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# Not Evolutionary, Revolutionary.

## Pioneer's Revolutionary CD/LaserVision Player

repeat programs, segments, or entire sides. The possibilities are just about endless.

The CLD-909 includes many highly sophisticated features. Like

If there was ever a machine ahead of its time, it's Pioneer's new CLD-909. The most remarkable machine ever invented to play compact discs, LaserVision discs and music video discs.

No longer need you buy two machines to get the best of both sight and sound. The CLD-909 does it all. And does it beautifully.

The CLD-909 represents a stretch of the engineer's imagination. It incorporates a number of technological breakthroughs. One is a laser pickup/objective lens system with the smallest aperture yet—0.55 microns. That's one thirty-four hundredths the diameter of a human hair. It takes this kind of incredibly fine laser focus to read the density of information encoded on CDs and LaserVision discs. Another is a newly-developed Constant Distance Tilt Servo that maintains high trackability even on severely warped discs.

It is this kind of advanced technology that lets the CLD-909 deliver a picture 20% sharper than live broadcast television. And 60% sharper than the latest VHS HQ VCRs.

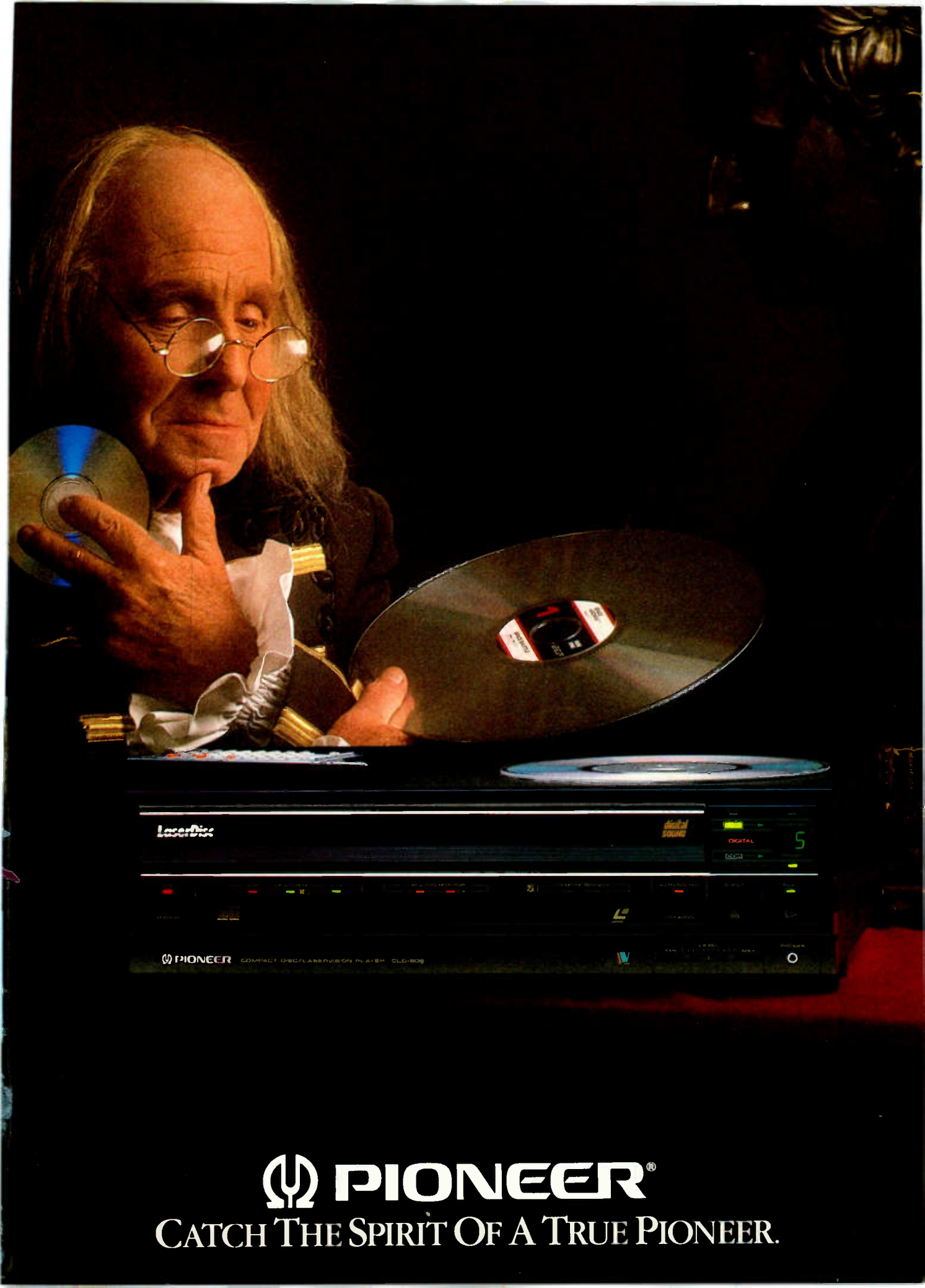
Getting the picture? It's so sharp and accurate and faithful to life that things appear almost 3-dimensional. And unlike videotapes, optical discs don't wear out. They also give you random, immediate access to any frame or time point. Impossible with tape.

And what convenience and versatility. You can program the CLD-909 to play audio or video tracks in any order you wish. You can

automatic disc and digital sound detection, semi-automatic front loading, subcode output, on-screen programming, as well as on-screen function display. It is fully remote-controllable for stand-alone or system use, and has a built-in computer control port. We've also designed a new CD Motor *Swing Assembly* that lets us make the CLD-909 just 4.7 inches high. Then we added sophisticated electronics like a new Pulse Count IC and Noise Canceller to achieve a remarkable horizontal resolution of 400 lines.

The CLD-909 gives you breathtaking digital audio to match its breathtaking video. From compact discs, of course, as well as many 12-inch LaserVision discs and 8-inch music video discs. And Pioneer's exclusive Linear Servo system accurately reproduces music from even warped, scratched or dirty CDs.

Pioneer's revolutionary CLD-909. More than just a new idea. It is without a doubt the finest source of sight and sound you can possibly own. See it at your Pioneer Dealer. Or call 1-800-421-1404.



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5

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**Matthew Polk's Awesome Sounding SDA-SRS & SDA-SRS 2**



**SDA SRS**  
**\$1395 ea.**

**SDA SRS 2**  
**\$995 ea.**

*Digital Disc Ready*

**Matthew Polk, the loudspeaker genius, with his Audio Video Grand Prix winning SDA-SRS and latest technological triumph: the extraordinary SDA-SRS 2, honored with the 1986 CES Design & Engineering Award.**



# "The Genius of Matthew Polk Creates The Second Awesome Sounding Signature Edition SDA!"

*Polk Audio's Extraordinary New SDA-SRS 2 is Here!*

**N**ow the genius of Matthew Polk brings you the awesome sonic performance of the SDA-SRS in a smaller, more moderately priced, but no less extraordinary loudspeaker, the SDA-SRS 2.

**"Spectacular...it is quite an experience"**

*Stereo Review*

Matthew Polk's ultimate dream loudspeaker, the SDA-SRS, won the prestigious Audio Video Grand Prix Speaker of the Year award last year. Stereo Review said "Spectacular...it is quite an experience" and also stated that the SRS was probably the most impressive new speaker at the 1985 Consumer Electronics Show. Thousands of man hours and hundreds of thousands of dollars were spent to produce this ultimate loudspeaker for discerning listeners who seek the absolute state-of-the-art in musical and sonic reproduction.

Matthew Polk has, during the last year, continued to push his creative genius to the limit in order to develop a smaller, more moderately priced Signature Edition SDA incorporating virtually all of the innovations and design features of the SRS without significantly compromising its awesome sonic performance. The extraordinary new SRS 2 is the successful result. Music lovers who are privileged to own a pair of either model will share Matthew Polk's pride every time they sit down and enjoy the unparalleled experience of listening to their favorite music through these extraordinary loudspeakers, or when they demonstrate them to their admiring friends.

**"Exceptional performance no matter how you look at it"**

*Stereo Review*

Listening to any Polk True Stereo SDA\* is a remarkable experience. Listening to either of the Signature Edition SDAs is an awesome revelation. Their extraordinarily lifelike three-

dimensional imaging surrounds the listener in 360° panorama of sonic splendor. The awe inspiring bass performance and dynamic range will astound you. Their high definition clarity allows you to hear every detail of the original musical performance; while their exceptionally smooth, natural, low distortion reproduction encourages you to totally indulge and immerse yourself in your favorite recordings for hours on end.

