Solti. Ride Of The Valkyries, others. London DIGITAL 115426

Mr. Mister: Go On • Something Real (Inside Me/Inside You), The Border, Stand And Deliver, etc. RCA 144127

Pat Metheny & Ornette Coleman: Song X • Fusion guitar master and legendary saxophonist on jazz tour de force. Geffen DIGITAL 151992

Led Zeppelin IV (Runes) • Stairway To Heaven, Rock & Roll, Black Dog, Misty Mountain Hop, others. Atlantic 112014

Heart: Bad Animals • Alone, Who Will You Run To, etc. Capitol 153552

Strauss, Waltzes • Chicago Symphony/Reiner. Blue Danube, Artists' Life, Roses From The South, 7 more. ROA 104863

Charlie Parker & Dizzy Gillespie: Bird & Diz • Leap Frog, My Melancholy Baby, Mo-hawk, Relaxin' With Lee, etc. GRP DIGITAL 173413

Bryan Adams: Into The Fire • Heat Of The Night, title song, more. A&M 153919

The Jackson 5: Compact Command Performances • I Want You Back, ABC, I'll Be There, others. Motown 123865

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Horowitz In Moscow 125264

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Bruce Hornsby & The Range: The Way It Is • Mandolin Rain, title hit, more. RCA 163918

Michael Feinstein: Remember/Irving Berlin Songs • Alexander's Ragtime Band, Puttin' On The Ritz, Change Partners, more. Elektra 153947

Fleetwood Mac • Say You Love Me, Rhian-nnon, Monday Morning, Sugar Daddy, I'm So Afraid, etc. Warner Bros. 104897

The Judds: HeartLand • Don't Be Cruel, Cow Cow Boogie, etc. RCA 160363

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David Lee Roth: Eat 'Em And Smile • Goin' Crazy, Yankee Rose, Tobacco Road, That's Life, Shyboy, etc. Warner Bros. 153814

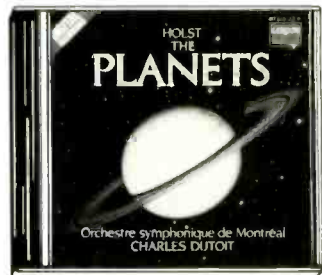
James Galway & The Chieftains: In Ireland • Danny Boy, When You And I Were Young, Maggie, Carrickfergus, more. RCA DIGITAL 124344

Classic Old & Gold • 20 hits! A Little Bit Of Soul, He's So Fine, A Teenager In Love, Sweet Talkin' Guy, etc. Laurie 134627

Lionel Richie: Dancing On The Ceiling • Love Will Conquer All, Se La, Ballerina Girl, more. Motown 134541

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Anita Baker: Rapture • Sweet Love, Caught Up In The Rapture, Same Ole Love, You Bring Me Joy, more. Elektra 173404

Peter Gabriel: So • Sledgehammer, Big Time, In Your Eyes, Red Rain, etc. Geffen 114764

Paul Simon: Graceland • You Can Call Me Al, The Boy In The Bubble, Diamonds On The Soles Of Her Shoes, etc. Warner Bros 172315

Alabama: Greatest Hits • She And I, Why Lady Why, Feels So Right, etc. RCA 120247

Previn: Gershwin • Rhapsody In Blue, Concerto in F, more. Philips DIGITAL 15437

Eagles: Ct. Hits, Vol. 1 • Take It To The Limit, One Of These Nights, Take It Easy, others. Asylum 123481

Beethoven, Symphony No. 9 • M. Price, Horne, Vickers, Salminen, N.Y. Choral Artists; New York Philharmonic/Mehta. RCA DIGITAL 143720

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by Ian G. Masters



Cassette Mismatch

Q I recently tried to put some new music on several older prerecorded cassettes. With my deck's monitor switch in the source position, the signal just reached into the red portion on the VU meters, but when I switched to the tape position to monitor the recording, the level reading was very low and the sound was flat and weak. Is it possible that these tapes are of a type that requires a setting other than the "normal," "chrome," and "metal" provided by my cassette deck?

WERNER P. ENZLER
Ebmingen, Switzerland

A With most cassette decks, those settings are only approximations at best, so the chances that the no-name tape used by most commercial duplicators will match one of them is almost nil. From your description, it sounds like the tape you are using is totally incompatible with your deck.

For the best frequency response, lowest distortion, and highest output level, a tape must be matched to a cassette deck *exactly*; even slight mismatches can cause severe audible degradation. Every tape has its own requirements, and no two brands are alike. Some of the more elaborate cassette decks provide the means to adjust their characteristics to take the best advantage of whatever tape you might elect to use, but such circuits are expensive and fairly rare. Most decks, therefore, include switches that allow a user to select for

the three main tape types, but each of these positions is fixed. Some manufacturers set their machines for specific tapes, and these are usually specified in the instruction manual. More often, however, the manual lists a number of tapes that can be used with each switch position.

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?

BARRY SWANSON
Eagan, MN

A Theoretically, the frequency response of an analog master tape is as 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 really flat. Over the years, 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.

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?

ROBERT WITZEMAN
Westwood, MA

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 cancellation 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.

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?

RONALD D. HAMILTON
APO, New York

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. □

REDEFINITION.

THE CARVER RECEIVER

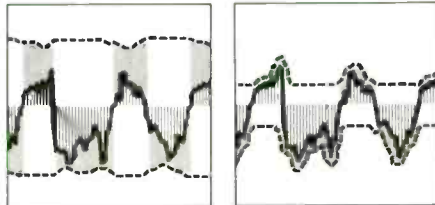
Redefines your expectations of receiver performance with the power you need for Digital Audio Discs plus virtually noise-free stereo FM reception. A receiver with astonishing performance incorporating two highly significant technological breakthroughs: Bob Carver's Magnetic Field Power Amplifier and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

The Magnetic Field Amplifier produces large amounts of power (absolutely necessary for the accurate reproduction of music at realistic listening levels) without the need for heavy heat sinks, massive transformers, and enormous power capacitors required by conventional amplifier design.

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.



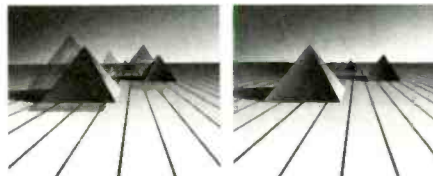
Solid line: audio output signal. Broken line: power supply voltage. Shaded area: wasted power. Vertical lines: power to speakers.

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 sepa-



Reflected multi-path signals cause audible distortion.

Asymmetrical Charge Coupled FM Detector gives your ears a true sonic image.

rated 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

POWERFUL

MUSICAL

ACCURATE

CIRCLE NO. 49 ON READER SERVICE CARD

Distributed in Canada by: evolution technology

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 per-

son 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 Briggie, 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 Briggie, 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 (Diamandis 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 prize; any tax on it will be the responsibility of the winner. The judges have every intention of reaching a decision in time for the publication of the results in the June 1988 issue, but Stereo Review reserves the right to delay the announcement until July if the response is as overwhelming as last year.



“How Big An Amp Do I Really Need?”

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.



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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).

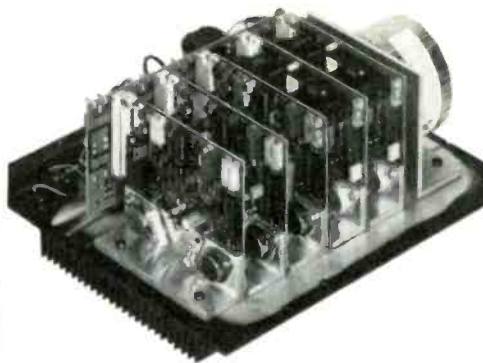


Canton's Plus Beta active subwoofer.

Don't have a preamp? No problem, your receiver can drive the Plus Beta too. The amplified power from your receiver is dropped down to preamp line level and the Plus Beta amplifies this signal through its own three amplifiers.

Canton has a variety of satellites to choose from: minis, indoor/outdoor, ultra-thin speakers or bookshelf units.

Featured at right are the Plus S mini speakers. Like most Canton products, they are available in black, white or walnut.



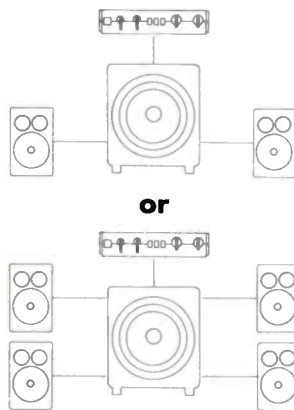
The Plus Beta contains three discrete power amps with digitally controlled active filters. They are frequency-driven and provide dynamic soft clipping for overload protection. The bass amplifier is rated at 100 watts RMS power; the satellite amps at 80 watts RMS per channel. THD is less than 0.01%.

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



The Plus Beta's control panel allows adjustment of: crossover point, for perfect matching with any satellite loudspeakers; input sensitivity, to optimize preamp compatibility; and bass level control to adapt for room characteristics.



The Plus Beta can accommodate an extra pair of satellites, either

in the same room or as extension speakers in another room.

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.



A Plus Beta subwoofer/satellite system can be driven by any preamp, such as Canton's EC-P1.

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

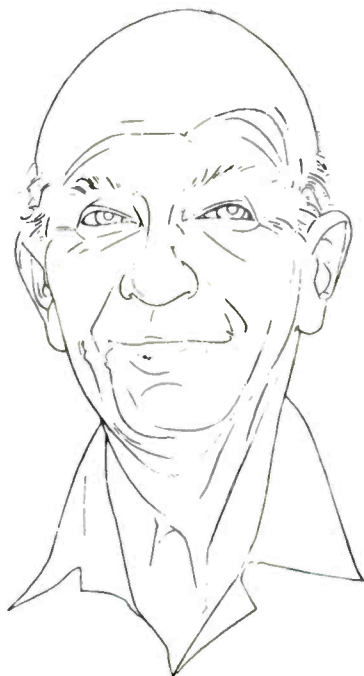
from

CANTON
High Fidelity Made in W. Germany

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CIRCLE NO. 33 ON READER SERVICE CARD

by Julian Hirsch



To Stack or Not to Stack?

FOR years, the dimensions of many audio components have been similar enough to permit "stacking" several units on top of one another instead of placing them side by side. A variation on the stacking configuration is the so-called "rack system" sold in department and discount stores, in which components are installed on separate shelves in a common cabinet, or rack.

Many people lack the horizontal space needed to accommodate a reasonably complete system on a single plane. After all, a tuner, preamplifier, power amplifier, CD player, cassette deck, and record player require quite a bit of real estate, which is unlikely to be readily available in a typical family living room—or in any other room that is not dedicated to the pursuit of good sound. Combined components, such as an integrated amplifier or a receiver, ease the space problem somewhat but may not eliminate it completely.

An obvious solution is to stack a number of components so as to

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

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.

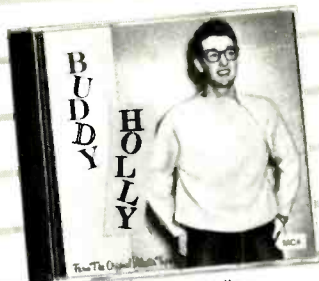
component; occasionally a tuner or preamplifier will run hot, and the same precautions apply.

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

Tested This Month

Sansui CD-X901
Compact Disc Player
Ohm Sound Cylinder
Speaker System
Sony TA-E77ESD Digital
Preamplifier
Sharp SA-CD800 CDver
Pinnacle PN5+
Speaker System



348110. Buddy Holly—
From the Original Master Tapes. (MCA)



358507. Madonna—
Who's That Girl (Orig. Soundtrk.). (Sire)



359901. Mick Jagger—
Primitive Cool. (Columbia)

- 337659. U2—The Unforgettable Fire (Island)
- 347955. Huey Lewis & The News—Fore! (Chrysalis)
- 349985. Johnny Mathis—Henry Mancini—The Hollywood Musicals (Columbia)
- 348979. Tina Turner—Break Every Rule (Capitol)
- 352633. Dolly Parton/Linda Ronstadt/Emmylou Harris—Trio (Warner Bros.)
- 336396-396390. Billy Joel's Greatest Hits, Vol. 1 & 2. (Columbia)
- 349324. South Pacific. K. Te Kanawa, J. Carreras, etc. (Digital—CBS)
- 347153. Cyndi Lauper—True Colors. (Portrait)
- 347039. Billy Idol—Whiplash Smile. (Chrysalis)
- 346643. Andreas Vollenweider—Down To The Moon. (CBS)
- 346478. Madonna—True Blue. (Sire)
- 356576. John Adams: The Chairman Dances—DeWitt, San Fran. Sym. (Digital—Nonesuch)
- 356675. Beverly Hills Cop II—motion picture soundtrack album. (MCA)
- 361980. Roger Hodgson—Hai Hai. (A&M)
- 356196. The Cure—Kiss Me, Kiss Me, Kiss Me. (Elektra)
- 343319. Janet Jackson—Control (A&M)
- 349571. Boston—Third Stage (MCA)
- 356287. Suzanne Vega—Solitude Standing. (A&M)

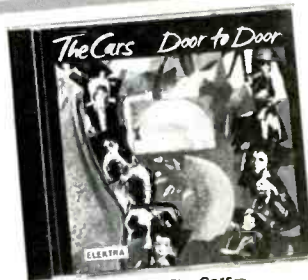
- 344721. Lionel Richie—Dancing On the Ceiling. (Motown)
- 355156. Vladimir Horowitz Plays Favorite Chapin. (Digitally Remastered—CBS Masterworks)
- 352948. Wynton Marsalis—Carnaval. Hunsberger, Eastman Wind Ensemble (Digital—CBS Masterworks)
- 353946. Bryan Adams—Into The Fire. (A&M)
- 324062. West Side Story—Original Cast (Columbia)
- 354985. Billie Holiday—From The Original Decca Masters. (Digitally Remastered—MCA)
- 323899. The Best Of The Alan Parsons Project. (Arista)
- 352666. REO Speedwagon—Life As We Know It. (Epic)
- 355115-395111. Prince—Sign 'O' The Times. (Paisley Park)
- 354951. Mozart: Flute Quartets—Rostropovich, Rampal, Stern, Accardo (Digital—CBS Masterworks)
- 356329. Randy Travis—Always & Forever. (Warner Bros.)
- 355990. Motley Crue—Girls, Girls, Girls. (Elektra)
- 355529. Philip Glass—Dance Pieces. (Digital—CBS)
- 357871. Tchaikovsky: Waltzes—S. Commission and Houston Symphony (Digital—Pro Arte)
- 319996-399998. Motown's 25 #1 Hits From 25 Years. (Motown)

- 355776. Stravinsky: The Firebird (1910 version); Song Of The Nightingale—Boulez, New York Phil. (Digitally Remastered—CBS Masterworks)
- 355834. David Bowie—Never Let Me Down. (EMI America)
- 346536. The Monkees—Then & Now...The Best Of The Monkees (Arista)
- 345785. Top Gun—Soundtrack. (Columbia)
- 355362. Whitesnake. (Geffen)

Classic Rock from the Sixties and Seventies

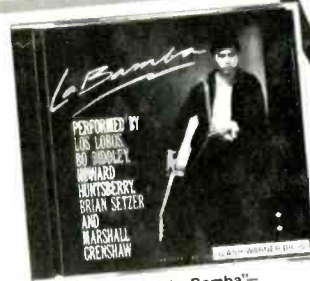
- 300095. Electric Light Orchestra—Greatest Hits. (Jel)
- 279133. Meat Loaf—Bat Out Of Hell. (Epic)
- 358887. Grateful Dead—Workingman's Dead. (Warner Bros.)
- 358358. Joe Cocker—Classics. (A&M)
- 357277. The Who—Who's Next. (MCA)
- 345157. Jethro Tull—Aqualung. (Chrysalis)
- 327742. The Best Of Kansas. (CBS Assoc.)
- 291864—391862. Original Soundtrack—Woodstock. (Atlantic)
- 290171. The Steve Miller Band—Greatest Hits 1974-78. (Capitol)
- 291526. Emerson, Lake & Palmer—Brain Salad Surgery. (Atlantic)

- 319541. Elton John—Greatest Hits. (MCA)
- 318089. Michael Jackson—Thriller (Epic)
- 340323. Sade—Promise. (Portrait)
- 339903. The Cars—Greatest Hits. (Elektra)
- 321307. Air Supply—Greatest Hits. (Arista)
- 342105. Bangles—Different Light. (Columbia)
- 357889. Capland: Billy The Kid; Appalachian Spring; etc.—Bernstein, NY Phil. (Digitally Remastered—CBS Masterworks)



359521. The Cars—
Door To Door. (Elektra)

- 355958-395954. Beethoven: Symphonies Nos. 8 & 9 (Choral)—Michael Tilson Thomas, English Chamber Orch. (Digital—CBS Masterworks)
- 290916. The Best Of Earth, Wind & Fire, Vol. 1 (Columbia/ARC)
- 343715. Vivaldi: Four Seasons—Maazel cond. (Digital—CBS Masterworks)
- 323261. Lionel Richie—Can't Slow Down (Motown)
- 346809. Dvorak: Symphony No. 9 (New World); Carnival Overture—Batiz, London Philharm. (Digital—Verese/Sarabande)



357939. "La Bamba"—
Orig. Soundtrk. (Slash/Warner Bros.)

- 345777. Peter Gabriel—So. (Geffen)
- 246868. Jim Croce—Photographs And Memories—His Greatest Hits. (Sajo)
- 334391. Whitney Houston. (Arista)
- 314443. Neil Diamond's 12 Greatest Hits, Vol. 2. (Columbia)
- 343582. Van Halen—5150. (Warner Bros.)
- 326629. Bruce Springsteen—Born In The U.S.A. (Columbia)
- 342097. Barbra Streisand—The Broadway Album. (Columbia)
- 219477. Simon & Garfunkel's Greatest Hits. (Columbia)
- 348649. Pachelbel Canon & Other Digital Delights—Toronto Chamber Orch. (Digital—Fantare)
- 353771. Bolling/Rampal: Suite #2 for Flute & Jazz Piano Trio (Digital—CBS)
- 348318. The Police—Every Breath You Take—The Singles (A&M)
- 346312. Billy Joel—The Bridge. (Digital—Columbia)
- 337519. Heart. (Capitol)
- 336222. Dire Straits—Brothers In Arms. (Warner Bros.)
- 314997-394999. Stevie Wonder's Original Musicquarium I. (Tama)
- 348987-398982. Linda Ronstadt—Round Midnight (Asylum)
- 353789. Sly & The Family Stone's Greatest Hits. (Epic)
- 351122. Europe—The Final Countdown. (Epic)
- 346544. Kenny G—Duotones. (Arista)

ANY 6 COMPACT DISCS FOR \$1

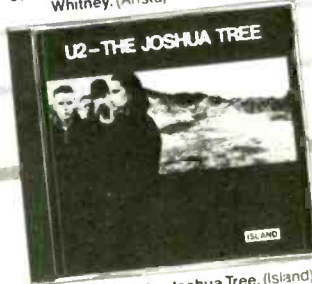
plus shipping and handling, with membership



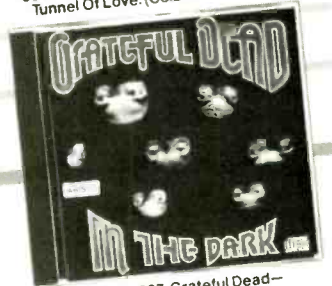
356154. Whitney Houston—
Whitney. (Arista)



360115. Bruce Springsteen—
Tunnel Of Love. (Columbia)



354449. U2—The Joshua Tree. (Island)



357087. Grateful Dead—
In the Dark. (Arista)



359075. Aerosmith—
"Permanent Vacation". (Geffen)



354902. Fleetwood Mac—
Tango In The Night. (Warner Bros.)



356667. Heart—Bad Animals. (Capitol)

- 354100. Crowded House. (Capitol)
- 354035. Dwight Yoakam—
Hillbilly Deluxe. (Reprise)
- 345751. Paul Simon—
Graceland. (Warner Bros.)
- 356279. Gloria Estefan
And Miami Sound Machine
—Let It Loose. (Epic)
- 358077. Hank Williams,
Jr.—Born To Boogie.
(Warner Bros./Curb)
- 357863. Barbra
Streisand... "One Voice."
(Columbia)
- 357574. Original
Soundtrack—The Lost
Boys. (Atlantic)
- 357467. Sammy Hagar.
(Geffen)
- 336669. Sting—The
Dream Of The Blue
Turtles. (A&M)
- 357806. Mussorgsky:
Pictures At An Exhibition,
Night On Bald
Mountain—Leonard
Sloikin, St. Louis Symphony
Orchestra. (The Moss Music
Group)
- 360974. Squeeze—
Babylon And On. (A&M)
- 360149. Echo & The
Bunnymen. (Sire)
- 360016. Spyro Gyra
—Stories Without Words.
(Digital—MCA)
- 357798. The Art Of
Beverly Sills, Album 2.
(Digitally Remastered—
Angel)
- 357145. Richard Goode
Plays Brahms Piano
Pieces, Op. 76 & 119/
Fantasies Op. 116.
(Digital—Nonesuch)
- 357103. Boccherini: Cello
Concerto—Yo Yo Ma;
Zukerman, St. Paul
Chamber Orch.
(Digital—CBS Masterworks)
- 357079. Michael Brecker.
(Digital—MCA/Impulse)
- 354993. Judy Garland
—America's Treasure.
(Dunhill CD Classics)
- 291385. America—
History/America's
Greatest Hits. (Warner
Bros.)

337402. The Manhattan
Transfer—Vocalese.
(Atlantic)

346957. Steve Winwood
—Back In The High Life.
(Island)

344622. Anita Baker—
Rapture. (Elektra)

138586. Bob Dylan's
Greatest Hits (Columbia)

343954. Paul Winter—
Canyon. (Living Music)

357657. Beethoven:
Piano Concerto No. 5—
Murray Perahia.
(Digital—CBS Masterworks)

357640. Wynton
Marsalis—Marsalis
Standard Time.
(Columbia)

357186. Hooters—One
Way Home. (Columbia)

353920. Simply Red—
Men and Women. (Elektra)

352229. Carly Simon—
Coming Around Again.
(Arista)

356444. Dionne
Warwick—Reservation
For Two. (Arista)

354829. Lisa—Lisa And
Cult Jam With Full
Force—Spanish Fly.
(Columbia)

356501. Benson/Klugh—
Collaboration.
(Warner Bros.)

361022. Tchaikovsky:
Symphony No. 6—
Claudio Abbado, Chicago
Symph. Orch. (Digital—CBS
Masterworks)

357350. The Duke
Ellington Orchestra—
Digital Duke. (Digital—GRP)

356741. Bach: Preludes
And Fugues For Organ,
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TECHNICAL TALK

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 at 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. □

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But Denon occupies an unusual position in the digital audio world. They (Nippon Columbia, in Business-Speak) are one of the few companies to engage in all three industries that bring digitally recorded music to your ears: digitally recorded music to your own label, digital post production and Compact Disc pressing (including CD player manufacturing). While other companies own subsidiaries that function similarly, none achieves quite as finely forged an integration as does Denon. When you listen to a Denon recording on a Denon disc through a Denon player, you're hearing exactly what Denon intended.