Julian Hirsch of Stereo Review summed it up well in his rave review of the SDA-SRS: "The composite frequency response was exceptional...The SDA system works...The effect can be quite spectacular...We heard the sound to our sides, a full 90° away from the speakers...As good as the SDA feature is, we were even more impressed by the overall quality of the Polk SDA-SRS...The sound is superbly balanced and totally effortless...Exceptional low bass. We have never measured a low bass distortion level as low as that of the SDA-SRS...It is quite an experience! Furthermore, it is not necessary to play the music loud to enjoy the tactile qualities of deep bass...Exceptional performance no matter how you look at it."

The awe-inspiring sonic performance of the SDA-SRS 2 is remarkably similar to that of the SRS. Words alone can not express the experience of listening to these ultimate loudspeaker systems. You simply must hear them for yourself!

**"Literally a new dimension in sound"**

*Stereo Review*

Both the SDA-SRS and the SDA-SRS 2 are high efficiency systems of awesome dynamic range and bass capabilities. They both incorporate Polk's patented SDA True Stereo technology which reproduces music with a precise, life-like three dimensional soundstage which is unequalled and gives you, as Julian Hirsch of Stereo Review said, "literally a new dimension in sound". Each beautifully styled and finished cabinet contains 4 Polk 6½" trilaminate polymer drivers, a planar 15" sub-bass radiator, 2 Polk 1"

silver-coil polyamide dome tweeters and a complex, sophisticated isophase crossover system.

Like the SDA-SRS, the SRS 2 incorporates: 1.) time compensated, phase-coherent multiple driver vertical line-source topology for greater clarity, increased coherency, lower distortion, higher power handling, increased dynamic range and more accurate imaging. 2.) a mono-coque cabinet with elaborate bracing and MDF baffle for lower cabinet read-out and lower coloration. 3.) progressive variation of the high frequency high-pass circuitry for point-source operation and wide vertical dispersion. 4.) the use of small active drivers in a full complement sub-bass drive configuration coupled to a large 15" sub-bass radiator for extraordinarily tight, quick and three-dimensional mid and upper bass detail combined with low and sub-bass capabilities which are exceptional. The speakers are beautifully finished in oiled oak and walnut.

**Other superb sounding Polk speakers from \$85. ea.**

No matter what your budget is, there is a superb sounding Polk speaker perfect for you. Polk's incredible sounding/affordably priced Monitor Series loudspeakers start as low as \$85 ea. The breathtaking sonic benefits of Polk's revolutionary True Stereo SDA technology are available in all Polk's SDA loudspeakers which begin as low as \$395. each.

**"Our advice is not to buy speakers until you've heard the Polks"**

*Musician Magazine*

The experts agree: Polk speakers sound better! Hear them for yourself. Use the reader service card for more information and visit your nearest Polk dealer today. Your ears will thank you.

**polkaudio**  
The Speaker Specialists®

\*U.S. Patent No. 4,489, 432 and 4,487, 064. Other patents pending.

**Where to buy Polk Speakers? For your nearest dealer, see page 121.**

**Matthew Polk's Magnificent Sounding New SDA 2A**



**SDA 2A**  
\$499.00 ea

**Digital Disc Ready**

**Matthew Polk stands proudly alongside the latest version of his Audio Video Grand Prix Award Winning SDA 2A**



# "The Magnificent Sounding New TRUE STEREO SDA 2A Again Demonstrates the Genius of Matthew Polk"

*This revolutionary speaker is the most extraordinary value in high end audio!*

**M**atthew Polk's magnificent sounding new 3rd generation SDA-2A incorporates many new advances pioneered in his top-of-the-line Signature Edition SRSs. It achieves stunningly life-like musical reproduction which would be remarkable at any price but is simply extraordinary at \$499. each.

## Polk's Revolutionary True Stereo SDA Breakthrough

The magnificent sounding new SDA-2A incorporates Polk's revolutionary True Stereo SDA technology. This patented, critically acclaimed, Audio Video Grand Prix Award winning breakthrough is the most important fundamental advance in loudspeaker technology since stereo itself. In fact, the design principles embodied in the SDAs make them the world's first and only True Stereo speakers.

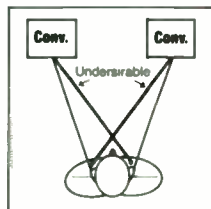
Why do Polk SDAs always sound better than conventional speakers? As illustrated in diagram 1: when conventional loudspeakers are used to reproduce stereo both speakers are heard by both ears which causes a form of acoustic distortion called interaural crosstalk which cuts down stereo separation and obscures detail and interferes with the proper reproduction and perception of imaging, spaciousness. As illustrated in diagram 2: Polk SDAs are designed so that each speaker is only heard by the one correct ear (i.e. left channel/left ear, right channel/right ear), like headphones. The result is dramatically improved stereo separation, detail and three-dimensional imaging. In order to accomplish this (see diagram 3) each SDA incorporates a separate set of drivers which radiates a special dimensional (difference) signal which cancels the undesirable interaural crosstalk distortion coming from the wrong speaker to the wrong ear. High Fidelity called the results "Mind Boggling".

## The Most Extraordinary Value in High End Audio Today

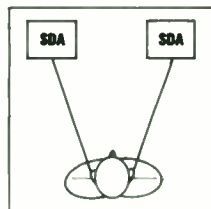
The new SDA-2As, like all the current SDAs, incorporate the latest 3rd generation SDA technology developed for Matthew Polk's Signature Edition SRS and SRS-2 including 1: full complement sub-bass drive for deeper, fuller, tighter and more dynamic bass response; 2: phase coherent time-compensated driver alignment for better focus, lower-coloration smoother, clearer, more coherent midrange and improved front-to-back depth and; 3: bandwidth-optimized dimensional signal for

*"The result is always better than would be achieved by conventional speakers..."*

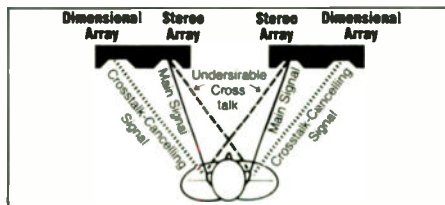
*Stereo Review Magazine*



**Conventional Speakers Reproducing Stereo**  
When conventional speakers reproduce stereo, both speakers are heard by both ears which reduces stereo separation, obscures detail and interferes with proper imaging.



**Polk's Revolutionary SDAs Reproduce True Stereo**  
Only Polk SDAs reproduce True Stereo by allowing each speaker and signal (L or R) to be heard by only the correct ear like headphones, which results in dramatically improved stereo separation, detail and three-dimensional imaging.



### How Polk SDAs Achieve True Stereo

Each Polk SDA incorporates a special extra set of drivers which radiates a difference signal which cancels the undesirable signal going from the wrong speaker to the wrong ear, (interaural crosstalk distortion) resulting in True Stereo reproduction.

smoother high-end and even better soundstage and image. The improvements to the SDA-2A also enabled us to reduce its cost to \$499. each. The new SDA-2A is the finest sounding and most technologically advanced speaker ever produced at its extraordinarily modest price. It sounds dramatically better than speakers from other manufacturers that cost 4 times as much and more and is truly the speaker of your dreams at a price you can afford.

*"Breathtaking... a new world of hi fi listening."*

*Stereo Buyers Guide*

### The Dramatic Sonic Benefits of True Stereo SDA Technology

The spectacular sonic benefits of SDA technology are dramatic and easily heard by virtually anyone. Reviewers, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved

by Polk's SDA technology. One famous reviewer remarked that after hearing the SDAs his wife said that she heard such a dramatic improvement in the sound that she insisted that he replace their current speakers.

*"Mindboggling, Astonishing, Flabbergasting"*

*High Fidelity Magazine*

All Polk's SDAs, including the new 2A's produce a huge lifelike three dimensional sonic image which will amaze you. You will hear for the first time instruments, ambience and subtle musical nuances which are present on your recordings but masked by the interaural crosstalk distortion produced by conventional speakers. Stereo Review said, "Spectacular...literally a new dimension in the sound...the result is always better than would be achieved by conventional speakers". High Fidelity said, "Mind Boggling...Astounding...Flabbergasting...we have yet to hear any stereo program that doesn't benefit". With SDAs every instrument, vocalist and sound becomes distinct, tangible and alive; allowing you to experience the spine tingling excitement, majesty and pleasure of live music in your own home.

## Other Superb Sounding Polks From \$85. to \$1395. each

No matter what your budget is there is a superb sounding Polk speaker perfect for you. Polk's incredible sounding/affordably priced Monitor Series loudspeakers utilize the same basic components as the SDAs and begin as low as \$85. each. The breathtaking sonic benefits of Matthew Polk's revolutionary True Stereo SDA technology are available in 5 SDA models priced from \$395. to \$1395.

*"You owe it to yourself to audition them"*

*High Fidelity*

The experts agree: Polk speakers sound better. Use the reader's service card or write to us for more information. Better yet, visit your nearest Polk dealer today. Your ears will thank you.

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Where to buy Polk Speakers? For your nearest dealer, see page 121.

# HIGH FIDELITY

Volume 36 Number 10 October 1986

122



92



Cover Design: Robert V. Delevante, Jr. and Michael O. Delevante

Cover Photo: Nick Basil on

On the Cover: Pioneer PD-C7 (top) and Sharp DX-620 Compact Disc players

## TEST REPORTS

- 39 **NEC** CD-500E Compact Disc player
- 40 **Sansui** SE-88 graphic equalizer
- 42 **Yamaha** C-85 preamplifier
- 48 **Pioneer** CT-A7X cassette deck
- 83 **Denon** DCA-3175 car power amplifier

## AUDIO & VIDEO

- 87 **Portable Performance**  
by Michael Riggs  
We put seven portable Compact Disc players to the test.
- 92 **Car Stereo '87**  
by Jay C. Taylor  
The latest mobile music gear from the Summer Consumer Electronics Show
- 98 **Video '87**  
by E. Brad Meyer and Robert Long  
VHS vs. 8mm, large-screen TV, and more

## MUSIC

### Classical

- 102 **19th Annual High Fidelity/International Record Critics Awards**  
by Theodore W. Libbey, Jr.  
The year's best recordings, and how they were picked

- 109 **Compact Discs on the March**  
Compiled by Theodore W. Libbey, Jr., and Mildred Camacho  
More than 900 releases from over 60 companies

### Popular/Backbeat

- 119 **Gilberto Gil, Fellow Man**  
by Pamela Bloom  
Reggae, the Rolling Stones, samba, and Superman are all part of this Brazilian's music.

## DEPARTMENTS

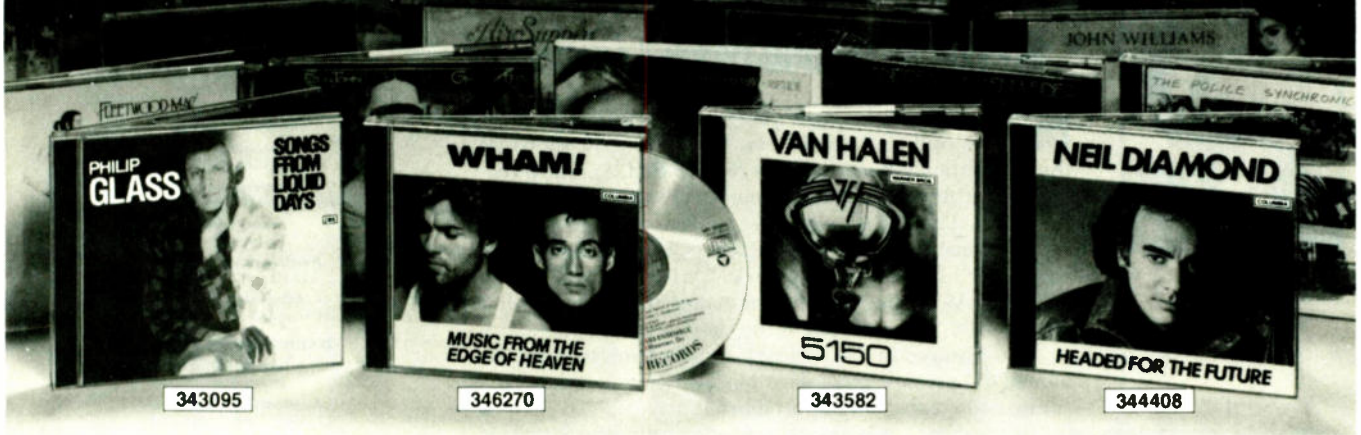
- 8 **Front Lines**
- 9 **Letters**
- 12 **Currents** B&W Matrix loudspeakers; car adapter for portable Compact Disc players
- 28 **Basically Speaking** Reliability and service
- 30 **Crosstalk** Compact Disc cleaning; videocassette recorder head count; shunning shrillness
- 35 **Scan Lines** What promises does digital-video technology hold?
- 36 **Tape Tracks** Beating the meters: The problems of level setting
- 106 **The CD Spread** From *Winterreise* to *Le Sacre du printemps* by way of *Transfigured Night*
- 122 **Popular and Jazz Reviews**
- 128 **Advertising Index**

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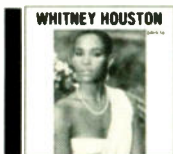


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- 337519.** Heart, *Top 10 Album What About Love Never...* etc. (Capitol)
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- 324822.** Ravel: *Bolero; Rapsodie Espagnole; La Valse*; etc. —Mozzel cond (Digital—CBS Master works)
- 343715.** Vivaldi: *Four Seasons* Moazel, members Orch. National de France (Digital—CBS Master works)
- 343947.** Tony Bennett—*The Art Of Excellence*. Tonys back! (Columbia)
- 336396-396390.** Billy Joel's *Greatest Hits, Volumes 1 & 2*. (Counts as 2—Columbia)
- 344085.** John Williams—*Echoes Of London*, *Master guitarist's best!* (CBS)
- 273409.** Vladimir Horowitz Plays *Favorite Beethoven Sonatas*. *Moonlight*, etc. (Columbia)
- 344135.** Jean-Pierre Rampal—*A Night At The Opera*. Damingo conducts (Digital—CBS Master works)
- 326629.** Bruce Springsteen—*Born In The U.S.A.* (Columbia)
- 333286.** Phil Collins—*No Jacket Required*. (Atlantic)
- 335547.** Berlioz: *Symphonie Fantastique* Borenboim, Berlin Phil (Digital—CBS Master works)
- 263293.** Balling: *Suite For Flute & Jazz Piano* Rompal, Balling (Columbia)
- 339200.** Stevie Wonder—*In Square Circle*. #1 album (Tamla)
- 337402.** The Manhattan Transfer—*Vocalese*. Top 10 album (Atlantic)
- 343624.** Wynton Marsalis. *Plays Trumpet Concertos*. Haydn, Hummel, I. Mozart (Digital—CBS Master works)
- 341263.** Enoch Light & The Light Brigade—*Big Bands Of The Thirties*. *Begin The Beguine*, more (Project 3)
- 340323.** Sode—*Promise*. #1 Smash (Portrait)
- 219477.** Simon & Garfunkel's *Greatest Hits, El Condor Pasa, Bridge Over Troubled Waters* etc. (Columbia)
- 331645.** Madonna—*Like A Virgin*. #1 album & hits *Material Girl, Angel* (Sire)
- 323261.** Lionel Richie—*Can't Slow Down*. *All Night Long, Stuck On You, Hello*, etc. (Motown)
- 320499.** The Police—*Synchronicity*. Winner of 3 Grammy Awards! (A&M)
- 318089.** Michael Jackson—*Thriller, Billy Jean, The Girl's Mine*, etc. (Epic)
- 308049-398040.** Creedence Clearwater Revival featuring John Fogerty/Chronicle. *Greatest hits* (Counts as 2—Fantasy)
- 316604.** Tchaikovsky: *1812 Overture; Marche Slave; Beethoven: Wellington's Victory*. Lorin Moazel, Vienna Phil (Digital—CBS Master works)
- 342097.** Barbra Streisand—*The Broadway Album*. *Somewhere, Something's Coming*, more. (Columbia)
- 323337.** The Big Chill. *Original Motion Picture Soundtrack* (Motown)
- 321570.** Beethoven: *Symphony No. 5; Schubert: Symphony No. 8* —Lorin Moazel, Vienna Phil (Digital—CBS Master works)
- 313734.** Willie Nelson—*Always On My Mind*. #1 Hits, And Top 10 Title Song *Let It Be Me*, more. (Columbia)
- 293597.** Led Zeppelin—*Houses Of The Holy*. Includes hit *O Yer Maker*, more. (Atlantic)
- 287003.** Eagles—*Their Greatest Hits 1971-1975*. *Desperado, Best Of My Love*, more. (Atlantic)
- 345207.** Buddy Holly—*From The Original Master Tapes*. (MCA)
- 321307.** Air Supply—*Greatest Hits*. (Arista)
- 286914.** Fleetwood Mac—*Rumours*. #1 Hit Album. Includes *Dont Stop You Make Loving Fun*, more. (Warner Bros.)
- 345892.** Ruthless People—*Original Motion Picture Soundtrack*. Includes Billy Joel hit *Modern Woman*, also Springsteen, Poul Young, more. (Epic)
- 346643.** Andreas Vollenweider—*Down To The Moon*. *The Inventive Harpist's Latest* (CBS)
- 345827.** Bob James and David Sanborn—*Double Vision*. Joined by Al Jarreau, others. Includes *Since I Fell For You* (Warner Bros.)
- 341305.** Robert Palmer—*Riptide*. The voice of *Power Station's Top 10* album! *Addicted to Love*, more. (Island)
- 343293.** Rolling Stones—*Dirty Work*. Top 10/MTV smashes *Harlem Shuffle* and *One Hit To The Body*, more. (Rolling Stone Rec.)
- 341677.** Schubert: *Symphonies 2 & 8*. Borenboim, Berlin Phil (Digital—CBS Master works)
- 346015.** Handel: *Royal Fireworks Music*; more —Malgora, LaGrande Ecurie & lo Chambre duRoy (Digital—CBS Master works)



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BY  
WILLIAM  
TYNAN

**MUSK: AN INTERNATIONAL LANGUAGE**

**M**USIC TRANSCENDS THE POLITICAL BOUNDARIES THAT define countries. Each year, HIGH FIDELITY sponsors the International Record Critics Awards (IRCA), which recognize the best classical recordings of the year from around the world. The IRCA judges also present the Koussevitzky International Record Award (KIRA), which honors a living composer of an important work. Classical Music Editor Theodore W. Libbey, Jr., tells the complete story beginning on page 102. Below, a look at the winners and jury.