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JOOK LUNG

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

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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-



You can load up to five discs into the optional DP-411R CD player and either play all of them in order, or up to 30 segments (a segment can be a single track or an entire disc). Plus you can random access all five discs.

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



...al genius looks like.



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And you can buy the system using the new Mitsubishi Three Diamond Card™

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TEST REPORTS

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 $\frac{3}{4}$ inches wide, 16 inches deep, and 3 $\frac{7}{8}$ 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-

FEATURES

- Quadruple-oversampling digital filtering, with separate filters for each channel
- All discrete circuit components in analog stages
- Optical-coupling isolation of digital and analog circuits
- Balanced analog outputs through cannon connectors, unbalanced outputs through gold-plated phono jacks
- Digital output jack
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- Separate power transformers for analog and digital circuits
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- Index cueing
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- Auto space to insert 4-second pause between tracks
- Music Scan to audition each track on disc
- Repeat track, disc, or selected segment
- Music Calendar to show all tracks on disc or programmed tracks
- Display of track and index numbers, elapsed or remaining time, and operating status
- Front-panel headphone jack with volume control
- Switch for operation with external timer
- Wireless remote control for all functions

LABORATORY MEASUREMENTS

Maximum output level: 1.97 volts
Total harmonic distortion at 1,000 Hz: 0.0032% referred to 0 or -10 dB
Signal-to-noise ratio (A-weighted): 106 dB
Dynamic range: 101 dB
Channel separation: 99 dB at 1,000 Hz, 92 dB at 20,000 Hz
Frequency response: +0.3, -0 dB from 20 to 20,000 Hz

Maximum phase shift (from 100 to 20,000 Hz): 4 degrees at 100 Hz
Cueing time: 3 seconds typical
Cueing accuracy: A
Impact resistance: top, C; sides, A
Defect tracking: tracked maximum-level defects on Philips TS5A test disc



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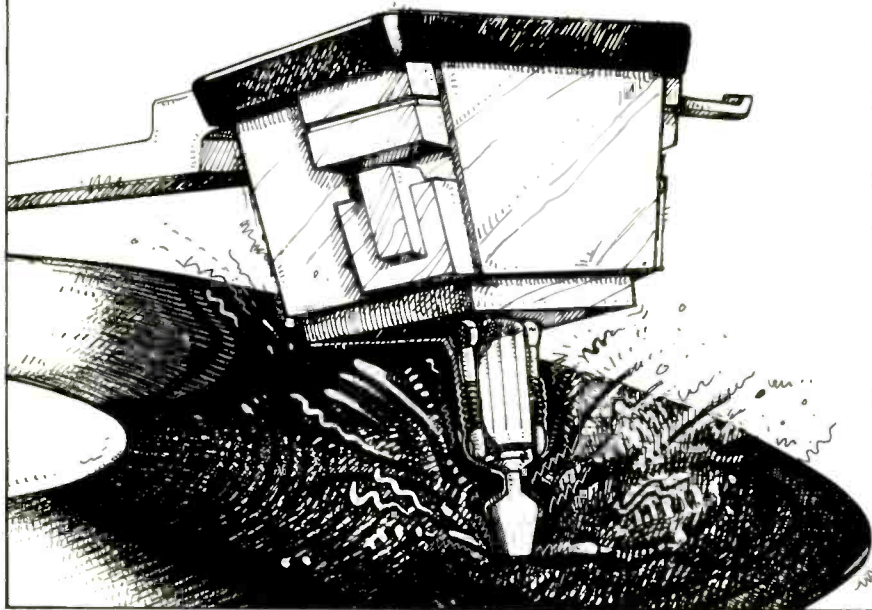
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TEST REPORTS

X901 had no difficulty tracking the largest calibrated defects on the Philips TS5A 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.

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OHM SOUND CYLINDER SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

OHM Acoustics is best known for unique loud-speaker 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

TEST REPORTS

make custom covers from your own fabric. Price: \$549 a pair. Genuine wood veneer is \$76 extra, and custom fabric covers are \$46 extra. Ohm Acoustics Corp., Dept. SR, 241 Taaffe Place, Brooklyn, NY 11205.

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 2,200 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 of 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 superbly flat 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 millisecond, 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!

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SONY TA-E77ESD DIGITAL PREAMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

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

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RS 4000

RS 62k 2-way driver

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All of our advances in speaker technology are compiled into a brief presentation booklet called "The Creative Technology of Infinity Speakers, Vol. II." Ask your Infinity dealer for your copy.

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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 inde-

pendently 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 18 $\frac{3}{8}$ inches wide, 13 $\frac{1}{8}$ inches deep, and 5 inches high. It weighs 29 pounds (the rugged steel top plate accounts for about 4 $\frac{1}{2}$ 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-picofarad (pF) capacitance at

FEATURES

- Input selection and switching for up to six analog audio sources (auxiliary, tuner, CD, phono MM or MC, two tape decks), three digital audio sources (two CD and one DAT), and three video sources (two VCR's, one videodisc player)
- Separate 16-bit D/A converter for each channel
- Quadruple-oversampling digital filters
- Digital and analog outputs to DAT recorder
- Audio-muting switch (20 dB)
- Bass and treble tone controls with switchable turnover frequencies (200 or 400 Hz for bass, 3,000 or 6,000 Hz for treble)
- Tape-recording input selector for either tape deck independent of listening selection
- Remote-control outlet for use with suitable Sony cassette decks
- Video-monitor output
- MC phono input switchable for 30- or 400-ohm termination
- Output switchable from rear jacks to front-panel headphone jack
- Red LED status indicators for selector buttons and volume-control index
- ADAPTOR switch to insert signal-processing accessory in signal path
- SOURCE DIRECT switch to bypass tone controls, subsonic filter, and balance control
- Two AC outlets, one switched
- Gold-plated signal connectors
- Wireless system remote control

LABORATORY MEASUREMENTS

- Analog Section**
 - Frequency response** (through AUX input, EIA standard load): 20 to 20,000 Hz \pm 0.01 dB
 - Voltage output** at clipping: 11 volts
 - Harmonic distortion** (THD + noise at 1,000 Hz): 0.0028% at 0.1 volt, 0.0021% at 1 volt, 0.013% at 10 volts
 - Sensitivity** (for a 0.5-volt output): AUX input, 46 mV; MM phono, 0.7 mV; MC phono (30 ohms), 0.045 mV
 - A-weighted noise** (referred to a 0.5-volt output): AUX, -89 dB; MM phono, -84 dB; MC phono (30 ohms), -75 dB
 - Phono-input overload level** (MM): 142 to 148 mV, depending on frequency
- Phono-input impedance** (MM): 46,000 ohms and 260 pF
- RIAA phono-equalization error:** +0.05, -0.35 dB from 20 to 20,000 Hz
- Tone-control range:** 100 Hz, +3.5, -4 dB with 200-Hz turnover, +6.5, -5.5 dB with 400-Hz turnover; 10,000 Hz, +4, -3 dB with 6,000-Hz turnover, +7.5, -7 dB with 3,000-Hz turnover
- Digital Section**
 - Frequency response:** left channel, 20 to 20,000 Hz, +0.55, -0 dB; right channel, 20 to 20,000 Hz +0.15, -0 dB
 - Channel imbalance:** 0.5 dB

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* amplifier, and listen to what's missing.

Distortion.

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

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.



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.

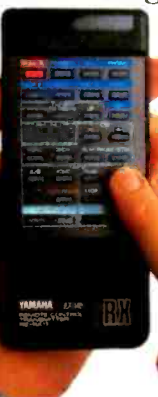
Now, with our RX-1100U, we're the ones to keep an eye on as well.

*125 watts RMS per channel, both channels driven into 8 ohms, from 20 to 20,000 Hz, at no more than 0.05% Total Harmonic Distortion.



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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.

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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

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TEST REPORTS

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

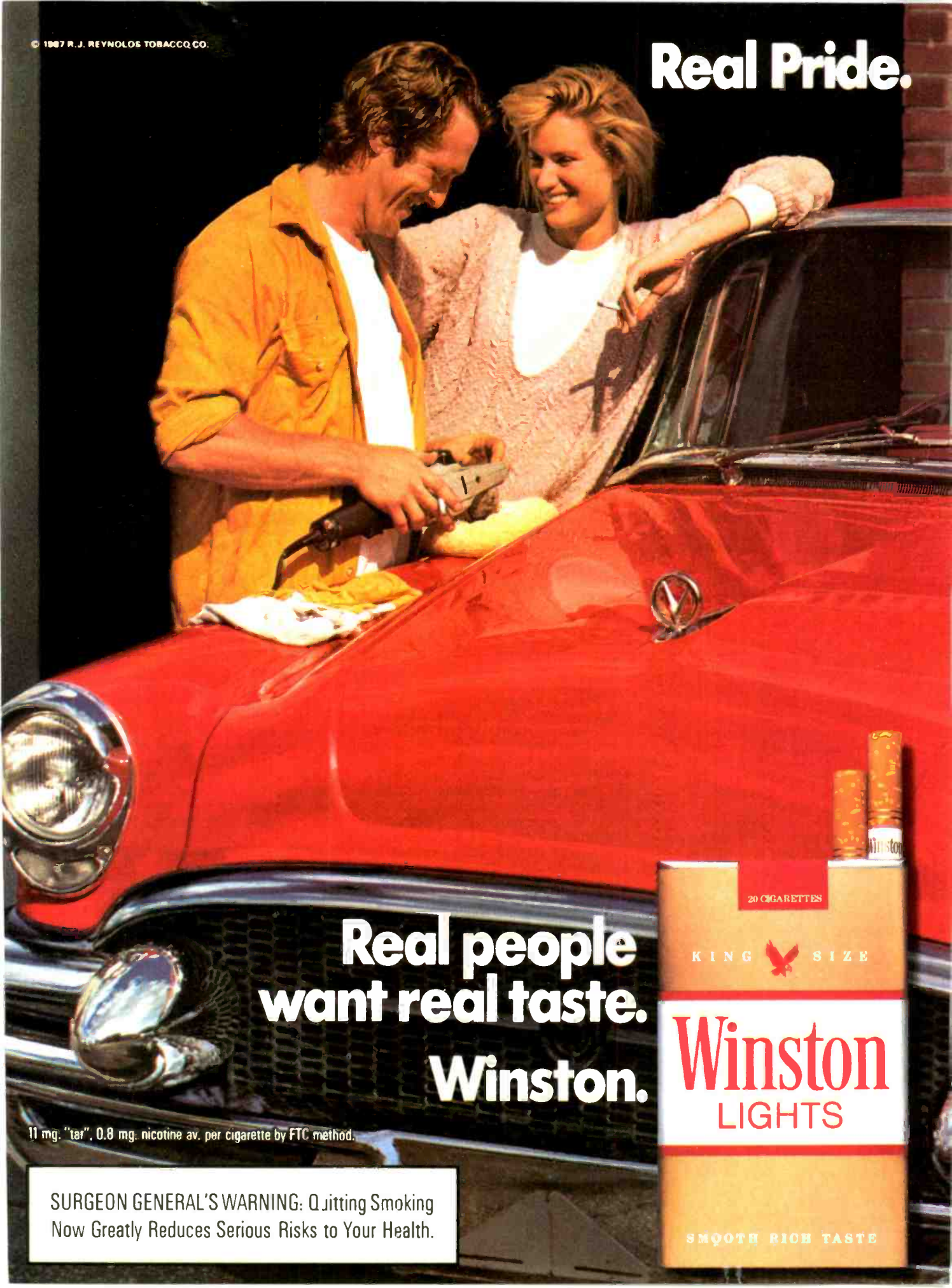
In all important parameters, this preamplifier yielded measurement data that would be acceptable from a digital source component.

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 control center 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

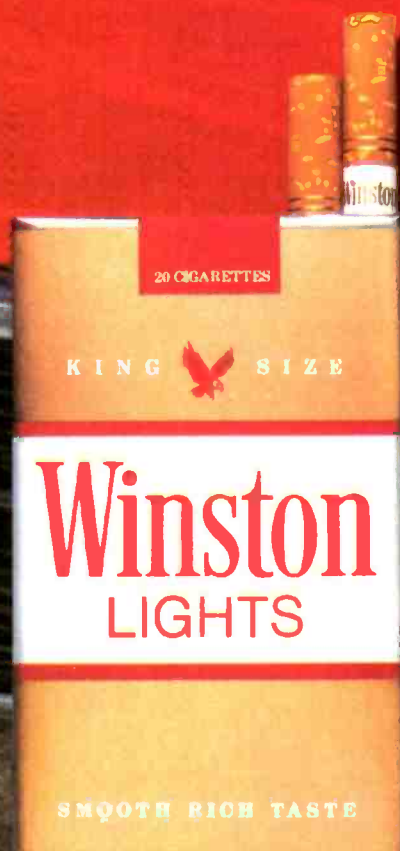
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Get Stereo TV For \$99⁰⁰

Now your home TV viewing can become a theatrical experience. Get up to 72 cable and antenna channels in true MTS Stereo, and listen to them explode in your living room through your own stereo system or through optional bonus amplified speakers.

By Drew Kaplan

Save your TV. Now you can add 72 channel cable ready tuning, with true MTS Stereo and SAP sound that's guaranteed to knock your 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 own stereo 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 \$99⁰⁰.

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're in for a selection 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 (I), 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.

And, 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

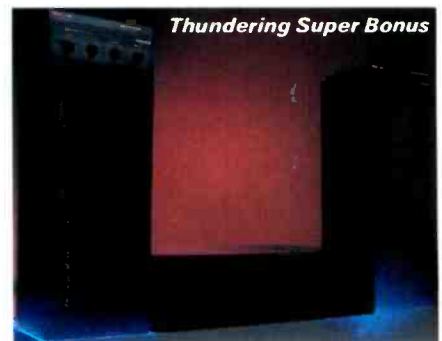
Wait till you hear the sound. It's like switching from a portable AM radio to your full stereo system. It's an awesome experience that's instantly apparent.

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 breakthrough price of just \$99⁰⁰ (\$6 P&H). 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.

\$49⁰⁰ AMPLIFIED 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 17 1/4" tall, AC powered and they turn themselves on and off automatically. They're yours ONLY with purchase of the Controller, for just \$49⁰⁰ (\$6 P&H). 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 \$99⁹⁰. 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 Ph???tic 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 \$10 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 a 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 3 entries.

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 Cities.

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 breakthrough price of just \$99⁹⁰ (\$4 P&H). Order No. 4925. CA res add tax. Note: January delivery.

Infuse your ideas with powerfully 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.

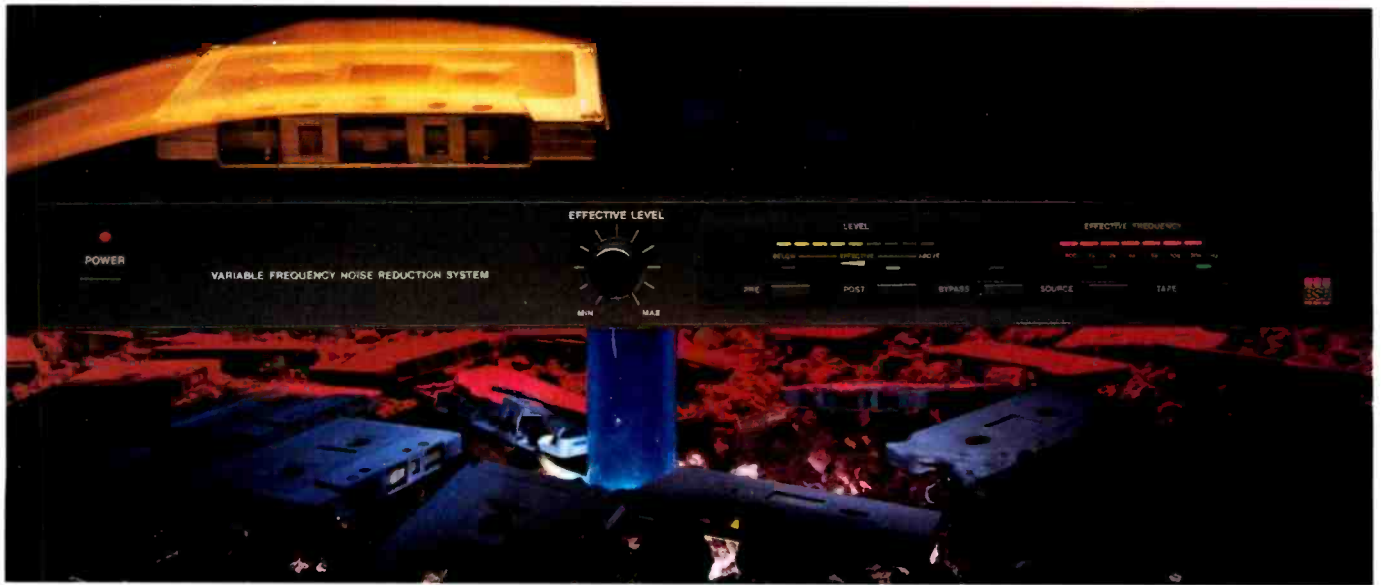


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Old Cassettes Reborn

Wow, imagine annihilating the hiss on your current cassettes, FM and even AM with NO ENCODING. Without re-recording your cassettes, imagine bringing them into the CD hiss free age, with up to 40db of hiss reduction.

By Drew Kaplan

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 audiophile tapes and it works.

It removes the hiss without killing the high end. And, during quiet passages and during dead space between tracks, the difference is awesome.

Here's a test you can do. Listen to the hiss between tracks on any of your cassettes. As you're listening, stop your cassette deck. Of course, the hiss will stop. Well, that's what you'll experience when you add BSR's single-ended noise reduction to your system.

It gives you up to 40db of noise reduction in addition to Dolby® or dbx noise reduction systems you may already have.

So, without re-recording or encoding of any type, whatever you've already done will only make your future musical listening even more enjoyable.

And, if you listen with headphones, you'll be astounded by the absence of hiss. Obliteration of hiss is one of the things that makes CDs so awesome.

Note: While neither BSR or DAK is claiming equality to CDs, this is the closest thing I've heard. And amazingly, it's done with the cassettes I already own. But, it's not perfect, so read on.

WHAT IT IS

dbx developed an automatic variable-frequency low-pass filter that filters out high-frequency noise (hiss).

It dynamically varies its cut-off frequency according to the level of high-frequency energy in your music.

So, what does it do in English? Well, actually it's simple. This device recognizes constant signals like hiss and distinguishes them from the music. When there are no high frequency sounds in the music, it cuts off the high frequencies.

It starts at 20,000hz. Imagine a skier skiing down a mountain. Imagine how the skier follows the contour of each hill.

Well, this system follows the contours of the music. For each note, it assesses what it is and allows it through. If there's no note at any given frequency, it turns it off. So, you'll have noise free music.

It happens in microseconds. You can't hear it happening. But this new device follows the contours of your music, keeping the hiss pushed back by up to 40db.

You'll use an 'Effective Level' control, so you'll decide just how close to the contours it operates. Make it too strong and you'll start to cut some highs. 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 those cassettes its 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 dead.

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 Rococo 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 it 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.

On the other hand, with analog recorded CDs where there's just a little hiss, this brings them up to full digital quality.

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 it 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.

\$79⁹⁰ 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.



An automatic timer tells you how long you've been talking. And, a clock appears whenever you hang up.

You'll have Tone/Pulse switching, Pause, Flash, Battery Backup (2 C cell batteries included) and redial. LEDs show when the phone line is 'In Use' and when you put the phone 'On Hold'.

Plus, you'll have automatic redial (in the speakerphone version). If you call airlines or have friends who stay on the



line forever, you'll love this phone.

It will keep redialing the number for you automatically. It really helps reduce frustration and saves time.

You'll have true Hold, so you can take a call on this phone and move to another room to finish your conversation without having to leave the phone off the hook.

In short, you'll have the best sounding, best feeling (it has a K2 Phone Company Style Handset) one line phone ever.



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, clean sounding, 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 inter-connect (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 \$79⁹⁰
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 \$79⁹⁰ 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 incredible breakthrough price of just \$79⁹⁰ (\$4 P&H). Order No. 4946. 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 \$99⁹⁰ (\$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.



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Any Other Inquiries. 1-800-423-2866
8200 Remmet Ave., Canoga Park, CA 91304



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 precisely matched mirror image pair of top-of-the-line BSR speakers that can effortlessly recreate the cataclysmic 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, and so did Jack.

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 virtually 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 esoteric audio 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 envelop you. At high volume, your room, 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 21,500 hz, 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 5" paper mid-ranges to reproduce what's really the major portion of the sound spectrum.

BSR's 8" and 5" polypropylene mid-ranges are rigid, exacting drivers that deliver incredibly pure uncolored sound.

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

NOT QUITE FINISHED YET

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

All frequencies below 800 hz 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 1200hz to the 5" polypropylene ambient 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 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, 19 1/4" wide and 10 1/2" deep. Their lovely oak wood-grain appearance is enhanced by the dark removable grill cloths that beautifully contrast with the rich wood-grain tones. 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 RISK FREE

You'll hear depth of sound at low levels that was previously unobtainable. And yes, when you crank up the volume, 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 or send your check for DAK's market-breaking price of just \$299 for the MATCHED PAIR plus \$34 for Postage and Handling. Order No. 4868. CA res add 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.



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\$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.

By Drew Kaplan

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.

I really recommend recording shows because, aside from zapping commercials at 17 times speed, you'll have the digital slow motion and you can always go over and over anything you see. The digital effects are awesome.

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 RISK FREE

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.

15" Thundering Subwoofer

Man's best friend meets the audiophile's best friend at an earthshaking bone jarring new price. Now you can add the impact of a 15" subwoofer to any stereo system for just 99⁹⁰.

By Drew Kaplan

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 \$164⁵⁰.

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 \$99⁹⁰.

But don't be misled. BSR bass is clean and tight; never sloppy or overpowering. 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 may be crossed over at about 800hz. And, in a 2-way system as high as 3000hz.

So, the woofer must handle movements of up to an inch at frequencies below about 80hz, while at the same time attempting to reproduce the very fine vibration type movements of the mid-range frequencies.

It is this difference in movements that causes both the bass to be weak or not precise, and the mid-range to become muddy (intermodulation distortion).

Even the best 3-way systems fall prey to these problems. And, it's why a subwoofer can do so much for your mid-range clarity as well as your bass.

PROBLEM SOLVED

BSR's subwoofer has a specially engineered crossover network that sends frequencies above 120hz to your regular speakers and reproduces just the mammoth movement frequencies from 120 hz down to 22hz with a special floor firing dual wound super subwoofer.

If you have downstairs neighbors, this subwoofer isn't for you. The woofer is a very special hybrid. It has a mammoth one and one half inch voice coil which allows the speaker to make the very large



movements required to reproduce the very low frequencies.

But, it would do a lousy job of reproducing mid-range, which is why, cost aside, manufacturers 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.



Here's a 'floor's eye view' of the subwoofer. You'll feel and hear bass so alive, you'll think it is.

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 \$99⁹⁰ (\$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.



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Cheap Thrills for \$49⁹⁰

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 \$49⁹⁰. 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 \$49⁹⁰, 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 \$49⁹⁰, 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.

When I head out to fix a sprinkler, to work in my shop, or to our attic to run more wires, it usually isn't an expensive portable stereo that goes with me.

Now I'm using this dynamite new stereo recorder. It's super rugged. It sounds great. And, for \$49⁹⁰, frankly, I can throw it on the grass, on top of a rock, or in my car's trunk without worrying about it.

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

LOOK AT ALL IT 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 copy 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 starved car stereos to make the sound more vibrantly alive.

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. Plus, there's a CD 'Aux' input. 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.

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

Don't pay \$4⁵⁰ or even \$3⁵⁰ for your cassettes. Buy factory direct for just \$2⁴⁹ for DAK MLX normal bias or \$2⁶⁹ 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 MLX 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 warranty.

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 1,600,000 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 \$49⁹⁰, 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.

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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.

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 studio 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

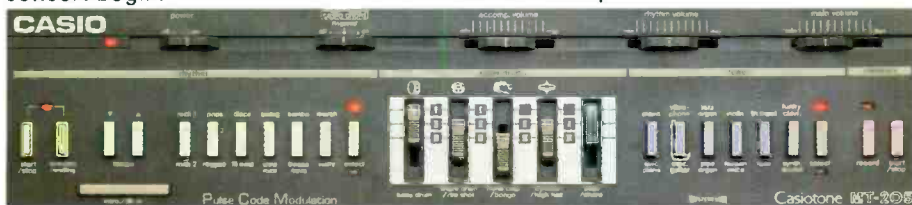
This isn't the first keyboard I've seen, although it's certainly the best I've used. But I think what really sets it apart is the auto-accompaniment.

board. 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.

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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.

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).

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Put your fingers on the full sized key-

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The sticks are normally a \$50 suggested retail option. DAK will include them ab-

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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.

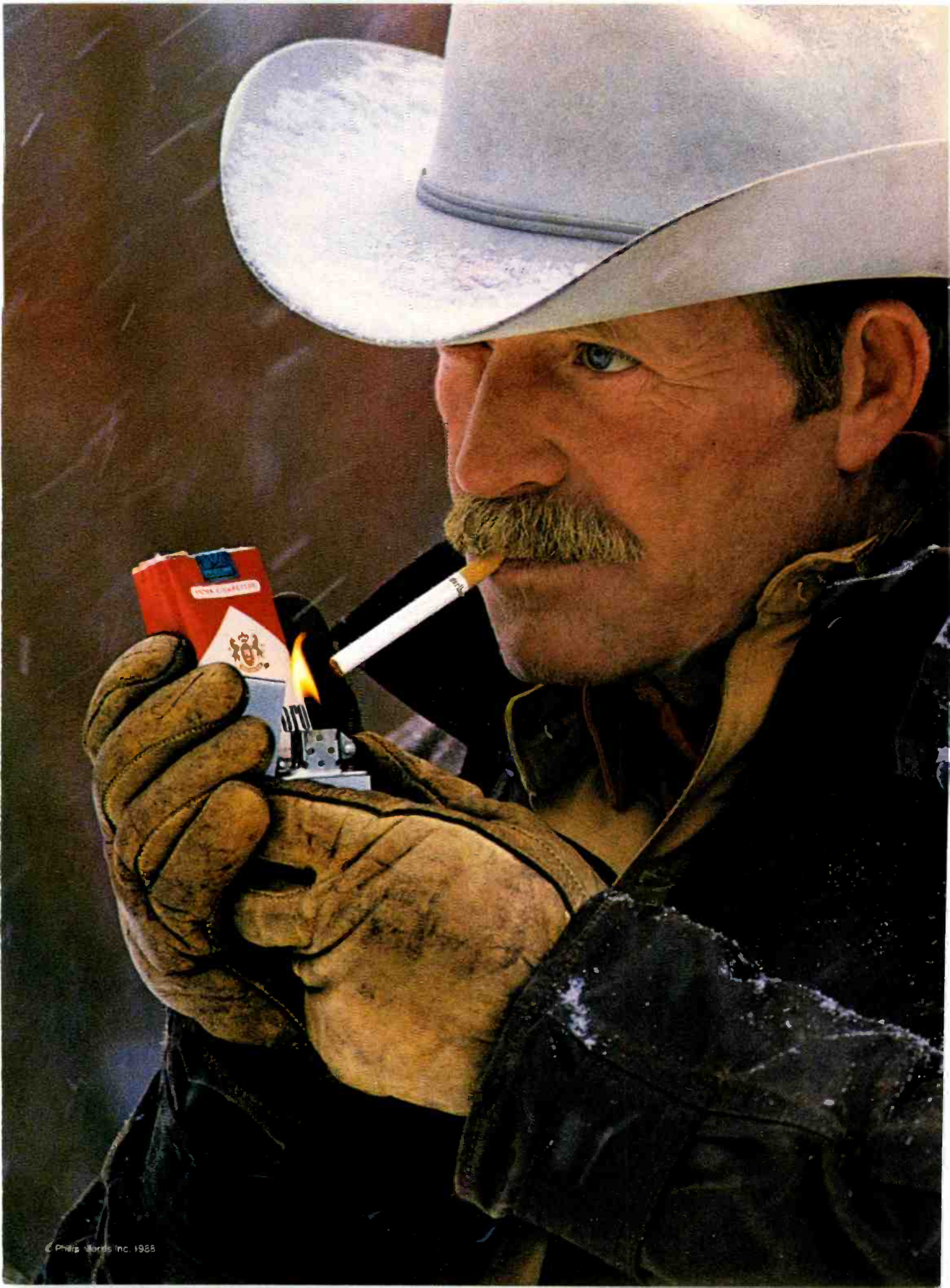


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With our new Phase Linear PLT 150 Turbo amplifier, the mere act of sitting in your car can become an exhilarating experience.

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.

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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.

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OUR AMP PROVIDES PLENTY OF POWER TO PLENTY OF SPEAKERS.

The new Phase Linear PLT 150 is stable to 2 Ohms. Which means it can continue to deliver its awesome power should you find yourself using it with more than two speakers.

And if you need even more power, (rare as the case may be), whether for speakers or subwoofer applications, we've planned for this as well.

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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.

AN AMP THIS POWERFUL DESERVES A STRONG SPEAKER.

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



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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.

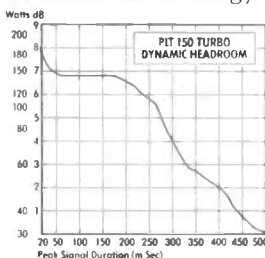


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SHARP SA-CD800 CDVER

Julian Hirsch, Hirsch-Houck Laboratories

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 CDver (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 CDver'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.

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FEATURES

- Digital-synthesis AM/FM tuner with twenty-four preset channels (twelve per band)
- Multidisc CD changer with interchangeable magazine for up to six CD's, including single-play drawer
- CD section programmable for sequences of up to thirty-two steps; can hold programmed sequence while playing a different selection
- Random-play and repeat CD modes
- Track skipping and fast search in both directions
- Digital and analog low-pass CD filters
- Inputs and switching for two VCR's, audio tape deck, phono (MM); tape and video-monitor outputs
- 100-watt-per-channel power amplifier
- Seven-band graphic equalizer and real-time spectrum analyzer with center frequencies of 63, 160, 400, 1,000, 2,500, 6,300, and 16,000 Hz
- Pushbutton volume and tuning controls
- Slider balance control
- Front-panel headphone jack
- Audio-mute button
- Outputs for two pairs of speakers, selectable on front panel
- Wireless remote control
- One unswitched AC outlet

LABORATORY MEASUREMENTS

- Tuner Section** (all measurements FM only except frequency response)
 - Usable sensitivity (mono): 14.3 dBf (2.9 μ V)
 - 50-dB quieting sensitivity: mono, 15.5 dBf (3.3 μ V); stereo, 29 dBf (15.5 μ V)
 - Signal-to-noise ratio at 65 dBf: mono, 73.5 dB; stereo, 70.8 dB
 - Harmonic distortion (THD + noise) at 65 dBf: mono, 0.45%; stereo, 0.22%
 - Capture ratio at 65 dBf: 1.75 dB
 - AM rejection at 65 dBf: 75 dB
 - Selectivity: alternate-channel, 68 dB; adjacent-channel, 11.5 dB
 - Image rejection: 42.5 dB
 - Stereo threshold: 23 dBf (7.8 μ V)
 - 19-kHz pilot-carrier leakage: -71 dB
 - Hum: -75 dB
 - Channel separation at 100, 1,000, and 10,000 Hz: 31.5, 32.5, and 30 dB
 - Frequency response: FM, 30 to 15,000 Hz +0.2, -2.2 dB; AM, -6 dB at 45 and 2,100 Hz
- Amplifier Section**
 - 1,000-Hz output power at clipping: 105 watts into 8 ohms, 121 watts into 4 ohms, greater than 115 watts into 2 ohms
 - Clipping headroom (relative to rated output): 0.2 dB (8 ohms)
 - Dynamic power output: 110 watts into 8 ohms, 162 watts into 4 ohms, 132 watts into 2 ohms
 - Dynamic headroom: 0.4 dB (8 ohms)
 - Harmonic distortion: (THD + noise) at 1,000 Hz into 8 ohms: 1 watt, 0.146%; 10 watts, 0.057%; 100 watts, 0.075%
 - Maximum distortion from 20 to 20,000 Hz into 8 ohms: 0.48% at 100 watts (20 Hz)
 - Slew factor: greater than 25
 - Input sensitivity (for a 1-watt output into 8 ohms): tape, 24 mV; phono, 0.44 mV
 - Phono-input overload: 62 to 87 mV
 - High-level-input overload: 3.8 volts
 - A-weighted noise (referred to a 1-watt output): high level (tape), -80 dB; phono, -75.4 mV
 - Phono-input impedance: 47,000 ohms in parallel with 160 picofarads
 - RIAA equalization error: +0.05, -1.25 dB from 20 to 20,000 Hz
 - Equalizer range: +6.5, -9 dB at each center frequency
- Compact Disc Section**
 - Total harmonic distortion at 1,000 Hz: 0.007% referred to 0 dB, 0.014% referred to -10 dB, 0.037% referred to -20 dB
 - Signal-to-noise ratio (A-weighted): 96 dB
 - Dynamic range: 96 dB
 - Channel separation: 70 dB at 1,000 Hz, 51 dB at 10,000 Hz, 46 dB at 20,000 Hz
 - Frequency response: 20 to 18,000 Hz \pm 0.25 dB
 - Cueing time: 3 seconds
 - Cueing accuracy: A
 - Impact resistance: top, C; sides, B
 - Defect tracking: tracked all maximum-level defects on Philips TS5A test disc

The digital-synthesis AM/FM tuner section of the SA-CD800 has twelve preset buttons that can store up to twenty-four frequencies (twelve on each band). It can also be tuned manually or in an auto-scan mode. The multifunction display shows the tuned frequency, the band, and the preset number if one is used. In the CD mode, it initially shows the number of tracks and total playing time on disc No.1; during play, it shows the current track and its elapsed time as well as special CD operations such as random or programmed playback. A row of lights above the disc magazine shows which of its trays contain discs, and the one for the currently selected disc blinks while it is playing.

Below the multifunction display is the spectrum-analyzer display. Vertical light bars indicate the relative output level at the center frequencies of seven bands (63, 160, 400, 1,000, 2,500, 6,300, and 16,000 Hz) over a range of 10 dB. A wide bar to the right of the spectrum display shows the overall volume level, and a button shifts the display range by 20 dB. The vertical sliders for the graphic equalizer adjust levels in the same seven frequency bands over a \pm 10-dB range. Each slider contains a bright green light to show its position at a glance. A small horizontal slider control for balance is the only other analog control on the CDver.

Most of the controls of the SA-CD800 are flat pushbuttons in two rows across the bottom of the panel, one of square buttons, the other of narrow buttons directly above them. Many of these select disc and track numbers and operate the other functions of the CD player. Others control the tuner functions. Above the equalizer controls are the up and down volume buttons and an audio-muting button.

The rear apron contains the signal input and output jacks, connecting screws for the FM and AM antennas (a pivoted, removable wire-loop AM antenna is included), and a single unswitched AC outlet. There are insulated spring-clip connectors for two pairs of speakers, activated separately by front-panel buttons.

The Sharp SA-CD800 is a large, moderately heavy receiver. It measures 17 inches wide, 15 $\frac{3}{4}$ inches

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Proton's AV27 audio-video system.



300 Series Remote-Controlled Components with Dynamic Power on Demand™ (top to bottom) AM-300 Stereo Amplifier, AT-300 Stereo Tuner, AD-300 Cassette Deck, 830R CD Player.

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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.

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deep, and 6 inches high, and it weighs 28 pounds. Price: \$899.95. Sharp, Dept. SR, Sharp Plaza, Mahwah, NJ 07430.

Lab Tests

Because of the SA-CD800's considerable size and weight, an hour of preconditioning at one-third rated output into 8-ohm loads left it only mildly warm. The amplifier clipped at 105 watts per channel into 8 ohms and at 121 watts into 4 ohms. With a 2-ohm load, the amplifier's protective system shut it down at 115 watts, before actual clipping occurred. In dynamic power tests, the maximum outputs were 110, 162, and 132 watts into loads of 8, 4, and 2 ohms, respectively.

The total harmonic distortion plus noise (THD + N) with 8-ohm loads decreased smoothly from 0.36 percent at 0.1 watt to 0.025 percent at 50 watts, rising to 0.075 percent at the rated 100-watt output. Most of the "distortion" reading at low power outputs was actually the residual noise of the amplifier, which was higher than its actual harmonic distortion at those levels. The distortion curve was similar but slightly higher with 4- and 2-ohm loads.

At the rated 100 watts, the 1,000-Hz distortion was about 0.1 percent from 100 to 4,000 Hz, rising to 0.2 percent at 40 Hz and just under 0.05 percent at 20 and 20,000 Hz. At half and one-tenth of the rated power, the distortion curves were flat (0.06 and 0.025 percent, respectively) from 20 to 3,000 or 4,000 Hz, rising at higher frequencies to 0.03 percent at 20,000 Hz. The slew factor of the amplifier exceeded our measurement limit of 25.

At maximum gain, the amplifier required an output of 24 millivolts (mV) through its high-level (CD or tape) inputs, or 0.44 mV through its phono input, for a reference output of 1 watt. The respective A-weighted noise levels, referred to 1 watt, were -80 and -75.4 dB. The phono preamplifier overloaded at inputs between 62 and 87 mV from 20 to 20,000 Hz. Because of the electronic volume-control system, the high-level inputs could be overloaded with an input of 3.8 volts, a safely high level for any conceivable input source.

The RIAA phono-equalization error was less than 0.05 dB from 70 to 6,000 Hz, increasing 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

The versatile Sharp SA-CD800 "CDver" includes a multidisc CD changer, a digital-synthesis AM/FM tuner, and a 100-watt amplifier. The convenience of this all-in-one system is undeniable, and its performance was excellent.

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 μ V). The 50-dB quieting sensitivity was 15.5 dBf (3.3 μ V) in mono and 29 dBf (15.5 μ V) 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 CD 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 pickup was about average, taking 3 second 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

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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 multiplay 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 drivers' 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 re-

cessed rear panel is only 6 inches, which obviously could not accommodate the required 6-inch-long duct in a conventional design. Angling the 1½-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 1½ x 2⅜-inch oval.

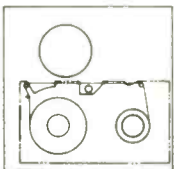
The PN5+ is a two-way system whose driver complement consists of a 5¼-inch polycarbonate-cone woofer and a ¾-inch polycarbonate-dome tweeter cooled and damped with ferrofluid. The crossover frequency is 5,000 Hz, and the rated frequency response is 50 to 21,000

Why it took a to invent the Q

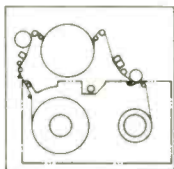


AKAI'S QUICK START: THE MOST SIGNIFICANT ADVANCEMENT IN TAPE HANDLING SINCE THE VHS CASSETTE.

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.



Unloading for conventional VCR



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functions is more than *five times faster* than conventional VHS decks.

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tape recorders of all kinds.

hi-fi company Quick Start VCR.



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."

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TEST REPORTS

Hz. The nominal impedance of the system is 6 ohms, and its rated sensitivity is 86 dB sound-pressure level (SPL) at 1 meter with a 1-watt input.

The PN5+'s cabinet measures only 11¼ 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

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

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.

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 a minimum of 4.5 ohms at 220 Hz and maxima of about 18 ohms at 36, 110, and 2,300 Hz. The 6-ohm rating appeared to be reasonable for the variations we measured. The sensitivity was somewhat less than rated, a rather low 83-dB SPL at 1 meter with a 2.83-volt input of pink noise.

Measured with a 6.3-volt input (equivalent to a 90-dB midrange SPL), the bass distortion was high, as would be expected from such a small woofer. From 4.5 percent at 100 Hz, distortion increased rapidly to 15 percent at 70 Hz and 22 percent at 40 Hz. At a reduced input of 2.83 volts, the distortion rise was less steep, increasing from 1.5 percent at 100 Hz to 10 percent at 40 Hz. In our pulse-power tests, the woofer rattled at a 100-Hz input of 168 watts into its 12-ohm impedance, and the amplifier clipped at 650 watts into 11 ohms at 1,000 Hz. At 10,000 Hz, the amplifier clipped at 1,040 watts into the tweeter's 7.5-ohm impedance.

Comments

Having listened to the Pinnacle PN5+ speakers for some time be-

fore making any measurements, we found it difficult to reconcile our test data with what we had heard.

At reasonable volume levels, 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!

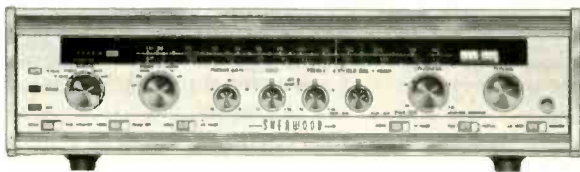
I am not saying that the PN5+'s sounded *like* our reference speakers, since they could not produce really low bass (below 50 Hz) at any usable level. But their octave-to-octave energy balance from, say, 100 to 10,000 Hz was closer to the balance of our reference speakers than has been that of many other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

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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" nomencla-

ture 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.

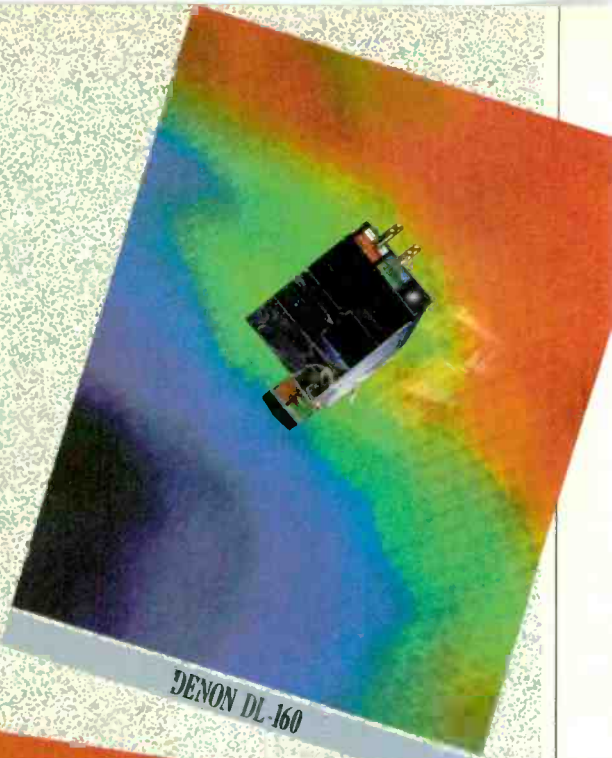
The Microline stylus shape used in this cartridge is said to approximate the shape of a cutting stylus more closely than any previous design and therefore to produce better high-frequency response with less wear and distortion. The fixed coils, which Audio-Technica calls a "Paratoroidal Signal Generator," 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.