Also featured in this special Compact Disc issue are the annual CD preview and Editor Michael Riggs's report on a comparison test of seven portable CD players. ■



KONSTANTIN



KONSTANTIN



KONSTANTIN



WALTER H. SCOTT



WALTER H. SCOTT



WALTER H. SCOTT

IRCA '86 IN PICTURES (LEFT TO RIGHT, FROM TOP). THE WINNERS: ANDRÉ SCHMITZ (ACCEPTING FOR DEUTSCHE GRAMMOPHON), JOSEPH PASTERNAK (FOR TELDEC), CHRISTINE REED (FOR WITOLD LUTOSLAWSKI), COMPOSER MARK KOPYTMAN, AND BILL KLINE (FOR HARMONIA MUNDI). KOPYTMAN (RIGHT) RECEIVES PLAQUE NAMING HIM AS A CORECIPIENT OF THE 1986 KIRA FROM HARRY HALBREICH. THE JURY ASSEMBLES FOR THE FINAL AWARDS CEREMONY (FROM LEFT: PÉREZ DE ARTEAGA, FANTAPIÉ, HARDEN, LIBBEY, HOFFMAN, HALBREICH, GREENFIELD, AND MICHOT). THE JURY AT WORK. THE JURY AT TANGLEWOOD WITH (CENTER) MAESTROS MICHAEL TILSON THOMAS AND SEIJI OZAWA AND PUBLISHER WILLIAM TYNAN. DISCUSSING THE FINE POINTS OF RECORDING WITH THOMAS.

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**A VOTE FOR "PARTIALLY DIGITAL" CDs**

DAVID RANADA IS RIGHT ON THE MARK WHEN he writes that "fully digital" Compact Discs are not necessarily better than those derived from analog master tapes ["Bits & Pieces," July]. In my eight months as a CD consumer, I've found that some of the best-sounding titles in my rapidly expanding collection are those taken from 1960s recordings by Ernest Ansermet and L'Orchestre de la Suisse Romande (especially the one with Falla's *Three-cornered Hat*) and Bruno Walter and the Columbia Symphony Orchestra. It's not just a matter of performance: Those old master tapes seem capable of yielding beautifully balanced and colorful orchestral sound when treated with appropriate respect and expertise.

**Arthur S. Leonard**  
New York, N.Y.

**EARLY PROJECTION TV**

YOUR TEST REPORT ON THE KLOSS NOVABEAM 100 front-projection monitor [July] asserts that Advent introduced the world's first home projection set (the Videobeam) in 1973—a claim that's repeated in the article on large-screen television in the same issue.

I beg to differ.

More than 30 years ago, both front- and rear-projection sets, with screens as large as 6 by 4 feet, were common in England. I owned one myself. They used essentially the same folded Schmidt optical system illustrated in your article, developed by Mullaard, with an ultrabright 2½-inch diameter tube and an aspherical correction lens molded in gelatin. Ingenious. They fell into disuse because of a growing concern over the possibility of soft X rays being generated by the CRT driven at 25,000 volts (necessary to get adequate screen brightness).

**Cyril Fleisher**  
Prospect Park, Pa.

**ON THE ART OF CRITICISM**

WHEN MY SUBSCRIPTION TO HIGH FIDELITY runs out, I often do not renew, largely because of what I detect to be a sick cast that hovers about some of the writing. A case in point is the review by Thomas L. Dixon in the August "CD Spread" wherein he takes Vladimir Horowitz to task for failing technique, lack of dignity, and "mawkishness" (whatever that means in this connection). Dixon pretends to know what is what, but he

simply does not! Every performance by Horowitz is different and stands alone. It is never an attempt to be definitive with respect to some cockamammy composition by some hallowed genius. It is meant to be piano music first, last, and always: "First of all, I play for the piano. . . ." Horowitz creates his own sound—and the sound on this CD is fine!

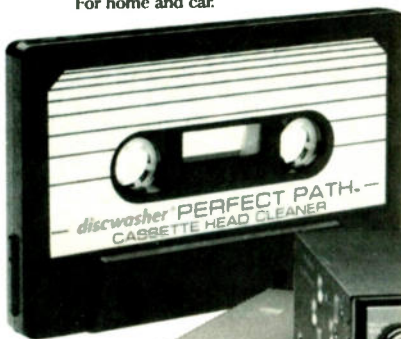
Let's face it: Most venerable piano music stinks. It is dull, tortured, technical-exercise stuff by any standard. Horowitz does more with it than most other pianists, however "technically" correct, facile, or pleasing it is to the conservatory piano-teaching crowd. The vague sneering displayed in this arrogant, obnoxious, and uninformative little review should have been detected by knowledgeable editors—if you have any!

**David T. Springs**  
San Diego, Calif.

*Classical Music Editor Theodore W. Libbey, Jr., replies: As the knowledgeable editor who didn't detect the vague sneering in Thomas L. Dixon's review, I must also confess that I didn't realize that most venerable piano music stinks. I can't help thinking that Dixon believes most of it is pretty good, which, I imagine, is why he found fault with these meretri-*

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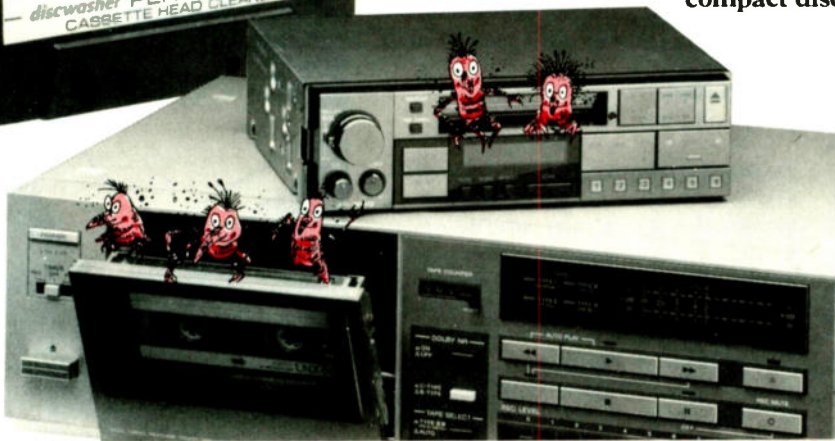
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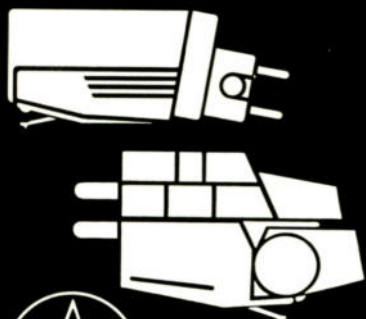
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*cius performances. The point is, it's important to have reviewers who care about the music and who have the honesty and courage—and it takes both when Horowitz is concerned—to hold a performer up to their standards, not his.*

IN HIS REVIEW OF MURRAY PERAHIA'S MOZART cycle [August], Thomas Hathaway implies that only performing musicians are qualified to evaluate each other's work. Unless such evaluation is merely technical, this belief is as absurd as holding that only butchers should judge whether a piece of meat is any good, or that only the top ten tennis players in the world can judge whether Boris Becker is better than Ivan Lendl. Exactly why can a reviewer not be more "seasoned" than a performer in evaluating interpretation? R. D. Darrell plainly knows more about 18th-century style than, say, Herbert von Karajan, Georg Solti, and Eugen Jochum combined, and I would seek his opinion of a new Mozart recording long before theirs.

As for James Levine's statement, quoted in support of a related point: As Nikolaus Harnoncourt, Christopher Hogwood, et al. have been proving in pre-Romantic music, there is more to "knowing" a piece than the

ability to write it out from memory—a dubiously valuable ability that could be learned by most critics. If, based on the proper criteria (knowledge of the score and contemporary style, etc.), critics may tell Levine that his interpretation is too fast or loud, then necessarily they may tell him that he doesn't "know the piece." Fortunately, as with Leonard Bernstein, Levine's conducting is better than his philosophizing.