KISEKI PURPLEHEART



DENON DL-160



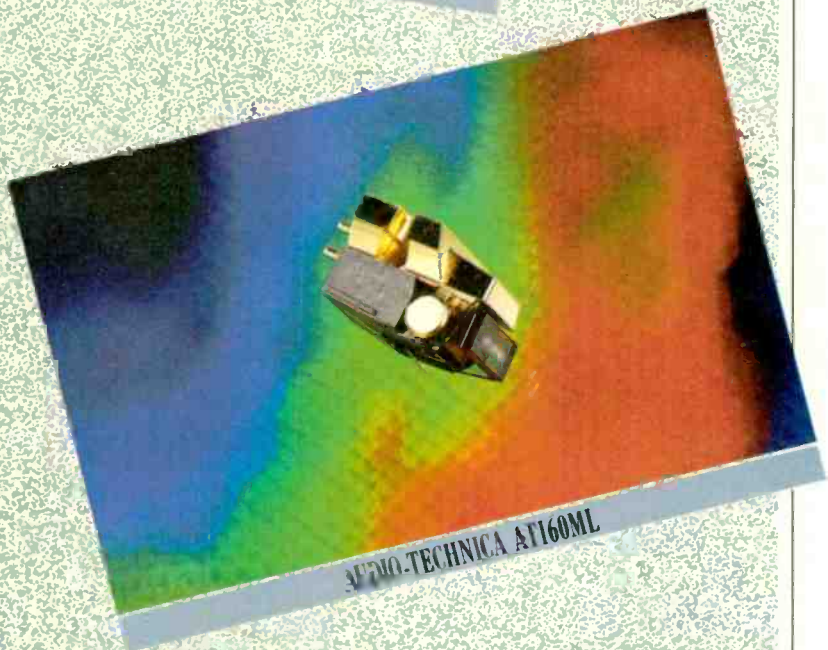
ORTOFON X5-MC



SIGNET MRE.0ml



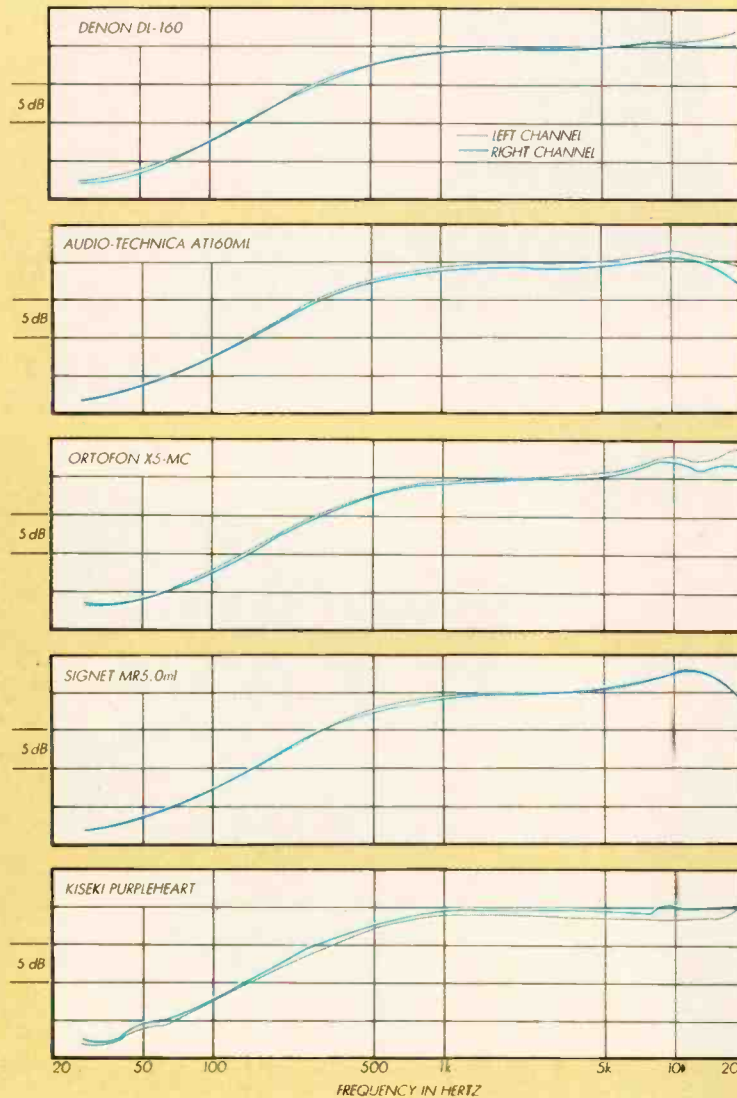
ATTO-TECHNICA AT160ML



LABORATORY MEASUREMENTS

	DENON DL-160 (\$115)	AUDIO- TECHNICA AT160ML (\$295)	ORTOFON X5-MC (\$300)	SIGNET MR5.0ml (\$350)	KISEKI Purpleheart (\$1,240)
Output (mV)	2.99	5.0	2.34	3.75	0.272
Channel imbalance (dB)	0.35	0.7	0.6	0.0	0.1
Vertical stylus angle (degrees)	26	18	22	16	20
Low-frequency resonance (Hz)	8-10	6-7	11	6	8-9
Frequency-response deviation (dB) from 1,000 to 20,000 Hz	+2, -0	+1, -2.5	+3, -0	+3, -2	±0.5
Channel separation (dB)					
1,000 Hz	25	26+	30+	25	21.5
10,000 Hz	21	23.5	30	25	20
20,000 Hz	21	19	22	24	18
Weight (grams)	4.8	8.1	4.1	6.0	7.5
Tracking ability at 315 Hz (highest level tracked, in micrometers)	60*	90	80	90	60

*Tracked 70-micrometer level with maximum recommended tracking force



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-picofarad 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 was made with RIAA low-frequency equalization and has a constant recorded velocity from approximately 1,000 Hz to its 20,000-Hz limit. Since we do not use equalization when measuring cartridge response, the resulting curves have a low-frequency rolloff. Inasmuch as the chief cause of cartridge response errors and irregularities in the range below 1,000 Hz is resonance in the tonearm or headshell, we limited our consideration of the cartridges' response curves to the range above 1,000 Hz.

The cartridges' output voltage was measured by playing the 3.54-cm/s, 1,000-Hz bands of the CBS STR 100 test record. The vertical tracking angle was measured with the CBS STR 160 test record. Tracking ability was measured with three records: The Fairchild (Gotham) 101, which has 1,000-Hz tones recorded at a very high, 30-cm/s velocity; the Cook 60, which has extremely high-amplitude signals at the lowest audio frequencies (down to 32 Hz); and the DIN 45-549, which has 315-Hz tones at a number of amplitude levels from 50 to 120 micrometers.

The highest-amplitude signal that

can be played without distortion or mistracking is used by many cartridge manufacturers as the basis for specifying tracking ability. The Cook record gives a simple "go/no-go" result depending on whether the cartridge's stylus is sufficiently compliant to stay in the groove at its highest level. Playing the Fairchild record usually results in a slightly flattened or clipped output waveform, although a few cartridges can produce a reasonable sine-wave output even at its very high level. We look primarily for signs of mistracking, rather than peak clipping, in this test.

We used the CBS CTC 310 test record for distortion measurements and a check of square-wave response. The "ringing" on a 1,000-Hz square wave gives an indication of the amplitude and frequency of a stylus's high-frequency resonance and to what degree it is damped. The record's test bands for intermodulation (IM) distortion include a 4,000-Hz sine wave at a 17.7-cm/s velocity modulated at several levels by a 400-Hz tone. We used a spectrum analyzer to measure the amplitudes of the modulation side bands at 3,600 and 4,400 Hz, which indicates cartridge nonlinearity in that frequency range, at modulation levels from 0 to +12 dB, corresponding to amplitudes from 16 to 64 micrometers.

We measured the low-frequency tonearm/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-OFC). According to the manufacturer, the use of LC-OFC 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 nude-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 Signet 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-

ing limit (increasing its tracking force to the rated maximum of 1.9 grams raised the limit to 70 micrometers). The lowest tracking score was earned by the Kiseki, which barely coped with the 60-micrometer level. The Kiseki also showed substantial mistracking of the 1,000-Hz tones of the Fairchild 101 test record. All the other cartridges delivered the usual symmetrically clipped sine-wave output from this record, and all tracked the Cook 60 record successfully.

The intermodulation-distortion test bands of the CBS CTC 310 record further quantified the other tracking tests. All the cartridges gave somewhat different distortion readings at most recorded levels. The distortion curves of the Denon, Ortofon, and Audio-Technica followed the normal pattern, increasing linearly along parallel paths as 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 car-

tridges 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. □

SYSTEMS

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by William Wolfe

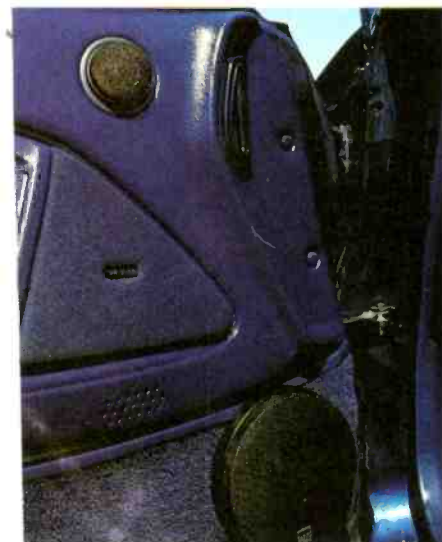
KEN BULLOUGH of Baltimore is not a car stereo installer by trade, but the quality of his work is outstanding. The 492-watt, \$7,000 system he installed in his 1987 Toyota Supra Turbo took the consumer trophy in the 251- to 500-watt class at Alpine's recent Car Audio Nationals (CAN) sound-off contest, 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).

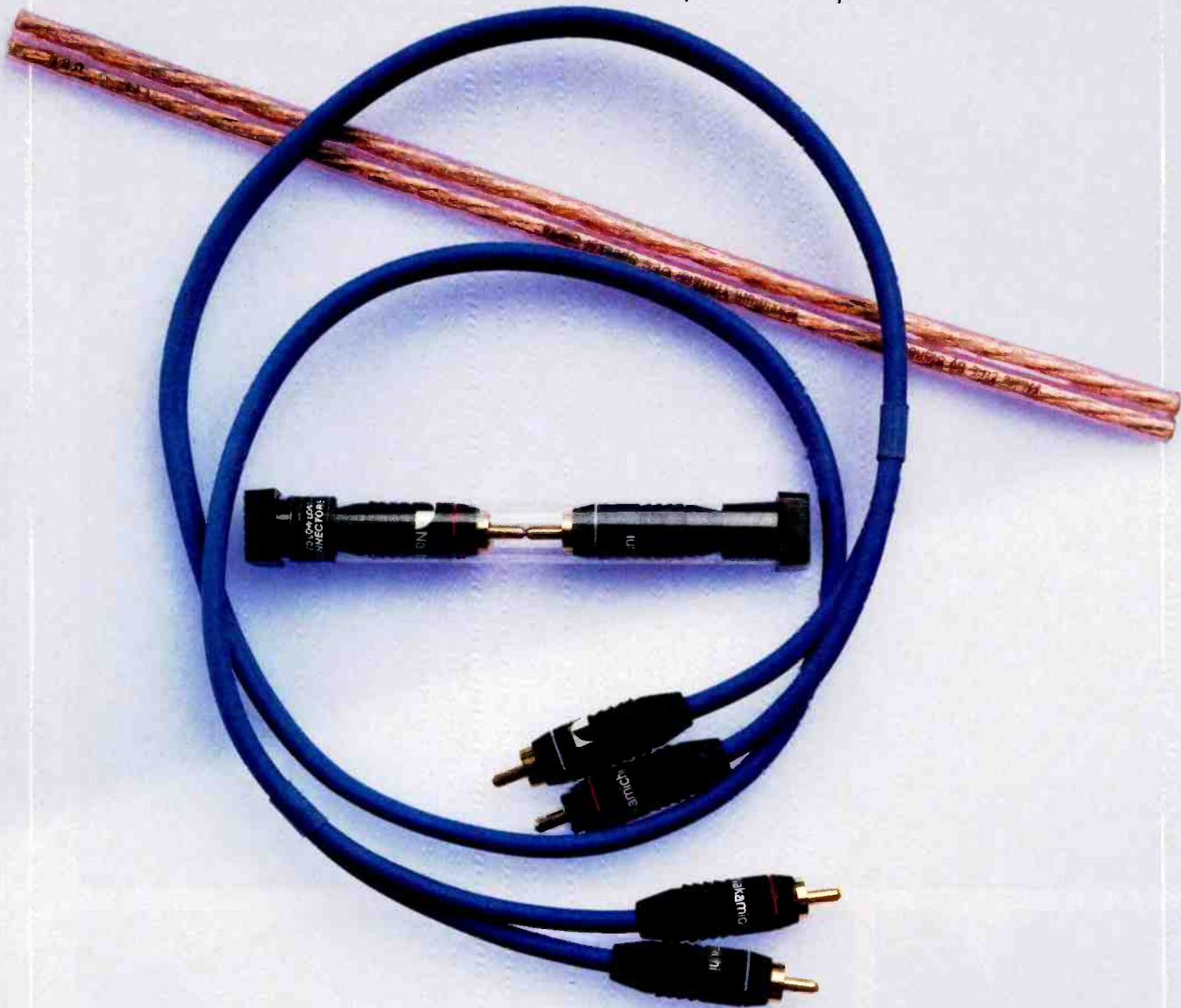
Compared with the creations of his CAN competitors, Bullough's system was rather straightforward, but it was extremely functional and it sounded great—a fine example for installers who want to follow the current trend of cutting back on power while paying stricter attention to sound quality. □





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

BY GERALD SELIGMAN

Facing page: Signet's Music Line speaker cable is 11 $\frac{3}{4}$ -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.

you get the best possible sound throughout the life of your system.

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.

It is especially important to use only proved commercial fluids or distilled water for cleaning records, as home-made substitutes may cause damage. And by all means avoid both coarse-bristled brushes,

PHOTOGRAPHS BY DAVID KELLEY



Sonex Juniors acoustic foam (four sheets for \$54) traps and diffuses sound waves to reduce room reflections.



Nitty Gritty's 2.4 Fi Mk II powered record-cleaning machine (left, \$489) and CD-1 compact disc cleaner (\$169).



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 isopropyl 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 mid-range 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 probe-type 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 you 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 with the musical signal, so a tight bond is desirable. 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, SpiderClamp, 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 AT605 insulating feet for turntables (\$33.50) come with a spirit level to insure correct installation, a crucial consideration in record preservation. Mission's \$69 Isoplat isolation shelf system is also excellent. Both products can be

used to isolate other components as well.

The connecting cables between your components and speakers are probably ripe for improvement. You've undoubtedly noticed the profusion of gold-tipped interconnects on the market, and they do offer an undeniable advantage over other types. Anything but gold will eventually tarnish, and some of the signal will be lost. Regardless of prices, and some brands are quite inexpensive, I recommend gold-tipped connectors between components. When they are coupled with heavier-gauge, less-resistant speaker cables, you'll be amazed at the difference they can make in your system's performance.

Most accessory companies make good interconnects for any budget, and the price depends on the length. A standard 1-meter connector ranges in cost from Arista's \$8.50 a pair to \$45 for Audioquest's Livewire. Higher-quality interconnects cost more, starting at \$60 a pair for Signet's and \$75 for Monster Cable's Reference line. Premium interconnects are especially worthwhile for the links between CD players and amplifiers, though any connection will benefit from high-quality cable. For a system with a separate preamplifier, tuner, and power amplifier, the better the cable, the less signal degradation between components. It is also useful to apply a dab of Tweek contact fluid (\$15 a bottle) on all jacks and plugs for a better bond.

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.

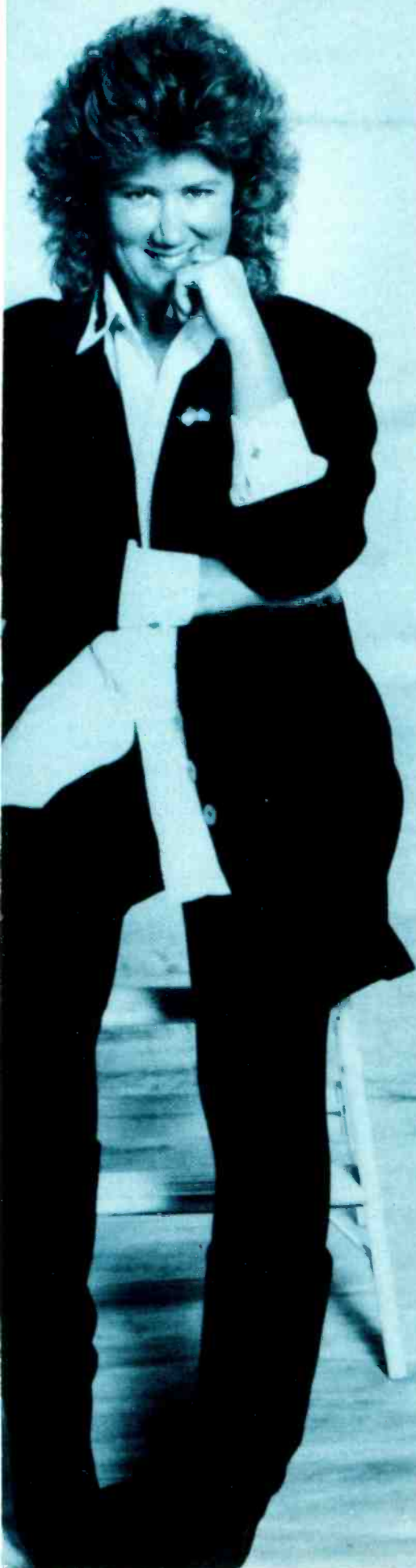
Here are a few rules of thumb on speaker cable:

- 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 (\$150) 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.



HOLLY NEAR

Her latest album is an upbeat set of love songs with a bold musical framework and universally appealing lyrics.

by Alanna Nash

"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 Trapeze, 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, 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 integration of art and politics. Two years later, Near went into the home studio of Alex Hassilev, the bass voice of the Limelighters. There she recorded "Hang In There," her anti-war album, to satisfy the people who wrote in wanting to use her songs at peace rallies and church programs. She created Redwood Records to release it, and to her surprise, it sold 40,000 copies.

"When I recorded that album, I thought, 'I'll go get this off my chest, and then I'll come back and be a

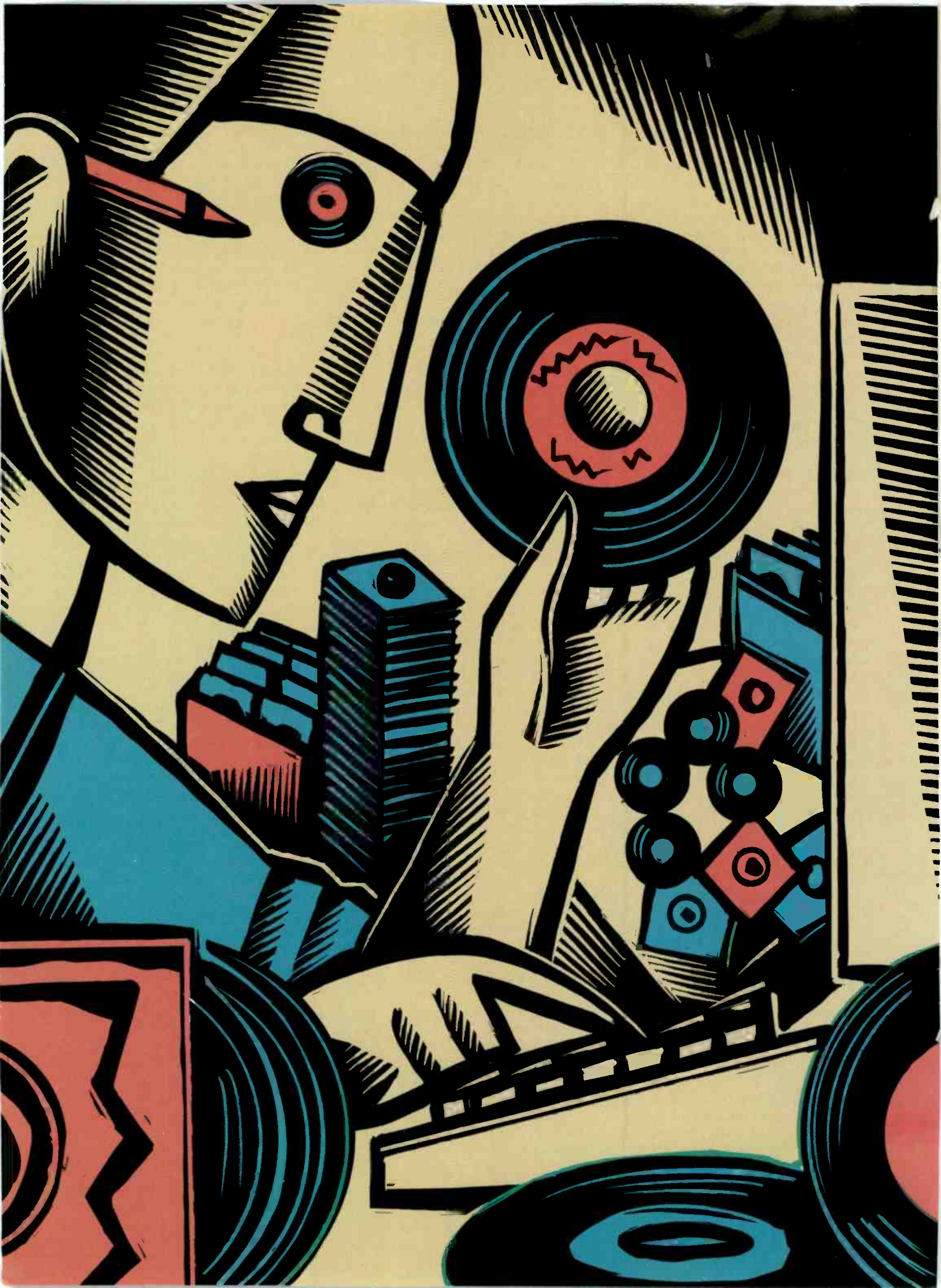
Broadway star, or a pop star,'" Near said. "But there seemed to be this whole audience of people who wanted to hear my music! So I got seduced by the fact that I was needed. To have a whole group of people say, 'We love you as you are. You give us songs to sing to our kids at night.'—God, you know, my heart was just a goner! And I've remained a goner for years."

THAT first album, with an early feminist song and allusions to racism and genocide, virtually defined Near's future. Over the next fourteen years she would lend her name to a number of political causes and fund-raising events, and she established the Redwood Records Cultural and Educational Fund to coordinate noncommercial organizing work in the arts, such as assisting with the promotion of albums by Nicaraguan artists Guadarranco and Salvador Bustos, both produced by Jackson Browne.

"I want to feel like a very wise old woman by the time I die," Near said, a smile taking the edge off words that tend to look sanctimonious in cold print, "I want to have gotten my feet dirty in the mud of the earth. I want to have noticed the world. I want to have touched shoulders with it." And with "Don't Hold Back," Near may also be closer to realizing her early dream of becoming a pop star. The first single from the album, *The Promise (How Can Anyone Know)*, with Kenny Loggins, is making waves on the adult-contemporary charts.

After touring with a reggae band from Nashville, recording a folk album with Pete Seeger and Arlo Guthrie, another with a string band from West Virginia, and two mixed-bag records with Ronnie Gilbert, Near said, she was anxious to learn the different style of pop phrasing she was after in "Don't Hold Back." Now she'd like to stick with it and develop a similar feel for a few more albums.

"I've been the star of alternative music for years," she said, "and now I'd like the chance for everybody to decide if they like me." □



HIT LIST

WHEN YOU NEVER GET RID OF A RECORD, KNOWING WHAT YOU HAVE AND BEING ABLE TO FIND IT AREN'T EASY.

CALL 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

ILLUSTRATION BY ANTHONY RUSSO

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 LP'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 LP'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, rec-

ord 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 alpha-

betize 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:

Genesis: Seconds Out. Virgin/Charisma GECD 2001. Two CD's (48:50 ar. 47:20). Recorded live in Paris 1976 and 1977. AAD.

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.