The main problem with reviews is an emphasis on evaluation at the expense of objective description—fortunately less of a problem with HIGH FIDELITY than with a certain rival. Unless one is able to discover that one employs the same standards as the reviewer, it is quite useless to be informed that performance "X" is sublime, unsatisfactory, the best since Toscanini, or whatever. Terry Teachout's review of the latest installment of the Malcolm Bilson/Sergiu Luca Mozart sonata cycle tells us only that the sound is "poorly balanced" (meaning what? violin too loud?) and the playing "generally charmless . . . dour and uningratiating." I find them the exact opposite, but had I written that in a review without saying more, it would have been equally useless. In pre-Romantic music, for example, we need to be told such information as whether there is an attempt at contemporary style, whether ornamentation is added, how much vibrato is used, whether the horns have a brassy burr or are blended with the woodwinds, whether the timpani are struck with wooden beaters, how tempos compare with rivals, and so on. Only then are opinions interesting.

One final point: R. D. Darrell's observation in his review of six Haydn symphonies that "Derek Solomons's players are by no means as skilled as Christopher Hogwood's . . . [or] Trevor Pinnock's" is puzzling. As the sets in the series reveal, most of Solomons's string players and *all* of his wind/brass/timpani players are shared by all the various London-based "authentic" orchestras; Hogwood's, John Eliot Gardiner's, Andrew Parrott's, etc. Thus, there must be some other explanation for the perceived lack of skill.

**Simon Roberts**  
Jacksonville, Ill.

*Theodore W. Labbey, Jr., replies: It is up to each of us to discover whether we share the standards of a certain reviewer or not. That is part of the responsibility, and joy, of reading, or of any form of communication. Learning through experience what a reviewer's biases happen to be is important—and there is no such thing as an unbiased reviewer (or an unbiased listener, for that matter).*

*As for Terry Teachout's comments on the Bilson/Luca recording, the things you would like to see written about go beyond the scope of a brief review, which is what I asked Teachout to write. Also, I*

*doubt very much that you or any listener could tell, simply by listening to this tape, what specific kind of bow Luca used in these accounts: Was it a transitional pre-Tourte type, like the Cramer, or a Tourte, or a modern bow? If you think I'm splitting hairs, I'm only applying your comment about timpani sticks to the present case—and the sound of each type of bow is quite different, as Luca himself once proved to me.*

*Your point about the London early music bands all drawing on the same reservoir of talent is quite accurate, and I would have to agree with your conclusion as well. In fact, an upcoming feature will explore this issue in detail.*

*One last point: I have nothing but admiration for R. D. Darrell's knowledge of 18th-century style, but I would be reluctant to cast aspersions on the conductors you name, especially maestros Solti and Jochum, who have taken the trouble to learn a great deal about the style. Jochum, it may surprise you to know, led an entire concert devoted to the music of Orlando di Lasso (1532–1594) in Munich four years ago to mark the 450th anniversary of the composer's birth. Not every old-school maestro is capable of that!*

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

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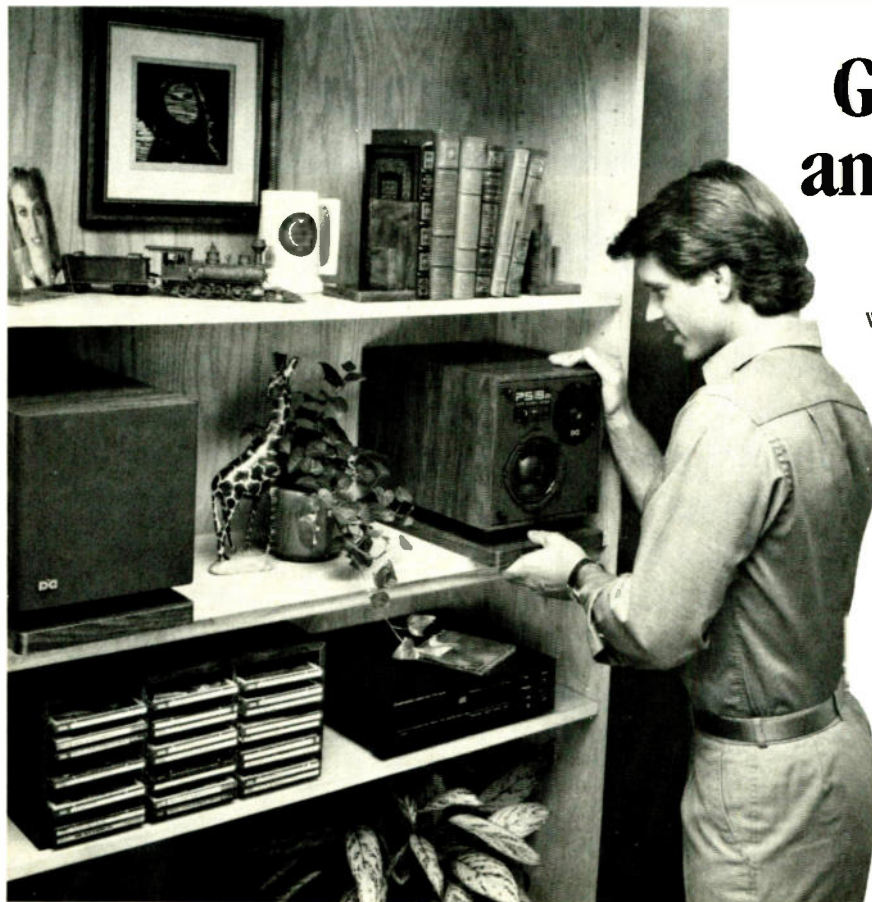


*This month's featured products, the B&W Matrix loudspeakers, enter the competition for the High Fidelity Product of the Year Awards.*

# Cabinet Vibration Quashed!

LOUDSPEAKER-ENCLOSURE VIBRATION IS AN ancient audio bugaboo. The air surrounding a vibrating driver is not the only thing that moves in response to the music: So does the speaker cabinet. Measurements made by B&W Loudspeakers indicate that an enclosure built in the traditional way (with little or no internal bracing) and using conventional materials (such as particleboard) can itself be stimulated to vibrate at an amplitude only 36 dB below that of the speaker's own bass or midrange drivers. Even such exotic cabinet materials as Aerolam (an aluminum honeycomb) and concrete do not perform much better. In addition to spurious sound emission, speaker cabinets can also ring, generat-

(CONTINUED ON PAGE 16)



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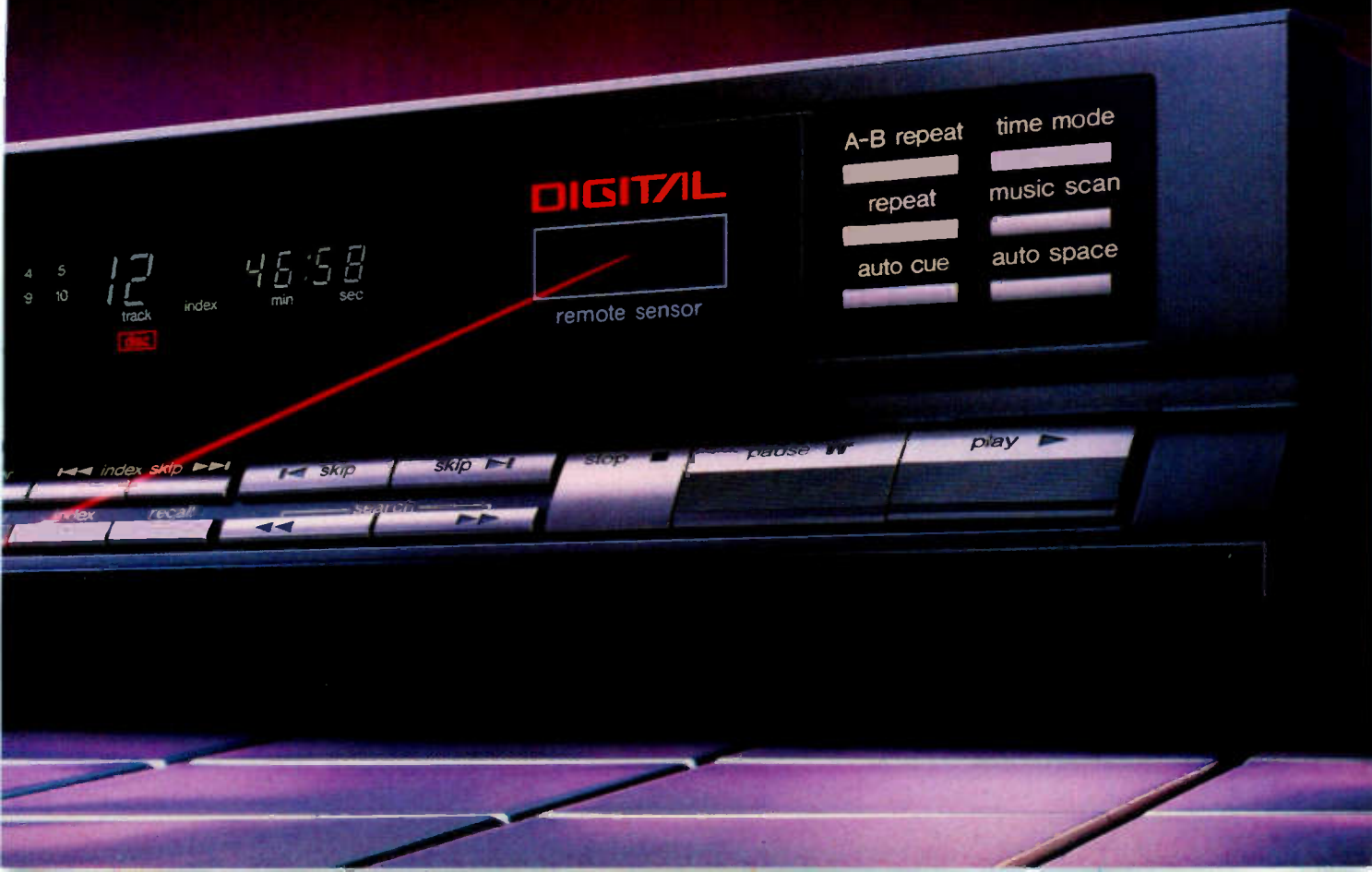
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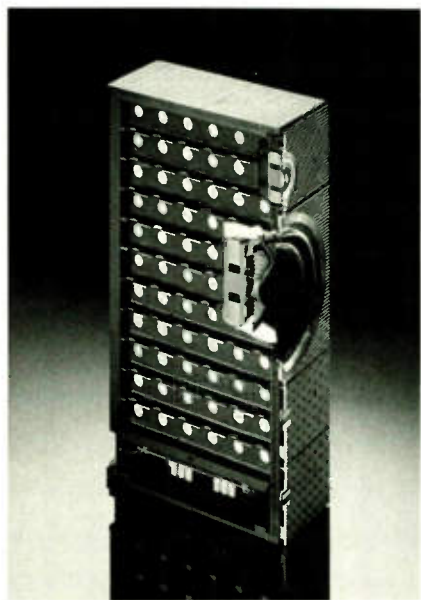
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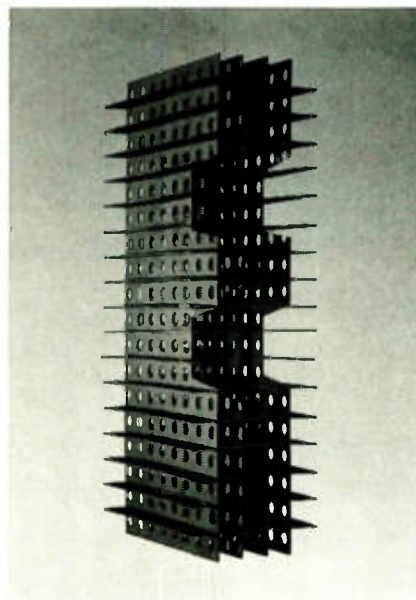




B&W'S MATRIX CONSTRUCTION ADDRESSES THE UNIVERSAL PROBLEM OF SPEAKER CABINET VIBRATION.

expensive, difficult to manufacture, and not all that effective.

B&W calls its ingenious and elegant solution the Matrix construction. It is a "cellular, honeycomb-like structure comprising a series of interlocking, perforated cross-members" that fit into grooves cut into the inside of the speaker cabinet, essentially cross-bracing the entire internal volume (see photograph). The material used for the bracing is said to have "relatively high damping qualities" and a high degree of stiffness when assembled. Acoustic foam fills the Matrix interstices, both to absorb the back wave of the diaphragm and to further damp the cabinet's own standing waves and resonances. Response traces provided by B&W show that the construction reduces cabinet vibration by more than 20 dB in certain frequency regions (depending on the type of cabinet material and construction under comparison). Cabinet vibration-decay time also is decreased by the Matrix construction compared with particleboard and concrete enclosures.



CROSS-MEMBERS FIT INTO GROOVES CUT INSIDE THE CABINET AND ARE FILLED WITH ACOUSTIC FOAM.

(CONTINUED FROM PAGE 12) ing sound for a period after the drivers they contain have stopped. Attempted solutions to both of these problems have usually been

The technology is used in three new B&W loudspeakers appropriately called, in order of increasing size, the Matrix 1, 2, and 3. All have bass (and bass/midrange, in the case of the three-way Matrix 3) drivers made

of "homopolymer polypropylene," which the company says is stiffer and less prone to low-frequency breakup than the more common copolymer form of polypropylene. In a

Sony just extended the range of





further effort to combat spurious vibrations, these drivers have their chassis and front plates cast in one piece from a magnesium alloy. The casting's rear-surface channels and cross-members are filled with a high-density polyurethane elastomer, resulting in a rigid structure with high acoustical damping. Also damped with elastomer are the back panels of the 1-inch ferrofluid-cooled polyamide-dome tweeters used in the series.

Instead of using stepped cabinets or offset drivers to obtain a time-aligned response, the appropriate delays are instituted in the speakers' crossovers. The crossovers have also been designed to have a relatively flat and resistive impedance of 4.5 ohms. Protection from excessive levels is provided by a tweeter-disconnecting circuit: "Loss of high-frequency output alerts the user that input power should be reduced," says B&W.

The Matrix 1, 2, and 3 have system resonance ratings of 60, 51, and 43 Hz, respectively, and sensitivity ratings of 85, 87, and 90 dB SPL (sound pressure level) with an input equivalent to 1 watt into 8 ohms. The Matrix 1 has one 6-inch woofer, and the Matrix 2 contains an 8-inch woofer; the separate bass and bass/midrange drivers of the Matrix 3 each measure 8 inches.

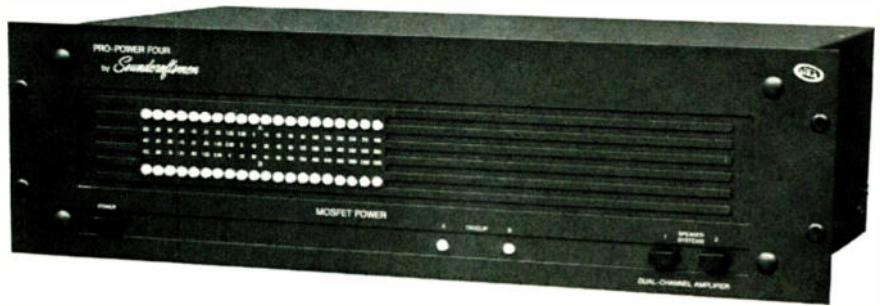
All three loudspeakers are available in

real-wood veneers of walnut, black ash, or rosewood. Available on special order is a high-gloss lacquered finish in a choice of colors. The Matrix 1 measures 16 by 9 by 12½ inches and is priced at \$495 per pair in walnut or black ash, \$699 per pair in rosewood. Dimensions of the Matrix 2 are 23½ by 10¼ by 12½ inches, and it sells for \$695 per pair (\$899 in rosewood). The Matrix 3, measuring 35¼ by 10¼ by 16 inches, costs \$995 per pair (\$1,399 in rosewood). Stands for the Matrix 1 and 2 are \$199 and \$229 per pair, respectively. For additional information, contact B&W Loudspeakers, P.O. Box 653, Buffalo, N.Y. 14240.