ARTIST	TITLE	YEAR	FILE
1966			
Animals	Inside Looking Out		
Animals	Don't Bring Me Down		E
Association	See See Rider		E
Association	Cherish		E
Beach Boys	Panama's Golden Hebble Jeables		A
Beach Boys	Slingshot		A
Beach Boys	Wouldn't It Be Nice		A
Beach Boys	One Only Knows		A
Beattles	Good Vibrations		E
Beattles	Paperback Writer		E
Beattles	Eleanor Rigby		A
Beattles	Yellow Submarine		A
Terry Black	Nowhere Man		A
Brass Ring	Bobby's Doin'		A
Brass Ring	The Phantom Love Theme		A
Freddie Cannon	Eight Miles High		B
Depotels	The Dedication Song		A
Don Christie	Coal Jerk		A
Gene Clark Five	Rhapsody in the Rain		A
Marlene Clark	Try Too Hard		F
Marlene Clark	A Sign of the Times		A
Marlene Clark	I Couldn't Live Without Your Love		A
Marlene Clark	Who Am I		A
Quinn Five	Colour My World		A
Critters	Psychotic Reaction		A
Critters	Younger Girl		A
Orville	Mr. Dingy Sad		A
Orville	Red Rubber Ball		A
Orville	Turn Down Day		A
Bobby Darin	Please Don't Ever Leave Me		A
Deezy & the Runaways	If I Were a Carpenter		A
Nell Diamond	Peter Rabbit		A
Nell Diamond	Saltwater Man		A
Nell Diamond	Cherry Cherry		A
Ronnie Dove	I Got It		A
Bob Dylan			

ARTIST	TITLE	YEAR	FILE
Diana		1957	B
Paul Anka	My Heart Sings	1958	A
Paul Anka	Crazy Love	1958	A
Paul Anka	Just Young	1958	A
Paul Anka	Verboten	1959	A
Paul Anka	Put Your Head on My Shoulder	1959	A
Paul Anka	Did You Have a Happy Birthday?	1969	A
Paul Anka	Goodnight My Love	1958	A
Paul Anka		1959	A
Paul Anka		1959	A
Annette	O Dio Mio	1958	A
Annette	Jo-Jo the Dog-Faced Boy	1958	A
Annette		1959	A
Annette		1959	A
Little Anthony/Imparials	Tears on My Pillow	1964	A
Little Anthony/Imparials	Shimmy, Shimmy, Ko-Ko-Boo	1964	A
Little Anthony/Imparials	Doin' Out of My Head	1964	A
Little Anthony/Imparials	I'm on the Outside (Looking In)	1965	A
Little Anthony/Imparials	Hurt So Bad	1965	A
Little Anthony/Imparials	Take me Back	1959	A
Little Anthony/Imparials		1959	A
Asaf Arafat	Mexican Hat Rock	1958	A
Asaf Arafat	You	1969	A
Asaf Arafat	The Letter	1969	A
A-Toms	Sugar, Sugar	1970	A
Archives	Overture from "Tommy"	1966	A
Assembled Multitude		1965	A
Association	Cherish	1967	A
Association	Panama's Golden Hebble Jeables	1967	A
Association	No Fair at All	1967	A
Association	Windy	1968	A
Association	Never My Love	1968	A
Association	Everything that Touches You	1969	A
Association	Birthday		
Association	Goodbye Columbus		
Association		1957	A
Frankie Avalon	Della Dinah	1958	A
Frankie Avalon	Yenus	1958	A
Frankie Avalon	A Boy Without a Girl	1959	A
Frankie Avalon	Bobby Sacks's Stockings	1959	A
Frankie Avalon	I'll Wait for You	1959	A
Frankie Avalon	Just Ask Your Heart	1959	A
Frankie Avalon	Why		

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
- 2 Septet, Op. 20; Trio, Op. 11
- 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 Aaquist to Zwilich, Abba to Zappa, and A&M to Warner Bros.

William Burton

T

**he basic
list of 45's
took several weeks
to complete, but
it was only
the first step.**

This basic list of "core" music 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 when I bought a record, 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. □

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THE SIGNAL PATH

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 naively 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 , -1 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 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 boominess 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 *rosé* 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,

Speaker/room

interactions are crucial. Before buying a signal processor, make sure that your speakers are well placed and wired in phase.

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 circuit 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, for 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.

Dynamic-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-



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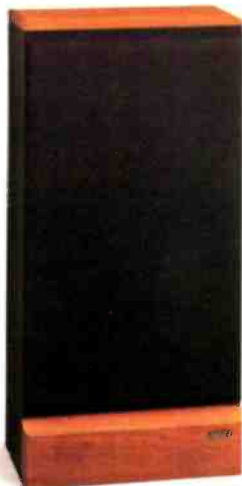
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home music reproduction involves the same kind of "willing suspension of disbelief" we experience when we enter into a novel.

torting the former or adding audible hiss to the latter. So much is clear from the fact that audiophiles regularly object to the tape hiss on CD's made from analog masters. To avoid both distortion and hiss, a dynamic range in excess of 85 dB is required, which only CD's and dbx-encoded recordings can supply. Conventional music sources at home—FM radio broadcasts, LP's, and cassettes—rarely do better than 55 to 65 dB.

Like subharmonic synthesizers, dynamic-range expanders extrapolate from the signal at hand to the signal as it presumably was originally. Historically, most expanders have been sufficiently audible in their operation as to fail both musically and commercially. An exception to this rule is the dbx 3BX-DS (\$499), which splits the audio bandwidth into three separately handled ranges in order to minimize potentially audible side effects. If your neighbors are tolerant or distantly located and you have a large collection of nondigital program material, this is a processor you might wish to audition.

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 pro-

cessors 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

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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 preamp 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.
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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.

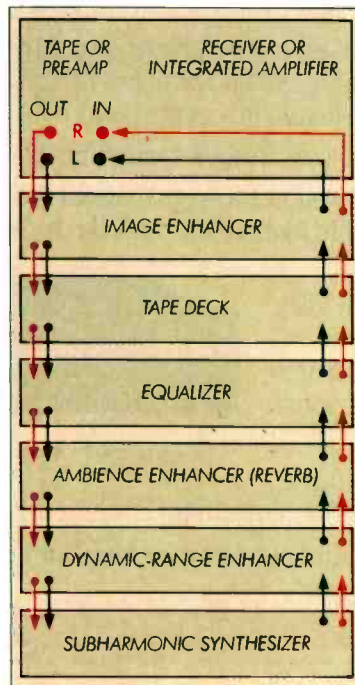
If you don't have separate signal-processor jacks, you may have to choose whether to connect your processor(s) between the preamp output and the main (power) amp input or in one of the tape-monitor loops. With a number of integrated amplifiers and receivers you may not even have a set of preamp-out/main-in 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 sig-

nals 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 show, 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..."



Expert Testimony, It's FREE:

In every 1987 magazine test of radar detectors, Escort and Passport have been rated highest. See for yourself. For complete copies of the tests (not excerpts or selected quotes), showing ranking of all brands, just call us toll free.

99 THINGS THAT AMERICANS MAKE BEST

“All of these widely available U.S.-made goods...are clearly superior to their overseas competitors, overwhelmingly dominate their markets or are so outstanding or novel that they have no well-known international counterpart.”

Escort and Passport are the only radar detectors to make the list.

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 VRSS collision warning system.

Said *Car and Driver*, "While other makers have spent 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

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(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.

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RADAR · RECEIVER

Pocket-Size Radar Protection \$295
(Ohio res. add \$16.23 tax)

ESCORT®
RADAR WARNING RECEIVER

The Classic of Radar Warning \$245
(Ohio Res. add \$13.48 tax)

Cincinnati Microwave
▶ Department 68418
One Microwave Plaza
Cincinnati, Ohio 45249-9502

Is Escort Scared or Smart?

Cincinnati Microwave, the maker of Escort and Passport radar detectors, has ignored DAK's third, one-on-one Maxon versus Escort radar challenge. I think they're hiding behind 'independent' magazine reviews and refusing to meet us on the true field of battle. And now, I think I've finally figured out why. I believe they're in a NO WIN SITUATION! Read On.

By Drew Kaplan

It's time to attack. No more Mr. Nice Guy for me. I've done everything I can to get them out for a conflict.

I've offered \$10,000, then \$20,000, if they could beat Maxon's lowest price \$99⁹⁰ detector (now on sale for just \$79⁹⁰) 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 revolutionary new Micro-Detector that is CORDLESS and built to trounce 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 \$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."

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." Wow, imagine that!

So, Passport didn't beat everyone by a mile. 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 much as 60 seconds ahead.

Traveling at 55 mph, you only cover about 80 feet a second. So, whether there's a 10' or even 100' difference in sensitivity, with today's detectors it just doesn't make much difference.

READ THIS

So, if Passport or Escort lose to the

A \$20,000 Challenge To Escort

Let's cut through the Radar Detector Glut. We challenge Escort & Passport 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 \$99⁹⁰ detector (right) (Now just \$79⁹⁰), Maxon's new Mini RD25 \$99⁹⁰ detector (middle) or Maxon's Cordless Micro-Trouncer \$149⁹⁰ radar detector (left) on the road of their choice in a one-on-one conflict.

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

\$79⁹⁰ Maxon, it would be catastrophic for their advertising. And, even if they beat Maxon by a second or two, are they worth double or even triple the price?

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 footage contest.

MAGAZINE ROUND UP

Popular Mechanics Magazine in November '86, in their Around A Corner Test said, "The low ranked . . . and Passport had to be rounding the bend and pointing at the radar gun before they'd detect it. Too late then!" (Not quoted by Passport.)

Although in July, after Cincinnati Microwave complained, Popular Mechanics said in an Around A Corner Test, "Consistent with the results of our previous test, Passport was easily the best of the minis." (Quoted in Passport Ads.)

Speaking of 'consistent', the magazines aren't consistent even from issue to issue.

By the way, in July's test they hated Maxon, but at least they said, "No detector in this group had to round the corner before sniffing out Smokey."

Road and Track Magazine (September '86) top rated Passport even though Maxon (a recommended buy) appears to have beaten Passport in Uninterrupted Alert, and Passport beat Maxon in initial alert.

So, when you get right down to which detector protects you, an on-the-road test without all the loving editorial 'quotable remarks' seems to be the only way to go.

We need to win or at least tie, to prove to the world that our challenge is for real, and not, as Cincinnati Microwave said, "an advertising gambit". But, speaking of advertising gambits, read this!

PROTECTION FROM RASHID \$5?

WHOOPEE

Last year, Cincinnati Microwave announced to the world, in virtually every magazine I picked up, that all radar detectors but theirs would be obsolete.

It seemed that a K band collision avoidance system called Rashid VRSS would knock out everyone's detectors.

Well, I said then that the \$558 system that recommends cutting a 6½" hole in your grill for installation, wasn't going to

take over the highways.

But Cincinnati Microwave kept advertising about Rashid. (My opinion of an advertising gambit). It's been a year and nobody I've talked with has run into a Rashid. I challenged Cincinnati Microwave to prove that there were even 500 on the road in the whole U.S., but they've been silent. (I wonder why???)

Anyway, just to prove that we had the technical expertise, Maxon has developed and implemented an Anti-Rashid circuit in the new Micro-Detector.

It's added about \$5 to your cost which we all think is a waste, but at least we won't get any more letters saying that the only reason we think it's worthless is because Maxon doesn't have it.

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 using a circuit used in jet fighters 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, dim themselves at night. And speaking of dimming, they can be switched off so you can't be spotted from the rear.

And, as for the separate X and K warning tones, not only is the volume adjustable, '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 recharges from 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!

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 radar 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 (pictured) to hand over if you win!

BOB SAYS MAXON IS BETTER

Here's how it started. Maxon is a mam-

moth 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.

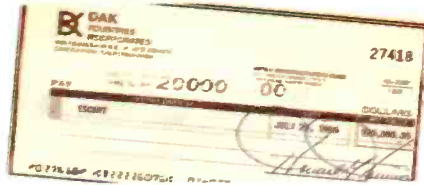
By the way, Bob is about 6'9" tall, so if we can't beat Escort, we can sure scare the you know what out of them. But, Bob and his engineers are deadly serious about this 'duel'. And you can bet that our \$20,000 is serious.

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

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 any 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



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 \$5,000 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 55mph 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

Note from Drew: 1) Use of radar detectors 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 3 1/2" wide, 4 1/4" deep and 1 1/2" tall.



If you want an even smaller detector, the RD-25 at just 2 1/2" wide, 4 1/2" deep and 1" tall, 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



4 1/2" wide, 3 3/4" deep, 3/4" 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 gambitland 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.

check for DAK's \$79⁰⁰ sale price (\$4 P&H). Order No. 6116.

Note: An optional suction windshield mount and extra coiled power cord (we can't afford to throw them in for free) is just \$5⁰⁰ (\$2 P&H) Or. No. 4800.

(RD-25 Pictured in Middle.) To get your Maxon, Dual Superheterodyne, Anti-Falsing Mini Radar Detector complete with 2 Power Cords, Window Suction Cup, Dash and Visor Mounts risk free with your credit card, call toll free or send your check for just \$99⁰⁰ (\$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 Ni-Cad Batteries Included) with Windshield, Dash, and Visor mounts and 2 power/charging Cords risk free with your credit card, call toll free or send your check for this revolutionary \$249 suggested retail detector at DAK's market breaking price of just \$149⁰⁰ (\$6 P&H) Order No. 6119.

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. Rashid VRSS, and Rashid Radar Safety Brake are registered trademarks of Vehicle Radar Safety Systems, Inc.



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24 Hours A Day 7 Days A Week
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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.

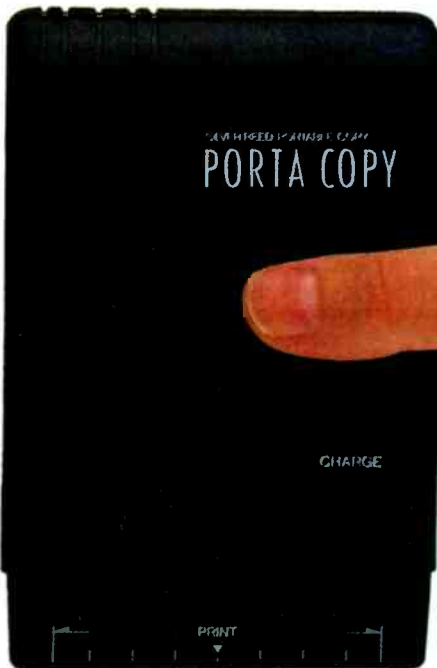
Since it uses the newest thermal technology, there are never any chemicals or powders to bother with. And best of all, absolutely no maintenance is required.

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.



FINAL CLOSE-OUT

List Price was \$349
DAK sold it for \$299

**NOW JUST
\$99⁹⁰**

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.



And look at this. It's ideal for copying numbers & addresses from phone books in phone booths. Now you don't have to scribble notes; just pass the copier down the pages and you'll have a perfect copy, even from the yellow pages.



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 print-outs 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.



If you make house calls to sell insurance,
...Next Page Please

... 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 medical 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 desktop 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 sacrificing quality for portability.

It's just 6½" tall, 4" wide and 1¾" 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 Tee

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 luxury 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 ending series of school projects for our kids. I could copy checks, tax returns or receipts. But, it cost me \$100 per month

for the rental, plus a charge per copy.

Well, now at home or in my own office at DAK, I can make perfect copies of letters 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 perfect for your desk at work.



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 because 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 compensate 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, dramatically 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 assignments to road maps to report cards, our copier is always running.



We had to send a copy of our cancelled 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.

This desktop copier is just 16" wide, 14½" deep and 4¾" tall. It's backed by Silver Reed's standard limited warranty.

THE UGLY SERVICE PROBLEM

Everyone knows that copiers need ser-

vice. But Silver Reed's sophisticated maintenance free thermal copiers eliminate the problem. Forget powders, toners and drum cleaning. Just turn these copiers on and enjoy the luxury of making copies whenever and wherever you want.

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 airplane, a hotel room or on a loading dock.

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

To order Silver Reed's Hand Held Porta Copy Cordless Copier complete with built-in ni-cad batteries, charger, carrying 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 \$99⁰⁰ (\$6 P&H). Order No. 6203. CA res add tax.

Extra 30 foot rolls of Thermal paper are just \$1⁴⁹ each. A box of 5 is just \$7⁴⁵ (\$1 P&H). 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 P&H). Order No. 6204.

100' Rolls of Pure White Thermal Paper are just \$4⁹⁰ (\$1 P&H). 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.



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24 Hours A Day 7 Days A Week

1-800-325-0800

For 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

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 **\$49⁹⁹** (\$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.

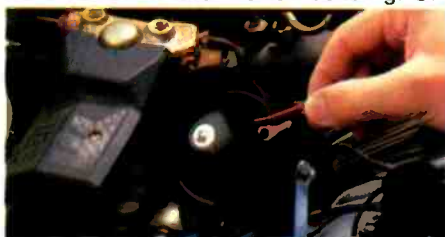
A CAR FORCE FIELD RISK FREE

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 DAK's breakthrough price of just **\$129⁹⁹** (\$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.

By Drew Kaplan

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 when 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 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, 11 1/2" tall by 1 1/2" deep. Each camera is just 9" deep, 4 5/8" wide and 2 1/2" tall and weighs 2 1/2 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 \$39⁹⁰ (\$3 P&H). Order No. 4550. CA add tax.

100' extension cables are just \$19⁹⁰ (\$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 \$69⁹⁰ (\$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.



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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.

By Drew Kaplan

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 con-

tinuous 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



...Presenter Continued
EDUCATION

In learning centers, libraries and classrooms, the AV department will be thrilled with these heavy-duty machines.

After all, who's tougher on machines than kids. With this video system and its included headphones, you can line 10 of them up and have individual instruction. Or, use the powerful built-in speaker for groups.



UNENDING USES

For giving seminars, for use in hospital rooms or for insurance training, you'll have video wherever you wish.

It's 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.



Put it on your kitchen table during dinner. Put it on your nightstand for late night viewing with stereophones, so you won't bother your mate. And, take it outside effortlessly.



Whether you rent movies or want to play back TV shows you've recorded, Citizen's system will provide you with superb video quality and great sound.

If you want to copy a tape, simply play it on the Citizen and connect it to a VCR. You can copy in stereo at anyone's home. Note: Many movies are copyrighted and it is illegal to copy them.



ON THE ROAD

If you have a camper, a car, a boat or a second home, you'll love this system.

Just plug it into your car's cigarette lighter. It goes where you go.

So, for your children or yourself, you can enjoy movies or recorded TV shows at an instant's notice in any room in your home, or virtually anywhere you go.

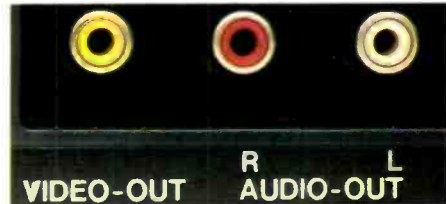
JUST THE FACTS PLEASE

Citizen's industrial presentation system consists of an industrial quality VHS

cassette player and high resolution 5" monitor. The picture is breathtaking.

It is only 16 1/2" wide, 4 3/4" tall and 12 3/4" deep. It has a swing-out handle that also tilts the screen.

The heavy-duty dual-head stereo VHS deck plays standard 2 hour speed VHS tapes. And, the deck features high speed forward and reverse search as well as automatic end of tape rewind.



There are Audio (Left and Right) line outputs to connect to any Aux inputs and a direct video line out. There's a detachable AC power cord, and a 12V DC input.

It's backed by a standard limited warranty from Citizen Business Machines.

WHY SO CHEAP?

This is a 100% new product from Citizen. They built it for a large customer, to compete with the \$1,000 systems from Dukane® 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
RISK FREE**

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 \$1000 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 \$69⁰⁰ (\$4 P&H). Order No. 4827.

A beautiful armored silver-grey carrying case with a hand grip and shoulder strap is just \$69⁰⁰ (\$4 P&H). Or. No. 4828.

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 just \$49⁰⁰ (\$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.



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\$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 ever read.

Imagine printing 10 foot long banners, playing dozens of arcade style action and adventure video games (no joysticks required), using spreadsheet programs, typing labels automatically, speeding up the use of your computer and doing everything from listing out text files, to making DOS easy.

Well, there are over 2,000 numbers you can dial right now, and on many of them you will find hundreds of disks full of exciting 'Public Domain' software.

These are hobbyist boards. Most of the System Operators, or SysOps as they are called, operate these electronic bulletin boards for fun.

And, every SysOp I've spoken with loves to have new blood, and that's you.

You can leave messages, people sell things (not businesses), and there's a wealth of Public Domain software. Why is there Public Domain Software?

THE AMERICAN DREAM

Many computer engineers find that they have special needs and so they write sophisticated programs.

Since they aren't in business, they place these programs on bulletin boards for everyone to use. That way their name gets known and everyone benefits.

In other cases, programs are developed at universities or under government grants where sale is prohibited, so these too find their way onto the public domain bulletin boards.

Another class of programs called Free-ware is released to the public for limited use. Along with the program is a request

for contributions if you like the program.

It's totally up to you, but if you like the program and some guy spent 5 months writing it, usually sending him \$10-\$25 will get you an expanded version, some new documentation and his undying love and gratitude. But it's up to you.

Imagine programs that let you track your stocks, generate forms, play solitaire, golf or sail, make your computer into a piano (wow!), diagnose the speed and accuracy of your computer, rename and re-sort 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.

But, 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.

So, if you pay \$3-\$6 is it a rip-off, or is it still a good deal, because the software is obviously worth many times the price? It's up to you to decide.

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 can even borrow a friend's 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.

So here's what I'm going to do. I want you to have all the productivity, and yes fun, you can with your computer. So I've put together two packages so you can vastly broaden your computer's use.

I have a list of 2,000+ electronic bulletin boards, AND I've packed a ton of the great programs from the bulletin boards for IBMs and clones onto two (2) disks, to show you a little of what you'll get in case you don't already have a modem.

AMERICAN CANCER SOCIETY

Unfortunately I can't afford to give you everything for free, but look at this. I'll send you the list of 2,000 electronic bulletin boards for \$2 (\$1 P&H). Order No. 4888. And/Or two (2) disks full of programs for \$3 (\$1 P&H) for both disks. Order No. 4889. Ca add tax.

DAK will donate to the American Cancer Society (I have a personal interest in their research) all proceeds from the sale of the List and Disks beyond the cost of producing and distributing them.

And what's more, the cost of this 'ad' will NOT be included in my costs. So, the disks, the duplication, the printing, the typing, packing and postage etc., will be subtracted and the rest will be donated.

Watch my next effort for a picture of the first check I donate.

URGENT, DON'T CALL DAK

I've set up a special P.O. BOX for this service. Send your order with checks only (no cash or credit cards) with the words 'LIST' and/or 'DISKS' to DAK, P.O. BOX 3045, Canoga Park, CA 91306.

Please no phone orders or phone inquiries. 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 spread sheets, boy, have I 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 own area.

FREE 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 have to pass through enemy territory to recover my spies, get supplies and more. I haven't won yet. In Beasts, I keep getting eaten and in Pango, well, it's arcade action at it's best.

I've designed forms using a form pro-

gram. 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 DOS command and make a mistake you get frustrated.

Well there's a program that not only 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 monitor into a clock and another program that just puts the time in the upper right hand corner.

How 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 you're reading about 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 find, but that 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 shy. 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

... Computer Floodgates Continued 'Jargon' that isn't familiar. Well have no fear. Everything will be explained with your modem, but look at this.

I've referred to an electronic bulletin board. It's really complicated and you'd probably never understand what it is.

Wrong! An Electronic Bulletin board is nothing more than a computer, just like the one you probably own, hooked to an auto-answer modem like ADC's.

Instead of word processing software, you run a bulletin board program and have lots of storage capacity. Simple?

I mentioned downloading. Well, it's simply like bringing up a program from your own floppy or hard disk.

All you do is use your modem to connect you to the bulletin board and then when you download, you're bringing a file from the bulletin board's hard disk to your own computer. The distance may be great, but the principal is identical.

You'll find information about virtually any subject that interests you. If you're into butterflies, why look through every nature magazine in the library. Just access the word Butterfly, to read every article.

Wow, no flipping through pages and books. The computer finds it all.

ARE YOU GETTING THE MESSAGE?

For stamps, coins, soccer, football, American Indians, chocolate, coffee, mortgages, banking, ulcers, steel production and more, the information is instantly available.

PAY PAY PAY PAY

No, it's not all free. There's lots of information that you can buy. It's like an electronic bookstore. And, it's great.

OK, I'm aggressive. You can see it in my challenges. And, my friends will tell you I'm definitely a 'Type A' personality.

Well, when I buy stocks, I want to know about the company. And frankly, I get frustrated. I want to invest NOW, and it takes days or even weeks for me to get 10K reports so I can get the inside information and history I need.

Well, now I can get the inside information instantly by using my modem. I can get the Company profile, SEC filings, officers' names and ownership. So, I can check out companies that I do business with or that compete with me.

Well, with a modem, you can instantly read and download complete information on over 9,000 public companies.

You'll find forecasts of sales, including product mix. And, you'll even find officers' salaries. What a killer edge you'll have when you do business or invest!

SO MUCH MORE

If you write, you can send your copy by modem directly to typesetters. Want a date? There are matchmaking bulletin boards. What fun. Most of these boards seem to be free. But, some are X rated.

So, there's no limit to the information and enjoyment that your computer and modem can bring to you. Now let's look at ADC's incredible 1200 baud modem.

THE MODEM

I call it the 1200 Baud Smart Duck. Because, IF it walks like a duck, sounds like a duck, and looks like a duck, it darn well better act like a duck. And, ADC's new Hayes Compatible 1200 baud auto-answer/auto-dial modem is a great duck.

Hats off to Hayes. They've just about written the book on specs and protocol for the 1200 baud modem market.

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 \$119⁹⁰, 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.

Its built-in microprocessors let you automatically answer in-coming (auto-answer) calls & act on all Hayes commands.

It even waits for dial tones and phone network tones during auto-dial. The modem is 9½" X 5½" X 2". It's backed by ADC's standard 1 year limited warranty.

HOOKING IT UP MADE EASY

All you need is a serial output, a cable and a modem program. Use your own for any computer. Or you can use ours for the computers below. All our modem programs on disk let you save, upload and download files. Look how easy it is.

If you own an IBM PC or a Clone, usually you'll find an RS232 serial port already built-in. All you need is our cable and modem program on disk, which we've packaged together for just \$14⁹⁰ (\$3 P&H). But, before you order your cable, you

may need a short sex education course.

Sex Education 1A. You need to determine whether your computer's RS232 connector is male or female.



If you look at the picture above, you'll note that ADC's RS232 Modem connec-

tor has holes going in. It's a female. If it had copper pins sticking out, it would be a male. Now wasn't that simple?

So, if yours is female, order our male cable and modem program Or. No. 4353. If you have male pins sticking out, order our female cable, Order No. 4354.

For your Apple IIC, your serial interface is built-in. All you need is our cable and modem program on disk. They are just \$14⁹⁰ (\$3 P&H). Order No. 4356.

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 (\$4 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 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 \$119⁹⁰ 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 (we sold it separately for \$24) complete kit includes \$25 worth of on-line time (they charge about \$6.25 per hour) is yours free with ADC's modem. Wow!

It is said that knowledge is king. With the information you can acquire through this modem, you'll have the informational power of 10 kings. And, you'll have a full range of entertainment thrown in as an extra bonus.

Hayes, IBM, and Apple IIE & IIC are registered trademarks of Hayes Microcomputer Products, International Business Machines and Apple Computer.



**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 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

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 \$69⁹⁰, 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 you 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 hand controller 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 micro-processor 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 \$69⁹⁰ 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.



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

Any Other Inquiries... 1-800-423-2866
8200 Remmet Ave., Canoga Park, CA 91304

\$2 & \$3 Freebies For You

Use **FREE** programs to print 10' long banners, play blackjack, add spelling to the built-in Wordstar and squeeze files up to 50% that you're saving to cassette, disk or sending by modem. Let me tell you how.

By Drew Kaplan

You've got it all. You can harness the power of up to 280 electronic bulletin boards that carry FREE Public Domain CP/M programs, messages and help.

Add footnotes to Wordstar files, create mazes, print out 1,000 limericks, lock disk files, rename files, identify cities from telephone area codes, and tag files.

You can view text files, count words in a text file, create word search puzzles and play games. Whether you already own an Epson Geneva or any CP/M computer or want to buy one, the Public Domain software available is awesome.

THE BEST PART

With this computer, you already have a built-in modem so there's nothing else to buy. And, because most files are squeezed, it doesn't take long to download (get) them from the bulletin boards.

You really don't need anything from

me, but I've stumbled on a national list of CP/M bulletin boards. And, if you want to see a sample of what you can get from these boards, I've created both a 3½" disk and cassette with a few samples, including a banner program, a squeeze program, a blackjack game and more.

All you really need is 'The List' of bulletin boards and the step by step instructions. But, if you're lazy or shy about getting on-line, I have the samples.

Special Note: Wednesday nights on CompuServe at 11PM Eastern Time, there's a special Geneva forum where you can ask questions and discuss software for this powerful computer.

AMERICAN CANCER SOCIETY

Computing, and for that matter running DAK, has always been a hobby for me since I started DAK 22 years ago, when I was a student at UCLA.

I want you to get the most out of your

computer. So, DAK will donate to the American Cancer Society all proceeds from the sale of the List, Cassettes or Disks beyond the costs for printing, disks, cassettes, duplication, typing, packing and postage etc.

URGENT, DON'T CALL DAK

I've set up a special P.O. BOX for this service. Send your order with checks only (no cash or credit cards) to DAK, P.O. BOX 3046, Canoga Park, CA 91306.

To order, use the words 'CP/M List' for \$2 (\$1 P&H). Order No. 4890. And/Or choose the 'CP/M Cassette' for \$3 (\$1 P&H). Order No. 4891. Or, the 'CP/M 3½" Disk' for \$3 (\$1 P&H). Order No. 4892. CA res add tax.

Please no phone orders or phone inquiries. 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 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

Attack wasted time. Work where and when you want. Connected to, or competing with a desk top PC, Epson's portable computer is a perfect main computer or companion to one you have.

And competing with a desk top computer for most applications, is no idle joke. Wait till you read about the power and versatility of this computing system.

And, at only 5 pounds, including its built-in ni-cad batteries, it fits easily in your briefcase without filling it up.

So, you can have full word processing, spreadsheet analyses/projections, telecommunications and computing power wherever you are, without having to look for a desk or even an AC plug.

I can't overemphasize what a powerful word processing system this is. It's

a perfect MAIN COMPUTER.

Its full size keyboard is 98.6% the size of a standard typewriter, so your hands won't be cramped after hours of typing.

And what's most exciting, is that instead of transferring the work to my PC when I get home, I like the keyboard on the Geneva so well that I'm finishing what I start, right on the Geneva.

Its non-glare, infinitely adjustable, high resolution, full 80 column, 8 line LCD display with full 25 line access, won't give you eye fatigue.

It has battery backed up memory in the form of an instant access RAM disk, which you'll use much like a hard disk.

And, it has infinite capability to store files through its unique, on-board microcassette drive which functions more like a floppy disk drive than a cassette drive.

Imagine a microcassette drive with a file directory and 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 company president as I am, or a student as I once was, this computer will let you be incredibly more productive.

If you're an accountant, which I'm not, you can run spreadsheets and models with the 16,384 cell Calc program.

However, you'll be amazed at how easy it is to use this spreadsheet program and all the things it can do for you. It comes with a great tutorial which will have you projecting your own sales, pro-

...Next Page Please

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 a \$39 value (we sold it for \$24) CompuServe Membership Package, with \$25 worth of free on-line time. Most bulletin boards are free, but CompuServe has 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 re-typed 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.

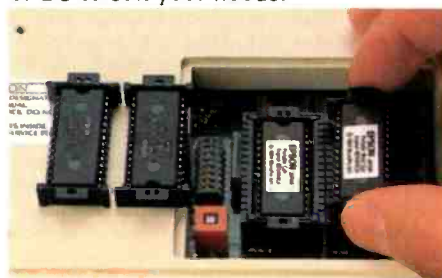
If you use another program, don't despair. You can still send the file. You'll just have to use it under the commands of your program.

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 nicad 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 adaptor/charger is included. So, you can operate from AC or DC to suit your needs.



This \$995 Computer comes complete with 4 powerful software programs plus a group of Utility Programs. The pro-

grams 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 Scheduler. 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 superb 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.



THE BEST FREE PART OF ALL

We've written an easy to understand, **step by step** instruction book that really gets you going with this computer.

WHY SO CHEAP?

It's a terrific \$1,968 system. And, that's just the problem. Epson designed and built very sophisticated equipment. But they relied on salespeople to explain what was needed to consumers.

Many salespeople don't understand why you need each component.

Enter DAK. Epson was stuck with 6714 computers. We made them a ridiculously low offer for everything. Well, 6714 computers isn't very much to a company the size of Epson, so they accepted.

Every Epson Component is backed by Epson's standard one year limited warranty. And, the printer is backed by Seikosha's 2 year limited warranty.

**THE COMPLETE COMPUTER SYSTEM
RISK FREE**

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.

OPTION

If you don't need a modem and you're into writing long novels, we have the complete system less the modem and CompuServe package, but with a Wedge that gives you a 120K RAM Disk (Wow that's 120,000 characters without saving to cassette or disk!) for just **\$599 (\$18 P&H)**. Order No. 4612.

Note: You can still use an external modem.

For the many people who already own basic Genevas, you can purchase the \$460 retail, 120K RAM disk for just **\$200 (\$5 P&H)**. Order No. 4613.



OPTIONS FOR EVERYONE

For massive storage we have Epson's state of the art 3 1/2" 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 **\$2.90**. (\$0.50 P&H). Order No. 4616. 60 Minute Microcassettes are just **\$3.90**. (\$0.50 P&H). Ord. No. 4617.

The Seikosha printer comes with a unique long life ribbon (up to 2 1/2 million characters). Extra ribbons are just **\$7 (\$1 P&H)**. Order No. 4618.

You'll receive 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, this 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 \$49⁹⁰.

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 2:20PM. 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 only urgent calls.

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 them fooled! Anyway, now 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.



Anyone calling you hears your message and then a beep. This answer will then record onto a **standard cassette** the message the caller leaves.

The exact second they hang up, the cassette stops. So, you'll never have to listen to any blank tape.

You'll only hear messages, because your outgoing announcement isn't recorded on the tape. And, there's even a flashing message light to tell you when someone has left a message.



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 re-hear 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 \$49⁹⁰ (\$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.



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Any Other Inquiries... 1-800-423-2866
8200 Remmet Ave., Canoga Park, CA 91304



by *Christie Barter*
& *Steve Simels*



MCA RECORDS/A. SPANJARDREINA LTD.

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



Holly and McCartney: Buicks and a bio-pic

album than has been his custom of late, in the company of Billy Joel's producer, **Phil Ramone**. □

THE Seventies, the most maligned years in rock history, are back with a vengeance. At this writing, such Seventies icons as **Aerosmith**, **Pink Floyd**, **Heart**, **Yes**, **Rush**, **Kiss**, **Lynyrd Skynyrd**, and **Jethro Tull** all have Top 40 albums. Like, what's going on here?

Come to think of it, the Sixties are back too. Witness the astonishing comeback of the **Grateful Dead** (a hit single, an album still riding high on the charts). If you need further proof of the Dead's sudden commercial viability, consider this: When chief Deadster **Jerry Garcia** recently played two weeks as a solo act at Broadway's Lunt-Fontanne Theater, the entire run sold out faster than any other show in Broadway history. We don't know what all this means, but it does give us pause. Care to guess how soon an early-Eighties/punk/New Wave revival will be upon us? □

YOU may recall that **Tina Weymouth** and **Chris Frantz**, one half of **Talking Heads** and easily the best married rhythm section in rock, had a hit on their own a few years back when they were billed as the Tom Tom

Club. And you may also recall that the album was, for want of a better phrase, reggae influenced. Thus, it's not surprising that they are collaborating on a new album by none other than **Ziggy Marley**, son of the late reggae superstar **Bob Marley**. The Marley album, as yet untitled but on Island Records, will be in the stores soon after you read this, but the rumor that it contains a reggae version of **Talking Heads' Psycho Killer** appears, sadly, to be unfounded. □

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 reci-

natas, 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



CANI

Watts: silver anniversary

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



Garcia: riding high



FBI. ROBERTS

Frantz, Marley, Weymouth: new reggae

itals and orchestral concerts than any other pianist in this country.

Watts's latest Angel release is an album of Beethoven so-

release on CD one hundred orchestral works recorded by the German conductor during the 1960's and 1970's. **Bernstein's** birthday will be



MARGARET MILLER/IB. KELLER



Miller, Golub: the real Gershwin

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. □

WHEN 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," Fauré'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" □

GERSHWIN 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 Sym-

phony 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. □

RING 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. □

THE redoubtable James Brown—a.k.a. Mr. Excitement, the Hardest-Work-

ing 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



EBET ROBERTS

Brown: ageless

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 funkier. □

CHRISTMAS 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. □

Battle, Karajan: a Viennese New Year



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BEST RECORDINGS OF THE MONTH

Stereo Review's critics choose the outstanding current releases

STING'S "... NOTHING LIKE THE SUN"

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 unapologetic 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 ones, 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 *artiste*. 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*);

Sting: a more contemplative style



LOU SALVATORE/A&M RECORDS

There are two tests for of a system.

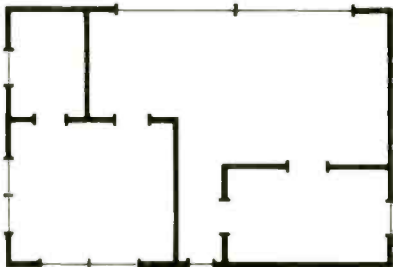


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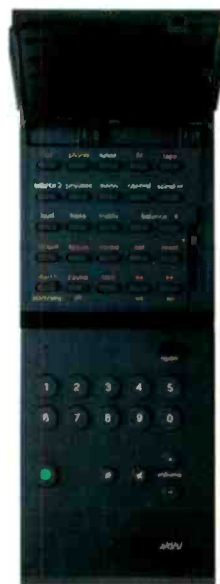
We draw your attention first to what you'd least expect to find in a high fidelity product—a computer. Specifically, a microprocessor designed by a/d/s/ to provide a level of functionality never available before. For example, you can program the R4 to automatically turn on any combination of sources within your Atelier system for listening and recording, whether you're at home or off on an extended vacation.

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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.

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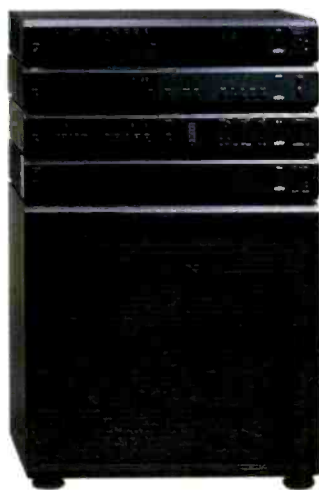
The R4's preamp signal paths are unusually noise free. That's because all circuits have been painstakingly protected from stray radiation by ample amounts of shielding—one of just many steps we've taken to preserve the extremely low distortion of the amplification stages.



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.

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a/d/s/

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



Esa-Pekka Salonen: exquisite control

no question about the sonic benefits of digital recording. *David Hall*

SIBELIUS: *Symphony No. 5, in E-flat Major, Op. 82; Pohjola's Daughter, Op. 49.* Philharmonia Orchestra, Esa-Pekka Salonen cond. CBS ● M 42366, © MT 42366, © MK 42366 (51 min).

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 "River" 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



Bruce Springsteen: close to brilliant

CBS MASTERWORKS

ANNIE LEIBOVITZ/COLUMBIA RECORDS

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BEST RECORDINGS OF THE MONTH

stuff that arena rock shows are made of, but it cuts a lot closer to the bone than anything the man has done before, and if, like me, you're sort of a lapsed Springsteen fan who eventually found the populist anthems of "Born in the USA" just a little too bombastic, then I suggest you hear this one immediately.

Steve Simels

BRUCE SPRINGSTEEN: *Tunnel of Love*. Bruce Springsteen (vocals and instrumentals); the E Street Band (vocal and instrumental accompaniment). *Ain't Got You; Tougher Than the Rest; All That Heaven Will Allow; Spare Parts; Cautious Man; Walk Like a Man; Tunnel of Love; Two Faces; Brilliant Disguise; One Step Up; When You're Alone; Valentine's Day.* COLUMBIA OC 40999, © OCT 40999, © CK 40999 (46 min).

SCHUMANN FROM AX AND THE CLEVELAND QUARTET

THE conductor Ernest Ansermet once remarked that 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.

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: *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



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CLASSICAL

- **BERLIOZ: *Symphonie fantastique*.** Bernstein. ANGEL CDM-69013 (mid-price). "Ultra-romantic, almost sulphurous in intensity" (February 1978).
- **GERSHWIN: *An American in Paris*.** BERNSTEIN: *West Side Story, Symphonic Dances.* RUSSO: *Street Music.* C. Siegel, Ozawa. DG 419 625-2. "Played brilliantly" (March 1978).
- **LALO: *Symphonie espagnole*.** SIBELIUS: *Violin Concerto. RAPHEL: Tzigane.* Perlman, Leinsdorf/Previn. RCA 6520-2-RG (mid-price). "A field day for the young Perlman" (June 1969).
- **SIBELIUS: *Symphony No. 2; Swan of Tuonela; Valse triste; Pohjola's Daughter*.** Ormandy. RCA 6528-2-RG (mid-price). "By far the most broadly expansive of [Ormandy's] recordings" of the symphony (August 1973).
- **STRAUSS: *Der Rosenkavalier*.** Schwarzkopf, Ludwig, Stich-Randall, Edelmann, Wächter; Karajan. ANGEL CDCC-49354 (three CD's). *Capriccio.* Schwarzkopf, Ludwig, Gedda, Fischer-Dieskau; Sawallisch. ANGEL CDCB-49014 (two CD's). Among the cornerstones of any opera collection, both dating from 1956-1957.

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*Discs and tapes reviewed by
Chris Albertson, Phyl Garland,
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Steve Simels*

BEAT FARMERS: *The Pursuit of Happiness.* Beat Farmers (vocals and instrumentals); 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's *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 instrumentals); instrumental accompaniment. *ESP; You Win Again; Live or Die (Hold Me like a Child); Giving Up the Ghost; The Longest Night;* and five others. WARNER BROS. 25541-1, © 25541-4, © 25541-2 (48 min).

Performance: *As if they never left*
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-



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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 ear-

ly 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, say, 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.* 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).

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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 British 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. *M.P.*

CAROUSEL (Richard Rodgers-Oscar Hammerstein II). Barbara Cook, Samuel Ramey, Sarah Brightman, David Rendall, Maureen Forrester; Ambrosian Singers; Royal Philharmonic Orchestra, Paul Gemignani cond. MCA ◉ MCA-6209, © MCAC-6209, © MCAD-6209 (67 min).

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 times 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



Terence Trent D'Arby: soul personified

COLUMBIA RECORDS

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 onerous 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.

Roy Hemming

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)

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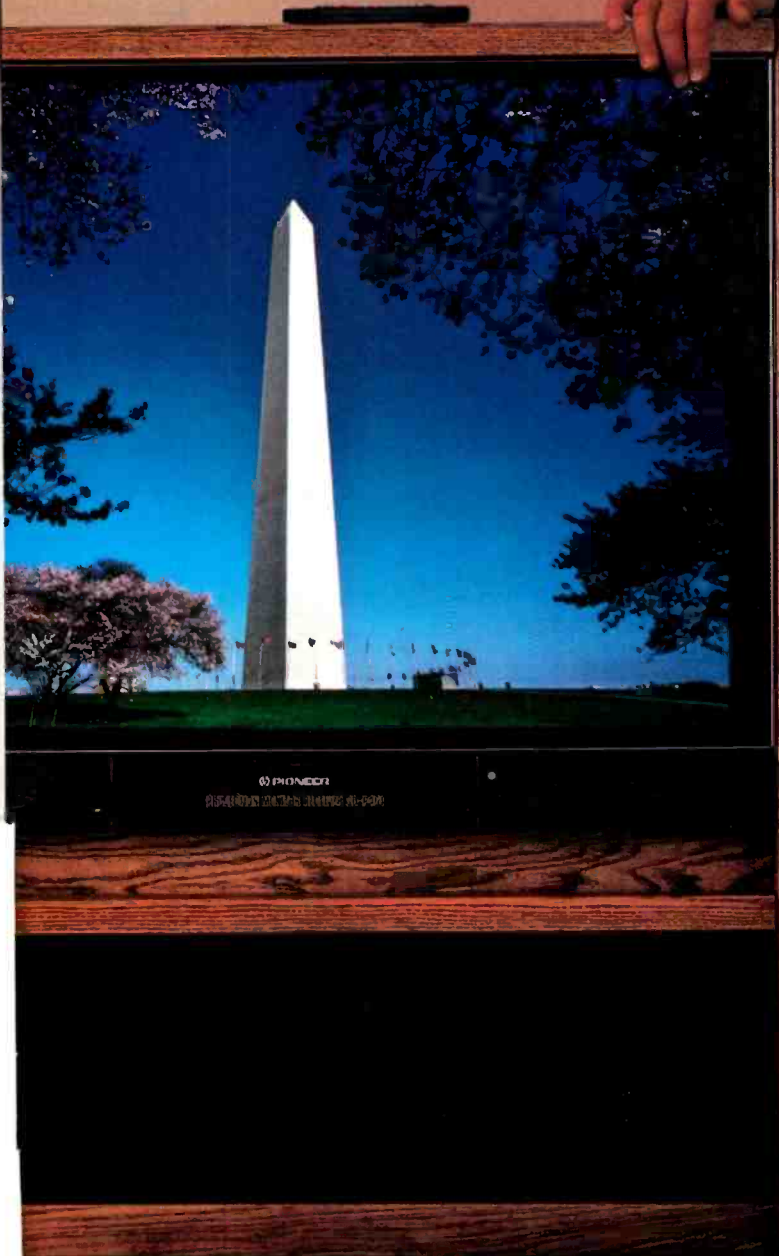
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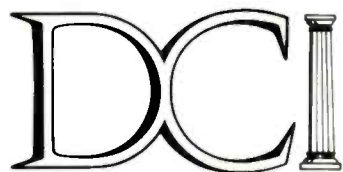
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with a hard-edged, visionary, highly stylized brand of rock? In the case of "The Hardline According to Terence Trent D'Arby," you get a mess. D'Arby is the ex-boxer, expatriate American who has become the favorite of just about every rock critic in 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 *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. *M.P.*

ROSIE 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. REPRISÉ 25626-1, © 25626-4.

Performance: *New kid in town*
Recording: *Good*

In the tradition of Dwight Yoakam and George Hillfill, 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 weds 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,



MINNELLI AT CARNEGIE

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 impishly sedate *Toot Toot 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 distorts 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*

LIZA MINNELLI: *At Carnegie Hall.* Liza Minnelli (vocals); orchestra, Bill LaVorgna cond. *I Happen to Like New York; Old Friends; I Never Has Seen Snow; Some People; I Can See Clearly Now; Ring Them Bells; Alexander's Ragtime Band; Lonely Feet; You Can Have Him/Time Heals Everything; Liza with a Z; A Quiet Thing; Maybe This Time; But the World Goes 'Round; Cabaret; New York, New York;* and seventeen others. TELARC • DG-15502 two LP's, © CS-35502 two cassettes, © CD-85502 two CD's (101 min).