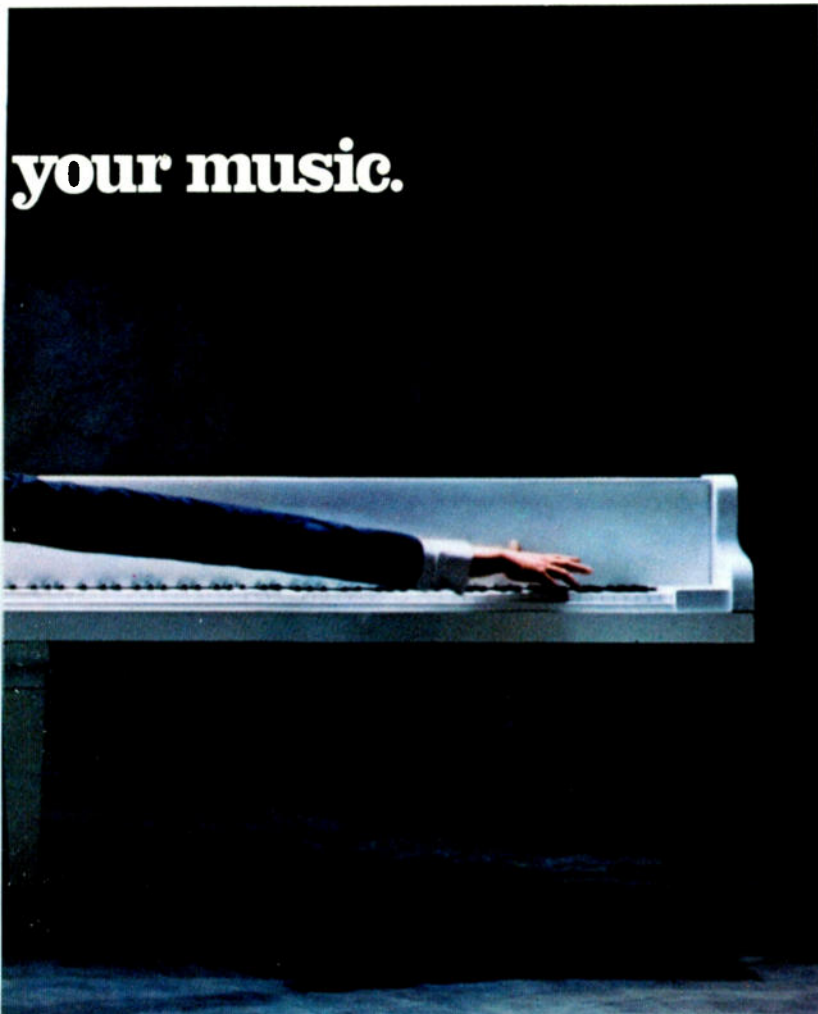
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(CONTINUED ON PAGE 22)



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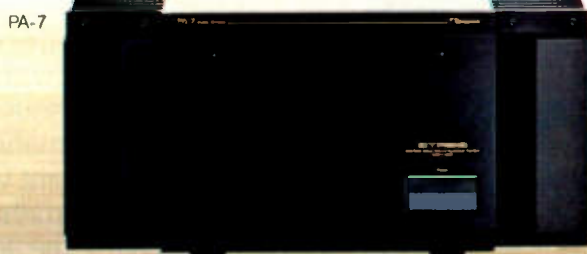
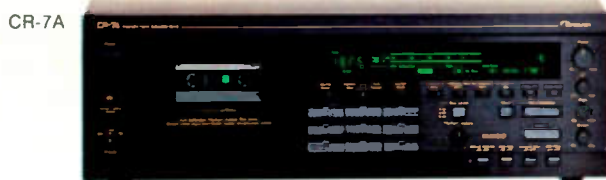






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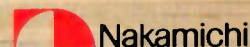
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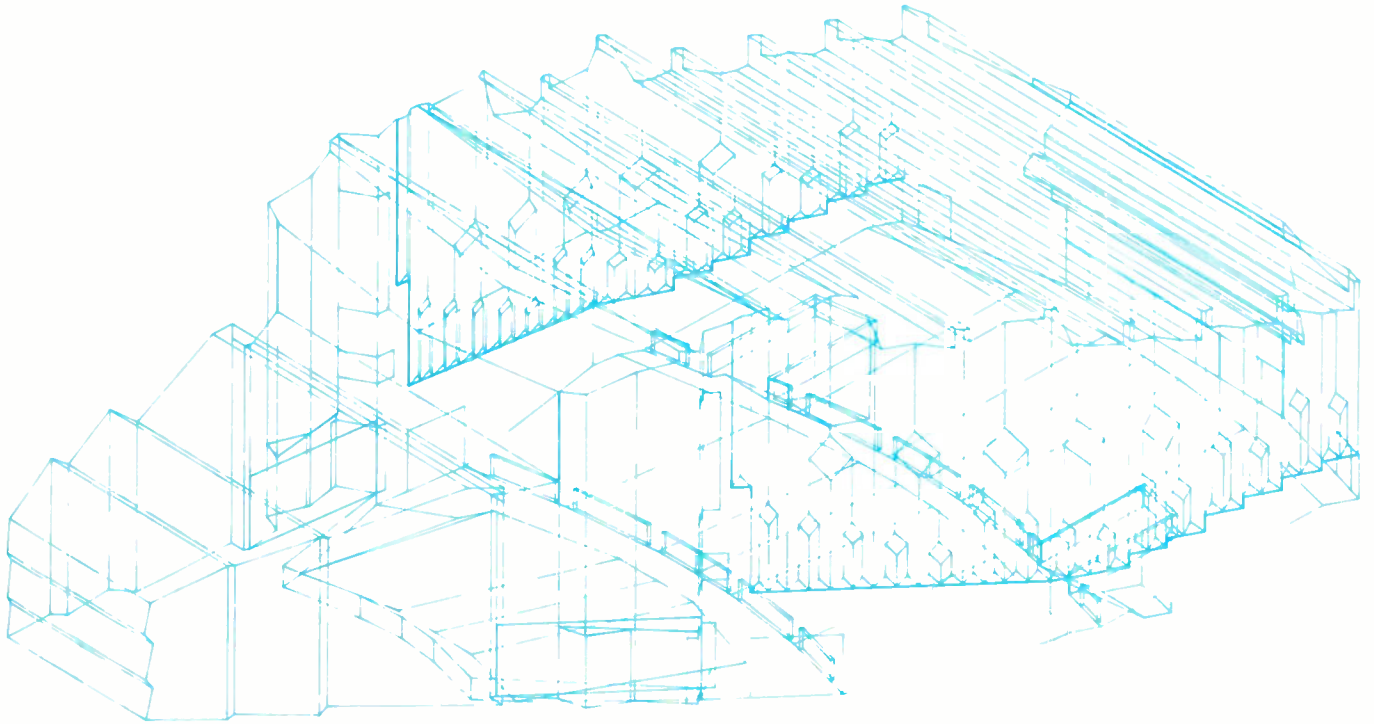
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These include room size, liveness, initial delay time, high pass filter cutoff, low pass filter cutoff and reverberation time.

After modifying a program, you can then give it a name, and store it in one of the DSP-1's 16 user memories.

In addition, there are 16 sound effector programs built in, such as time-delay, stereo flange, tremolo, chorus, pitch change and auto panning. So the DSP-1 can also be used effectively as a musical instruments effects device.

All sound field modes and parameters are controlled from the palm of your hand, since the DSP-1 is operated by a 30-key wireless remote control. This allows you to select the performance environment and adjust parameters—even program them into memory—without sacrificing the perspective of your listening position.

Its large backlit LCD confirms all mode selections and parameter readings as you make them. The remote control also lets you adjust the effect level and front/rear balance, and even give titles to those new modes you program.

The full benefits of Yamaha sound field synthesis is best experienced with four speakers which are powered by the new Yamaha 4-channel M-35B power amplifier, in addition to the front stereo speaker pair, driven by your existing amplifier.

If desired, however, the front left and front right output may be combined with the existing main-channel speakers.

For our thorough White Paper on Yamaha digital sound field synthesis, please write us at the address shown below.

But mere words can never hope to convey the magnitude of this accomplishment. Visit an authorized Yamaha dealer today for a complete demonstration. And discover why stereo alone is now as outdated as living in a castle.

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



# concert hall, jazz club, and theater.

(CONTINUED FROM PAGE 17) mature clipping). Soundcraftsman has engineered the Pro Power Four with enough reserve power to operate without fault even under such conditions. Individual channel clipping indicators, calibrated LED output meters, and switches for two pairs of speakers are included on the front panel. Price is \$699. Write Soundcraftsmen, Inc., 2200 S. Ritchey St., Santa Ana, Calif. 92705.

### JENSEN CD ADAPTER

THE J-1470 ADAPTER KIT FROM JENSEN simplifies connection of a portable Compact Disc player to car stereo units with back-panel CD or auxiliary audio inputs, such as Jensen's own JXL-45 and JXL-55 in-dash models. For players that operate on nine volts, the J-1470 can supply power through the same connection; other models will require a separate power connection through an ap-

propriate cigarette-lighter adapter. Jensen says the device, priced at \$20, can be quickly mounted under the dash and its connector positioned within easy reach. Details are available from International Jensen, Inc., 4136 N. United Parkway, Schiller Park, Ill. 60176.

### ILLBRUCK'S ACOUSTIC SHEETS



A VERSION OF ILLBRUCK'S PROFESSIONAL acoustic foam is now available for use at home. The rectangular sheets, called Sonex Prophiles, can help eliminate various acoustic faults within a listening room. Illbruck says that problems such as slap echo, standing waves, and high ambient room noise can be quelled by the Prophiles' anechoic wedge design and open-celled urethane-foam construction. They are packaged four sheets to a box, each sheet measuring 12 by 40 by 3 inches, for a total coverage of 13.3 square feet. Each box sells for \$90. Additional information can be obtained by writing Illbruck, 3800 Washington Ave. North, Minneapolis, Minn. 55412.