"Rosie Flores" isn't the heralding debut that, say, Emmylou Harris's was a decade ago. But Flores brings enough of the right elements together, and somewhere down the line she just may prove herself a contender. *A.N.*

JENNIFER HOLLIDAY: *Get Close to My Love.* Jennifer Holliday (vocals); instrumental accompaniment. *New at It; 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. GEPHEN GHS 24150, © M5G 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



Jennifer Holliday: a powerhouse of emotion

ALEXA GABRIANO/GEPHEN RECORDS

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 to 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.*

SUSAN MARSHALL: *Don't Play Innocent with Me.* Susan Marshall (vocals); vocal and instrumental accompaniment. *Perfect Love; Why Can't You Tell Me Why; He's My Friend; Special Consideration; Tribute to Hank Williams;* and five others. REPTILE RR-2020, © CS-2020.

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 Farris (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*

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Thousand Dances; The Border. RCA 6276-1, © 6276-4, © 6276-2 (52 min).

Performance: *Sincere*
Recording: *Excellent*

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 Mötley Crüe. 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. *M.P.*

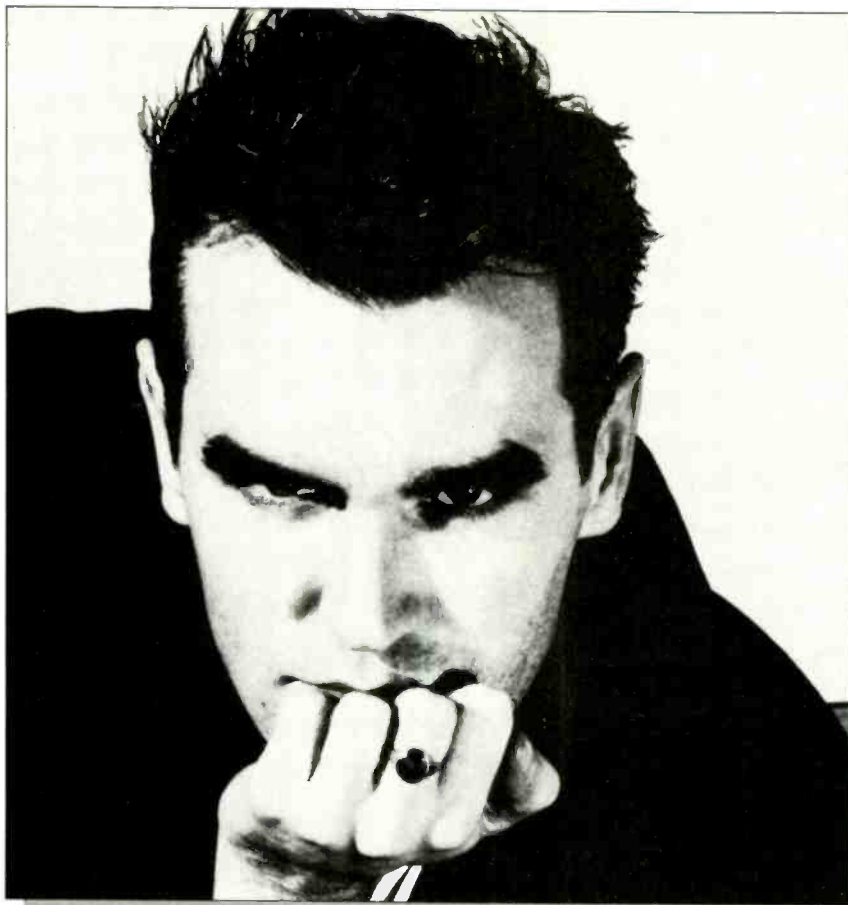
MY FAIR LADY (Alan Jay Lerner-Frederick Loewe). Kiri Te Kanawa, Jeremy Irons, John Gielgud, Warren Mitchell, Jerry Hadley; London Voices; London Symphony Orchestra, John Mauceri cond. LONDON 421 200-1, © 421 200-4, © 421 200-2 (70 min).

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, but remakes 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



Morrissey: just plain nuts

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 rousing 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 eavesdrops on a record-company meeting in which "sycophantic slags" decide how to repackage a recently deceased rock star. In *Death at One's Elbow*, 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 out of the corner of his eye, hoping that the Smiths' tormented singer doesn't come at him with an axe. *M.P.*

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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 realizing all of its goals with the new "Hold to a Dream." While drawing on material that embraces bluegrass, rock, country, jazz, blues, Irish folk, reggae, and gospel, the band manages to retain its distinctive sound, underscored by elemental drums and percussion, and it has also sharpened its ear for the kind of strong, quality material that lends itself easily to airplay, leaving the very long pieces and jams for live performance.

Foremost among the potential singles are *Unconditional Love*, which employs the island rhythms New Grass has long loved, the soulful, lyrical *How About You*, the breakneck *Can't Stop Now*, and the plaintive *Before the Heartache*

Rolls In. All four of these tunes come 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 reliance on outside writers is that its own writing continues to grow stronger and more impressive. Banjo virtuoso Bela Fleck contributes the jazzy *Metric Lips*, which rivals his Grammy-nominated *Seven by Seven* from the previous Capitol album, and guitarist Pat Flynn weighs in with three solid, upright efforts, including the energetic *Looking Past You* and the loping *I Can Talk to You*.

It is with its trademark instrumental mastery, however, that New Grass ultimately makes its place in the scheme of things. Whether the band can *fully* conform to the constraints of commercial radio and still meet its standards of excellence and invention remains to be seen. Meanwhile, "Hold to a Dream," one of the strongest records to come out of Nashville in 1987, strikes a beautiful balance between innovation and tradition. *Alanna Nash*

NEW GRASS REVIVAL: *Hold to a Dream*. New Grass Revival (vocals, instrumentals); other musicians. *Hold to a Dream*; *One Way Street*; *Can't Stop Now*; *I'll Take Tomorrow*; *Before the Heartache* *Rolls In*; *Looking Past You*; *How About You*; *Metric Lips*; *I Can Talk to You*; *Unconditional Love*. CAPITOL CLT-46962, © C4T-46962.

BRUCE SPRINGSTEEN: *Tunnel of Love* (see Best of the Month, page 126)

STING: . . . *Nothing Like the Sun* (see Best of the Month, page 123)

10,000 MANIACS: *In My Tribe*. 10,000 Maniacs (vocals and instrumentals). *What's the Matter Here?*; *Hey Jack Kerouac*; *Like the Weather*; *Cherry Tree*; *The Painted Desert*; *Don't Talk*; and six others. ELEKTRA 60738-1, © 60738-4, © 60738-2 (47 min).

Performance: *Wispy*
Recording: *Very good*

I've liked 10,000 Maniacs in the past, and I remain taken with their basic sound, which is a sort of post-New Wave update of Fairport Convention's folkish lyricism. But "In My Tribe," produced by Linda Ronstadt-maven Peter Asher (talk about going upscale!), lacks any real spine. Song after song sort of wafes past you. Although lead singer Natalie Merchant makes haunting vocal noises, and the band's playing retains the right kind of rough edges, you keep waiting for something concrete to connect with.

Maybe it's the overly literary cast of most of the lyrics (the album's opener, *What's the Matter Here?*, reads more like a short story than a song), or maybe it's that Asher's work is self-effacing to the point of invisibility. Whatever it is, the only thing you're likely to remember from the album is a sprightly cover of *Peace Train*. And you know an album is in trouble when the most impressive thing on it is a revival of a Cat Stevens song. *S.S.*

THERESA: *Broken Puzzle*. Theresa King (vocals); Victor Porter (keyboards); vocal and instrumental accompaniment. *Ev'ry Single Night*; *Last Time*; *Hurts So Bad*; *Change*; *Start Again*; and three others. RCA 6488-1-R, © 6488-4-R.

Performance: *Promising*
Recording: *Satisfactory*

Don't let the name Theresa fool you. Theresa is a duo consisting of lead singer Theresa King and keyboardist Victor Porter, who collaborates with her as a composer. While they can't really be compared with Ashford and Simpson, they do manage to assert some personality with the offbeat harmonies and rhythms of such numbers as *Change*, the best selection here, and *What Cha Gonna Do*. They also create some impressive special effects in the way King's voice is splayed out over the background vocals and instrumentals. So there is more here than meets the ear at first. Given a bit of luck, Theresa might blossom into a truly fragrant musical flower. *P.G.*

TOM VERLAINE: *Flash Light*. Tom Verlaine (vocals, guitar); other musi-

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cians. *Say a Prayer; A Town Called Walker; Song; The Scientist Writes a Letter*; and six others. I.R.S. IRS-42050, © IRSC-42050, © IRSD-42050 (40 min).

Performance: *Unique*
Recording: *Very good*

Tom Verlaine remains the most original instrumentalist to emerge from the whole late-Seventies New Wave ferment, but his solo albums increasingly tend to blur in the mind. This latest has all the requisite virtues and vices: superbly sympathetic back-up playing, maddeningly oblique lyrics, totally unpredictable song structures, and gorgeous layered guitar work by the star. Still, Verlaine's studied unconventionality is very nearly becoming his own kind of formula, albeit a formula with its roots in the ozone.

"Flash Light" is an attractive enough album, but Verlaine's estimable talents might better be expressed in the context of a working band. One where he wasn't also singing might be nice. S.S.

JESSE COLIN YOUNG: *The Highway Is for Heroes.* Jesse Colin Young (vocals, acoustic guitar, fretless bass); vocal and instrumental accompaniment. *The Highway Is for Heroes; Erica; Young Girls; The Master*; and five others. CYPRESS 661 115-1, © 661 115-4, © 661 115-2 (42 min).

Performance: *Dreamy*
Recording: *Very good*

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.* Steve Gadd (drums, congas, percussion, vocals); Cornell Dupree (guitar); Eddie Gomez (bass); Richard Tee (organ, piano, Rhodes piano); other musicians. *Watching the River Flow; Strength; Way Back Home; Morning Love*; and three others. COLUMBIA FC 40864, © FCT 40864, © CK 40864 (37 min).

Performance: *Mellow*
Recording: *Very good*

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 Stuff. Here they are joined by such topflight musicians as Ronnie Cuber, who plays a gritty baritone saxophone, and trumpeters Jon Faddis and Lew Soloff.

The foundation for the set 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 reaffirmed 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. P.G.

DONALD HARRISON AND TERENCE BLANCHARD: *Crystal Stair.* Terence Blanchard (trumpet); Donald Harrison (saxophones); Cyrus Chestnut (piano); Reginald Veal (bass); Carl Al-

len (drums). *Endicott; Slam; God Bless the Child; Duck's Revenge*; and five others. COLUMBIA FC 40830, © FCT 40830, © CK 40830 (50 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.

DIANE SCHUUR: *And the Count Basie Orchestra.* Diane Schuur (vocals); Count Basie Orchestra (instrumentals). *Deedles' Blues; Travelin' Light; I Just Found Out About Love; Caught a Touch of Your Love*; and six others (eight others on CD). GRP ♠ GR 1039, © GRC 1039, © GRD 9550 (42 min).

Performance: *Raw talent*
Recording: *Excellent remote*

Judging by her new album with the Count Basie Orchestra, Diane Schuur might well become a major-league vocalist some day, but she will have to tone down considerably. No, she does not scream as unmercifully as Jennifer Holliday does, but there are times when you wish Schuur would exert more control over her fine voice. Like Holliday, Schuur seems to have fallen victim to an indiscriminating audience—the yuppie whoopers and their tone-deaf colleagues who measure greatness in terms of decibels and media attention. This sort of thing has been the downfall of many potentially great artists. I hope Schuur eventually finds the way from her current overheated delivery to a more personal style. Singing a program of songs both familiar and new, including three selections written and published by producer Morgan Ames, Schuur is at her best here when she renders slower-paced ballads, like *We'll Be Together Again* and *Travelin' Light*, in which she exercises some control. But the band sounds good, and there is much to like on this album. C.A.

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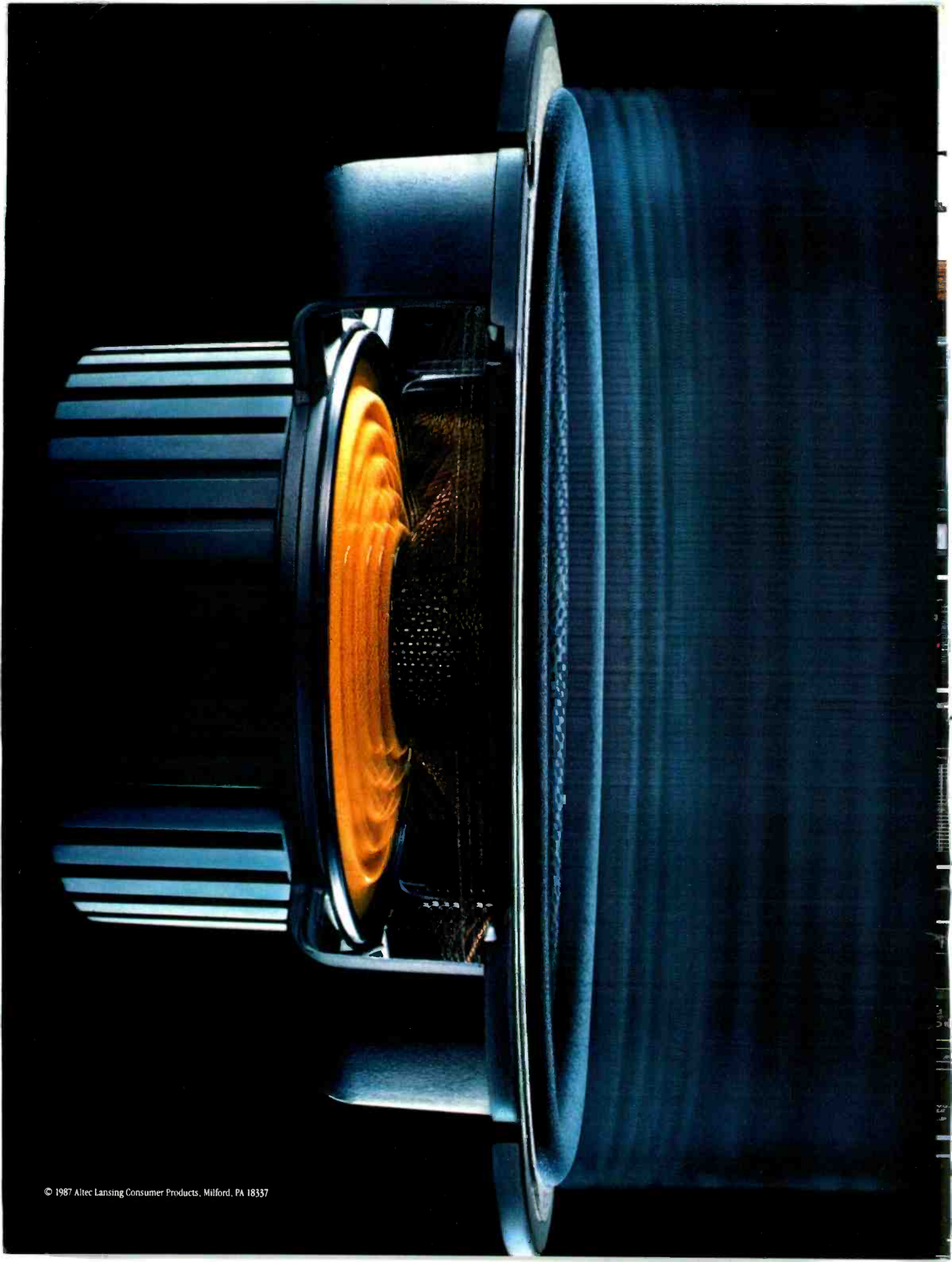
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ATLANTIC JAZZ



Charles Mingus

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 memo-

orable 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.

Another 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 "Introspection," 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*

ATLANTIC JAZZ

NEW ORLEANS. Paul Barbarin: *Bourbon Street Parade*; Eh la bas: *Sing On*. George Lewis: *Burgundy Street Blues*; *Salty Dog*. Jim Robinson: *My Bucket's Got a Hole in It*. Wilbur de Paris: *Cielito lindo*; *Shreveport Stomp*. Turk Murphy: *Maple Leaf Rag*. Percy Humphrey: *Joe Avery's Blues*. Ernest ("Punch") Miller: *Nobody Knows the Way I Feel This Morning*; *Tiger Rag*. Joseph ("De De") Pierce: *Shake It and Break It*. ATLANTIC 81700-1, © 81700-2 (51 min).

KANSAS CITY. Joe Turner: *You're Driving Me Crazy*; *Until the Real Thing Comes Along*; *Piney Brown Blues*. Vic Dickenson and Buck Clayton: *The Lamp Is Low*; *Undecided*. Jay

Gary Burton



FCM/POLYDOR RECORDS

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).

BEBOP. Dizzy Gillespie: *Our Love Is Here to Stay*. Art Blakey and Thelonious Monk: *Evidence*. John Coltrane and Milt Jackson: *Bebop*. Sonny Stitt: *Ko-Ko*. Philly Joe Jones: *Salt Peanuts*. Max Roach: *Almost Like Me*. The Giants of Jazz: *Allen's Alley*. ATLANTIC 81702-1, © 81702-2 (44 min).

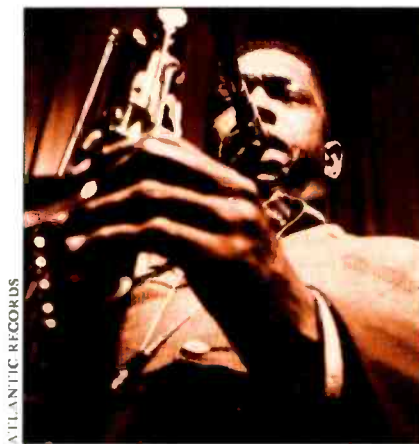
WEST COAST. Eddie Safranski: *Sa-Frantic*. Shorty Rogers: *Blues Way Up There; Not Really the Blues*. Jack Montrose: *Paradox*. Conte Candoli and Lou Levy: *Cheremoya*. Jimmy Giuffrè: *The Song Is You; Topsy*. Red Mitchell and Harold Land: *Triplin' Awhile*. Shelly Manne: *You Name It*. ATLANTIC 81703-1, © 81703-2 (56 min).

MAINSTREAM. Tony Fruscella: *I'll Be Seeing You*. David ("Fathead") Newman: *Ain't Misbehavin'*. Coleman Hawkins and Milt Jackson: *Stuffy*. The Modern Jazz Quartet: *Django*. Stephane Grappelli: *Daphne*. Duke Ellington: *Perdido*. Art Farmer and Jim Hall: *Embraceable You*. Woody Herman: *Four Brothers*. Ira Sullivan: *Everything Happens to Me*. The Clarke-Boland Big Band: *Speedy Reeds*. ATLANTIC 81704-1, © 81704-2 (50 min).

POST BOP. Teddy Charles: *Lydian M-1*. Lee Konitz and Warne Marsh: *I Can't Get Started*. Sonny Rollins and the Modern Jazz Quartet: *Bag's Groove*. The Jazz Modes: *This 'n' That*. John Coltrane: *Giant Steps*. Slide Hampton: *Sister Salvation*. Von Freeman: *White Sand*. Freddie Hubbard: *Misty*. Gil Evans: *Thoroughbred*. ATLANTIC 81705-1, © 81705-2 (51 min).

SINGERS. Ray Charles: *Hard Times*. Joe Turner: *I Want a Little Girl*. Jimmy Witherspoon: *Tain't Nobody's Bizness If I Do*. Joe Mooney: *Have You Met Miss Jones*. La Vern Baker: *Empty Bed Blues*. Ruth Brown: *I Can Dream, Can't I*. Mose Allison: *Your Mind Is on Vacation*. Chris Connor: *Lonely Woman*. Mel Tormè: *Whisper Not*. Betty Carter: *The Good Life*. Esther Phillips: *Confessin' the Blues*. Carmen McRae: *I Got It Bad and That Ain't Good*. Al Hibbler and Roland Kirk: *Do Nothin' Till You Hear from Me*. Aretha Franklin: *Moody's Mood*. Peggy Lee: *Don't Let Me Be Lonely Tonight*. Sarah Vaughan: *Something*. Sylvia Syms: *Lonely Woman*. Manhattan Transfer: *Sing Joy Spring*. And seven others on LP only. ATLANTIC 81706-1 two LP's, © 81706-2 one CD (69 min).

PIANO. Erroll Garner: *The Way You Look Tonight*. Mary Lou Williams: *In the Purple Grotto*. Lennie Tristano: *Line Up*. Phineas Newborn, Jr.: *Celia*.



ATLANTIC RECORDS

John Coltrane

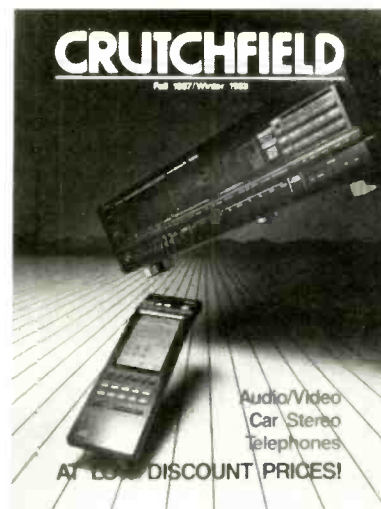
Ray Charles: *Sweet Sixteen Bars*. Thelonious Monk: *In Walked Bud*. John Lewis: *Delaunay's Dilemma*. McCoy Tyner: *Lazy Bird*. Bill Evans: *Nirvana*. Dwiki Mitchell: *Young Soul*. Joe Zawinul: *My One and Only Love*. Junior Mance: *Sweet Georgia Brown*. Herbie Hancock: *Einbahnstrasse*. Ray Bryant: *Blues #2*. Keith Jarrett: *Pardon My Rags*. Dave Brubeck: *Koto Song*. And five others on LP only. ATLANTIC 81707-1 two LP's, © 81707-2 one CD (71 min).

SOUL. Shirley Scott: *Think*. Johnny Griffin and Matthew Gee: *Twist City*. Ray Charles and Milt Jackson: *How Long Blues*. Herbie Mann: *Comin' Home Baby*. Yusef Lateef: *Russell and Eliot*. Eddie Harris: *Listen Here*. Les McCann: *With These Hands*. Les McCann and Eddie Harris: *Compared to What*. Hank Crawford: *You're the One*. Nat Adderley: *Jive Samba*. Joe Zawinul: *Money in the Pocket*. And four others on LP only. ATLANTIC 81708-1 two LP's, © 81708-2 one CD (73 min).

THE AVANT-GARDE. Roland Kirk: *The Inflated Tear; Black Mystery Has Been Revealed*. Charles Mingus: *Wednesday Night Prayer Meeting*. Ornette Coleman: *Eventually; Lonely Woman*. John Coltrane and Don Cherry: *Cherryco*. John Coltrane: *Countdown*. Art Ensemble of Chicago: *Nonaah*. ATLANTIC 81709-1, © 81709-2 (45 min).

INTROSPECTION. Hubert Laws: *Yoruba*. Chick Corea: *Tones for Joan's Bones*. Charles Lloyd: *Forest Flower—Sunrise*. Joe Zawinul: *In a Silent Way*. Keith Jarrett: *Standing Outside*. Gary Burton: *Chega de saudade*. Gary Burton and Keith Jarrett: *Fortune Smiles*. ATLANTIC 81710-1, © 81710-2 (41 min).

FUSION. Miroslav Vitous: *Freedom Jazz Dance*. Les McCann: *Beaux J. Pooboo*. Billy Cobham: *Quadrant 4*. Larry Coryell and Alphonse Mouzon: *Beneath the Earth*. Passport: *Homunculus*. Jean-Luc Ponty: *Egocentric Molecules*. ATLANTIC 81711-1, © 81711-2 (43 min).



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*Discs and tapes reviewed by
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ARRIAGA: *String Quartet No. 1, in D Minor; String Quartet No. 2, in A Major; String Quartet No. 3, in E-flat Major.* Rasoumovsky Quartet. EN-SAYO/QUALITON IMPORTS © ENY-CD-3424 (65 min).

Performance: *Compelling*
Recording: *Splendid*

These performances by the London-based Rasoumovsky Quartet of the three string quartets by Juan Crisóstomo de Arriaga (1806-1826), the remarkable "Spanish Mozart," command even deeper admiration for these works, and provide greater pleasure from them, than any previous presentation known to me. There has never, of course, been a question about the music's substance. Any of the three quartets might well be mistaken for mature Haydn, and yet they are in no real sense imitative. The circumstance of their having been composed by a seventeen-year-old does not affect their value but does place Arriaga's achievement on a level with Mendelssohn's at the same age.

The Rasoumovsky performances are in the same spirit as the well-remembered ones by the Guilet Quartet and the Spanish Radio Quartet, with tempos generally brisker than those favored by the other English and American foursomes that have recorded these works. This approach—straightforward and invigorating, but never hinting at either breathlessness or casualness—works entirely to the music's advantage. The wonderful themes themselves seem to dictate the pacing, and the confident playing projects the music's own strength, depth, and unselfconscious elegance without neglecting any of its warmth or tenderness.

The analog recording was made in 1976 and was issued on a Philips LP in Europe three or four years ago, but it apparently has not been available in the U.S. in any form till now. It could hardly be better in terms of richness, balance, or definition, and of course it is especially welcome on CD. *R.F.*

BEETHOVEN: *Symphony No. 6, in F Major, Op. 68 ("Pastorale"); Overture, The Consecration of the House, Op. 124.* Academy of St. Martin-in-the-



Conductor Eliahu Inbal in Frankfurt

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 choruses, 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 handily 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 Hessischer 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 uncompromising 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. *Christie Barter*

MAHLER: *Symphony No. 8, in E-flat Major.* Faye Robinson, Teresa Cahill, Hildegard Heichele (soprano); Livia Budai (mezzo-soprano); Jane Henschel (contralto); Kenneth Riegel (tenor); Hermann Prey (baritone); Harald Stamm (bass); various choruses; Frankfurt Radio Symphony Orchestra, Eliahu Inbal cond. DENON © 60CO-1564-65 two CD's (78 min).

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Fields, Neville Marriner cond. PHILIPS
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(56 min).

Performance: *Predominantly bland*
Recording: *Good*

Neville Marriner's view of Beethoven's *Pastorale* Symphony strikes me as blandly cited. 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 interpretive 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 *Pastorale*, look for the recordings by Günter Wand, Gerard Schwarz, or Klaus Tennstedt.

D.H.

BOYCE: *Eight Symphonies*. The English Concert, Trevor Pinnock cond. ARCHIV © 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 ● 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 violist Peter Schidlof, 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



Christoph von Dohnányi: classic Brahms

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 Szolchány 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.

BRAHMS: *Symphony No. 4, in E Minor, Op. 98*. Cleveland Orchestra, Christoph von Dohnányi cond. TELDEC/KOCH IMPORT SERVICE ● 6.43678, © 4.43678, © 8.43678 (42 min).

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 ● 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

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wrought occasional piece composed for the inauguration of the Kresge Auditorium at the Massachusetts Institute of Technology in 1965. Except that it lacks narration, the work bears more than a passing resemblance to Copland's *Lincoln Portrait*. Two-thirds of the *Canticle* is purely orchestral, alternating between the pastoral and the declamatory sides of Copland's style. The choral epilogue is a setting of the poem *Freedom Is a Noble Thing* by the fourteenth-century Scotsman John Barbour. In its central

section, touching on "the misery, the anger," the music rises to a pitch of genuine eloquence.

The most interesting, if least characteristic, music in the program is the set of four *a cappella* motets Copland composed in 1921, during the early stages of his studies with Nadia Boulanger. Unpublished until 1979, they are at once effective settings of Biblical material (*Help Us, O Lord; Thou, O Jehovah, Abideth Forever; Have Mercy on Us, O My Lord; Sing Ye Praises to Our King*)

and fine illustrations of Copland's early mastery of modal style. Here, too, the choir acquits itself well. The overall recorded sound is good, though not spectacular. *D.H.*

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 contrasts 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.*

DVOŘÁK: *Violin Concerto in A Minor, Op. 53* (see SIBELIUS)

HANDEL: *Messiah*. Lynne Dawson (soprano); Catherine Denley (contralto); David James (countertenor); 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

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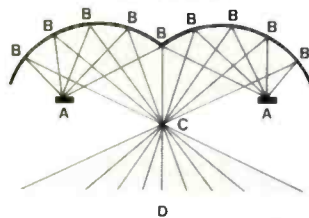
• Julian Hirsch, Hirsch-Houck Laboratories, *Stereo Review*, July 1987

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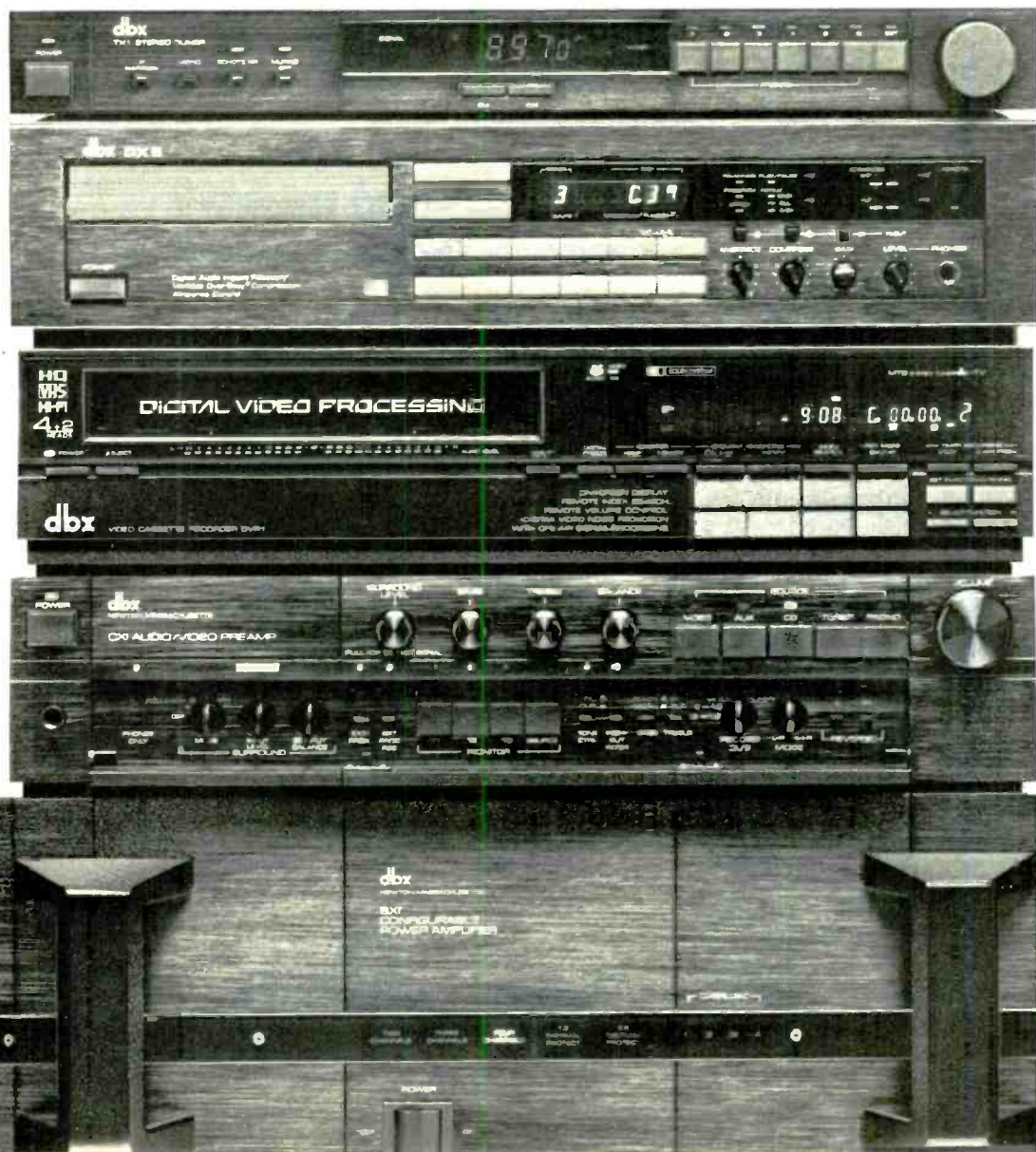
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"The Sixteen" I have no idea, and there is not a word about it—or about any of the performers—in the notes.

The chorus in this version, based more or less on the Dublin première 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 sort of power than ensembles of "festival" proportions produce, and that is frequently the case here. The overall performance level is a little uneven, though, in some respects owing to matters of balance, in others to shortcomings on the part of the soloists.

Christophers has a fine grasp of the work and a good sense of momentum. His tempo choices could hardly be better in most cases, though the two instrumental numbers—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 lackluster contralto, was given "I know that my Redeemer liveth." Bass Michael George does well too, and actually manages to be both tasteful and inspiring in "The trumpet shall sound." Un-

fortunately, none of the other soloists are on their level.

The "Hallelujah" chorus has a winning freshness, with tidy, unexcessive 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 Heighes 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.

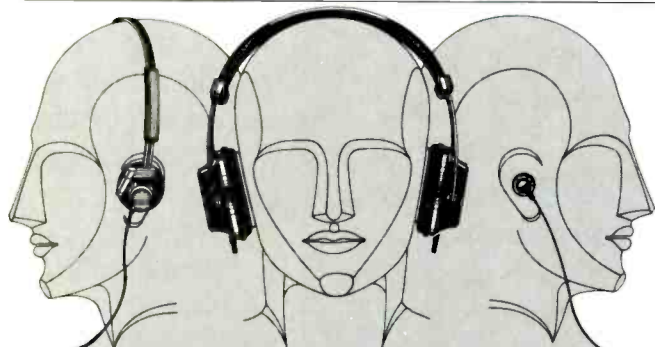
HINDEMITH: *When Lilacs Last in the Dooryard Bloom'd*. Jan De Gaetani (mezzo-soprano); William Stone (baritone); Atlanta Symphony Chorus and

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



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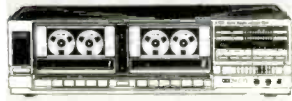
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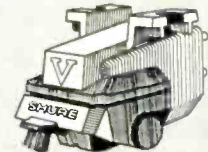


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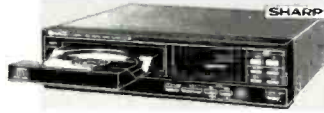


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KHATCHATURIAN'S FIREWORKS



Pianist Constantine Orbelian

KEN HOWARD/CAMI

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 daylight 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-concert 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).

composers who are native speakers of the language. The vocal writing, too, is superb. Shaw claims that Hindemith wrote out the vocal parts first and later cut them up, pasted them down, and wrote the orchestral parts around them. It may be true. The orchestra aids, comments on, and supports but almost never interferes with or drowns out the singers. Purely as vocal music, this is one of the most felicitous choral works of modern times. And, most astonishingly, Hindemith found a moving and believable tone for setting Whitman's inspired words, which are so full of their own music that they hardly seem to need any musical setting at all.

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 music 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 craftsman/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 humanity of what is probably Hindemith's best American work. *Eric Salzman*

MAGNARD: Guercoeur. Hildegard Behrens (soprano), Vérité: Anne Salvan (mezzo-soprano), Bonté; Michèle Lagrange (soprano), Beauté; Nathalie Stutzmann (contralto), Souffrance; José van Dam (baritone), Guercoeur; Gary Lakes (tenor), Heurtal; Nadine Denize (mezzo-soprano), Giselle; others. Orfeón Donostiarra; Orchestre du Capitole de Toulouse, Michel Plasseur cond. EMI/ANGEL © CDCC-49194 three CD's (183 min).

Performance: *Dedicated*
Recording: *Admirable*

Albéric Magnard's virtually unknown second opera is a considerable piece of work. It is difficult, but it is challenging too, with a canvas that embraces heaven and earth. The libretto, by the composer, tells of the deceased Guercoeur's desire to return from heaven to his faithful wife, Giselle, and stalwart friend, Heurtal. He does so, despite warnings from Vérité (Truth), Bonté

(Goodness), Beauté (Beauty), and Souffrance (Suffering), only to find his wife abandoned the demure of her role, and abandoned him by G...

L stood than are strength and virtue. The intelligibility of the French, by the way, usually a problem with operas in that language, is very good.

EMI is to be congratulated for undertaking this imposing and technically excellent recording, available in the United States on CD only. If *Guercœur* is not popular, and it probably never will be, at least if Magnard is not a major composer, though I would like to hear more of his music, this opera is a consequential work nonetheless by virtue of its musical richness and the richness of its ideas. The recording is not for every collector, but I recommend it as an example of the resurgence of neo-Romanticism and the attention of Matthew Arnold referred to as "seriousness" in art. R.A.

MEYERBEER: SOHN: Symphony No. 3, Op. 56 ("Scottish"); Symphony No. 4 in A Major, Op. 90 ("Italian")
 English Chamber Orchestra, conducted by NIMBUS © NI 5067

Character: *Elegant*
 Overall: *Very good*

... was my first experience with the tenor José Jaime Laredo as the title character. I must say that it was a pleasure to hear Laredo's view of the role. The Mendelssohn symphony is a masterpiece of the lyrical-Romantic style. Performances with the English Chamber Orchestra have little to recommend them. The supercharged brilliance that characterizes so many performances by the world-class ensembles, yet there is no lack of precision or rhythmic vitality. The elegiac strain in the opening pages of the *Scottish* Symphony, as well as in its slow movement, is hauntingly conveyed. There is a splendid tartness in the main body of the finale, and the epilogue is handled in a festive manner without lapsing into empty pomp. The *Italian* is played with both warmth and *brío*, complete with the essential first-movement repeat. The Pilgrim's March 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 Classical 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 (baritone), Count; Ann Murray (mezzo-

... C... m... th... be... T... follo... poss... aspect... charac... it moves... Similar... in Act II, is incisive and stirring, and it brings a sense of high drama to the proceedings. 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 Vérité, Hildegard Behrens easily encompasses the sometimes difficult tessitura of the part: her long apostrophe to *Guercœur* in Act II is especially moving. As Bonté, Beauté, and Souffrance, respectively, Anne Salvan, Michèle Lagrange, and Nathalie Stutzmann sing with tonal beauty and devoted ardor. As the protagonist, José van Dam sings feelingly and with glowing sound; it is hard to imagine a more affecting account of the role. Gary Lakes and Nadine Denize, as the somewhat sneering Heurtal and the conscience-stricken Giselle, are also musically on top of their assignments and offer telling characterizations. Evil and weakness of course, are always more easily drawn and more readily under-

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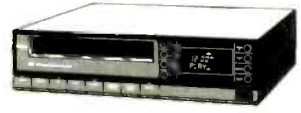
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soprano), Cherubino; Kurt Rydl (bass), Bartolo; Mariana Nicolesco (soprano), Marcellina; others. Chorus of the Vienna State Opera; Vienna Philharmonic Orchestra, Riccardo Muti cond. ANGEL Ⓢ DSC-47978 three LP's. © 4D3S-47978 three cassettes, © CDCC-47978 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 led by Neville Marriner on Philips was recorded in 1985. Like these predecessors, Riccardo Muti's new version is well recorded and cast with singers who are well known for interpretations of their given roles.

Muti's Figaro, Thomas Allen, turns in a clear-voiced, richly sonorous performance. He convincingly portrays Figaro as a crafty schemer, an ardent lover, and a very personable fellow. Kathleen Battle, a Mozartean 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 Hynninen uses his sturdy, liquid baritone to create a suave, fatuous, philandering, and ultimately penitent aristocrat—in short, a believable character. Hynninen 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.

Ann Murray infuses Cherubino's lines with infectious charm and boyishness, Kurt Rydl's Bartolo is sonorously sung and properly pompous, and Mariana Nicolesco's simpering Marcellina is pleasantly comic, especially in her recognition of Figaro as her son. The remaining members of the large cast support the standard of excellence set by the principals. The chorus and 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 smiling ruefully, 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. 47; Piano Quintet 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 Ⓢ 419 771-1, © 419 771-4, © 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 whistling-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 première 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 often than not 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, taped at public performances in 1985 and 1986, simply cannot be overpraised for its warmth, color, and controlled dynamics. The pianissimo ending of the Sixth Symphony's first movement is utterly breathtaking, and not since the Stokowski-Philadelphia Orchestra 78's have I heard the marvelous woodwind run that ends the scherzo so superbly executed. Kudos also to the Viennese audience for its remarkable respiratory control. The live recording is rich, well imaged, and amply brilliant for one made at an obviously well-attended concert. D.H.

SIBELIUS: Violin Concerto in D Minor, Op. 47. DVORÁK: Violin Concerto

in A Minor, Op. 53. Shlomo Mintz (violin); Berlin Philharmonic Orchestra, James Levine cond. DEUTSCHE GRAMMOPHON Ⓢ 419 618-1, © 419 618-4, © 419 618-2 (67 min).

Performance: *Fierly*
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.

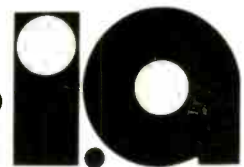
SIBELIUS: Symphony No. 5, in E-flat Major, Op. 82; Pohjola's Daughter, Op. 49 (see *Best of the Month*, page 126)

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 in 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

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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 sobered 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. Bach: *Sonata in G Minor (BWV 1034)*, Schickhardt: *Sonata in E Major*. Telemann: *Partita in E-flat Major*. Handel: *Sonata in G Minor, Op. 1, No. 1*. Frederick the Great: *Sonata in D Major*. Michala Petri (recorder); George Malcolm (harpsichord). PHILIPS 416 369-1, © 416 369-4, © 416 369-2 (52 min).

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 expressive limits of her instrument, it is a joy to hear, and George Malcolm's sparkling, tastefully inventive continuo playing provides full support. S.L.

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They bought every last remaining Z-7000 speaker, and as a result Dollar Wholesale Club has the official state registration permit (No. F-207821) allowing them to liquidate these powerful \$1,000 a pair speakers at only \$199 a pair! **YOU SAVE AN ASTONISHING**

\$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.

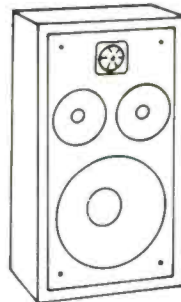
The most critical frequencies are the mid-range, because that's where most of the music you listen to occurs. And that's where the Z-7000's really shine. Mid-range frequencies are fed through an electronically advanced first-order crossover network to a pair of perfectly imaged 5-inch mid-range drivers 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, all the way up to 22,000 Hz, are reproduced by an advanced low-mass piezo-electric 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.

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This remarkable close-out value is typical of what you can expect from Dollar Wholesale Club. Thousands of people have paid \$25 for membership. But, when you purchase a pair of these Z-7000s speakers, your membership for an entire year is absolutely FREE! With your speakers you'll receive your Dollar Wholesale Club Membership Card, and our giant color catalogs and special value flyers that spotlight other great values — **all at actual wholesale prices or below!**

Listen to the Z-7000 speakers hooked up to your stereo system for 30 days. If you're not convinced, just return them for a prompt, full refund. Your Dollar Wholesale Club membership (a \$25 value) will be your free gift. Our way of saying "thanks" for taking the time to learn about the great values you get every day from Dollar Wholesale Club!



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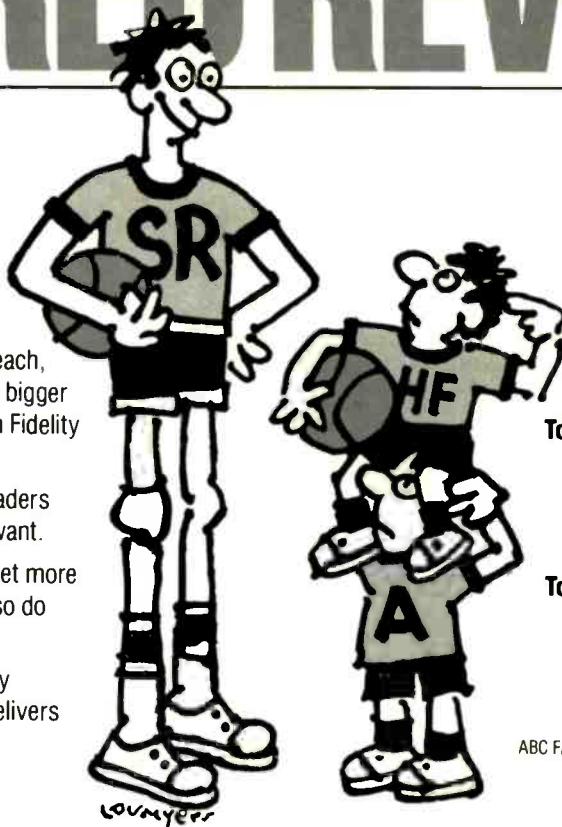
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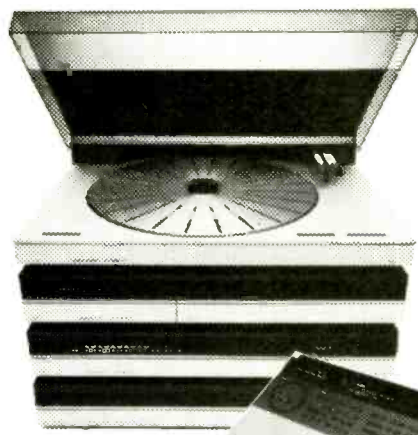
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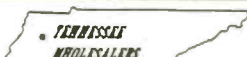
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THE HIGH END

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, *Stereophile* 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 op-

portunity for dawn-to-dawn 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

Some audio shows are open to the public, and when they occur simultaneously they offer an unmatched opportunity for immersion in matters audio.

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. □

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