### MARANTZ FRONT END

THE CAR-750 FRONT END FROM MARANTZ includes a convenient front-panel jack for direct connection of a portable Compact Disc player's audio output. A digital tuner with six AM and six FM presets and an autoreverse cassette deck with Dolby B noise reduction feed a built-in amplifier rated at 20 watts (13 dBW) per channel into 4 ohms.



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Among other features are tape music search, separate bass and treble controls, and a preamp output. The CAR-750 costs \$300. For \$100 less, the unidirectional CAR-500 offers a 5½-watt (7½-dBW) amplifier and a preamp output. And the "leader model" CAR-335 (\$150) has an analog tuner section and is said to deliver 4 watts (6 dBW) per channel. It, too, has a preamp output. All three models can be connected to the SA-402 power amplifier (\$100), which provides both high- and low-level inputs and has remote on/off switching. It is rated at 30 watts (14¼ dBW) per channel. Contact Marantz

Company, Inc., 20525 Nordhoff St., Chatsworth, Calif. 91311.

**BABY LINN TURNTABLE**

THE LINN AXIS TURNTABLE IS DESCRIBED BY ITS manufacturer as the son of the highly regarded (and considerably more costly) Linn Sondek LP-12. Among the new model's distinguishing features are a motor driven by two low-distortion Class A power amplifiers—complete with heatsink! Linn says the phase and amplitude of the drive signals have been carefully adjusted for precise con-

trol of the motor, resulting in reduced motor noise. Once the correct platter speed has been reached, a "smart" drive controller provides only the voltage necessary to maintain that speed, a process that is said to further reduce motor noise. A self-centering independent suspension system for the platter and tonearm assemblies provides shock isolation, and a leveling adjustment is included for calibration of tonearms other than the Linn Basik LVX (a medium-mass model with a removable headshell and a premounted cartridge). Mechanical parts are said to be machined to the same tolerances as those

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because  
it's not a 9-to-5.**

employed in the LP-12, with cost savings derived from the use of lighter materials (such as aluminum for the platter) and larger production quantities. Prices: \$425 for the turntable alone, \$575 with the Basik IXX tone-arm. For more information, contact Audiophile Systems, Ltd., 8709 Castle Park Dr., Indianapolis, Ind. 46256.

## ANGSTROM CD CASE



NEW FROM ANGSTROM IS A COMPACT DISC CASE with a hinged bottom that presents each CD edge-up for easy removal. The CD Safe-T-Case is 35 percent thinner than the standard jewel-box design and has a grooved bottom so that dust and particles settle away from the disc. A three-pack has a price of \$4.95. Also available are CD sleeves made of a non-abrasive antistatic polymer to protect against fingerprints, dust, and scratches. Price is \$9.95 for a pack of 25. Both products are available through Angstrom Associates (U.S.A.), Inc., 210 8th St., Lewiston, N.Y. 14092.

## BOSTON ACOUSTICS FLUSH-MOUNT SPEAKER



THE MODEL 360, A TWO-WAY LOUDSPEAKER designed by Boston Acoustics, is intended

for flush installation in the walls or ceilings of rooms where conventional speaker cabinets are undesirable or inappropriate. Mounting depth is a scant 3 inches. Full-range performance is provided by a 6½-inch long-throw woofer and a 1-inch soft-dome tweeter. The 360 can also serve as a back-channel speaker system in a surround-sound setup. Finish is mat white and can be painted to match the surrounding decor. Measuring 11¾ by 8½ by 3 inches, the 360 is priced at \$400 per pair. For more information, contact Boston Acoustics, Inc., 247 Lynnfield St., Peabody, Mass. 01960.

## VIDTECH STEREO-TV/CABLE CONVERTER



VIDTECH HAS INTRODUCED A LINE OF REMOTE-control cable converters that can supplant an existing TV tuner or be used in conjunction with a computer monitor. The top-of-the-line RS-2001 (called F.I.R.S.T., for First Installable Remote Stereo-TV decoder) is a 139-channel tuner that can decode MTS/SAP broadcasts. Multiple antenna terminals permit connection of and switching between cable and a VHF/UHF antenna, so if the cable system goes down, you can still catch the *M\*A\*S\*H* or *Star Trek* reruns. Audio outputs are provided to feed the sound to a stereo system or a pair of amplified loudspeakers. A switched AC outlet on the back panel allows a connected TV to be turned on and off by the remote; a sleep timer can also be activated from the remote. The RS-2001, at \$220, comes ready to install; similar models with fewer features range from \$80 to \$180. Details are available from Vidtech, Inc., 350 Fifth Ave., Suite 6707, New York, N.Y. 10118.

## MINOLTA VHS HQ CAMCORDER

EXPANDING ITS LINE OF VIDEO PRODUCTS, Minolta has introduced the CR-1200S AF, a full-size VHS HQ autofocus camcorder. Weighing in at just 5½ pounds (without bat-

tery), it is built around a newly developed MOS solid-state image sensor that divides images into four, rather than three, color components, which is said to give better reproduction of green and flesh tones. Minolta also claims that this new sensor greatly reduces blooming that occurs around vertical lines in an image. The f/1.2 6X power zoom lens (with macro capability) has three focusing modes: full autofocus, manual, and one-shot autofocus (which returns to manual after one shot). A 52mm filter thread is used for compatibility with other Minolta lenses. The picture can be monitored through an adjustable ⅜-inch monochrome electronic viewfinder that also displays status information for the shooter. Minimum illumination is given as 7 lux, which is as low as that

for most tube-based camcorders (including Minolta's own CR-1100S AF, discussed in June's "Currents").

To complement its upgraded image pickup, the CR-1200S AF includes HQ circuitry to improve overall sharpness of the recorded picture. (Minolta uses two of the four available HQ processes: white clip extension and detail enhancement.) During camera operation, sound is recorded using either the built-in unidirectional microphone or an external mike of the user's choice. The unit records and plays back only at the fastest speed (SP) and can accept an external source and play back prerecorded tapes.

The Minolta Movie CR-1200S AF comes





with a two-hour battery and recharger, an audio-video input adapter, a carrying handle, a shoulder strap, and RF and RCA connecting cables. Price is \$2,085. More details are available from Minolta Corp., 101 Williams Dr., Ramsey, N.J. 07446.

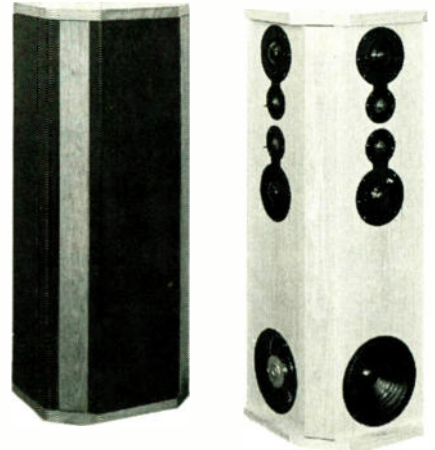
**ALLISON GOES ONE BETTER**

THE ALLISON ACOUSTICS MODEL 10 IS A NEW top-of-the-line floor-standing acoustic suspension loudspeaker system continuing what the company calls its "room matched" design philosophy. Each speaker enclosure is a three-sided column that stands near one wall of the listening room. Each of the opposed faces has a 10-inch woofer at the bottom and an array of closely spaced drivers aligned vertically near the top (in order:

midrange, tweeter, tweeter, midrange). The woofer pairs are arranged in a push-pull configuration with one facing inward and are wired to work in synchrony to virtually eliminate even-order distortion products. The arrangement of the higher-frequency drivers is said to reduce floor and ceiling reflections without limiting horizontal dispersion.

A unique and practical feature of this loudspeaker is an "image control" that adjusts the output level of each array, operated via an infrared remote control. Fine tuning of the stereo image is said to be possible from any listening position, while total radiated output power from each speaker remains constant.

A pair of Model 10s costs \$4,500. For more information, contact Allison Acous-



tics, Inc., 7 Tech Circle, Natick, Mass. 01760. (CONTINUED ON PAGE 26)

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a "bass optimizer" bridge design. For the deepest, richest bass you could possibly imagine.

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**SENNHEISER WIRELESS HEADPHONES**

LIKE WIRELESS MICROPHONES, WIRELESS headphones usually are found in professional venues, such as recording studios and theaters. Sennheiser, however, has designed its new SI/HDI 234 wireless stereo headphones for home use. The transmitter section can connect to an audio or video system and incorporates the company's Hi-Dyn circuitry, which is said to provide a better signal-to-noise ratio than other wireless systems. Individual left and right volume controls, as well as stereo and mono mode switching, are contained in the headphone assembly. Prices: \$260 for the SI-234 transmitter, \$221 for the HDI-234 headphones. Write Sennheiser Electronic Corp., 48 W. 38th St., New York, N.Y. 10018.



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**POLK'S NEW SDAs**

POLK AUDIO HAS ISSUED TWO THIRD-generation SDA models that incorporate many of the improvements developed for the SDA Signature Edition models, including the flagship SDA-SRS. The SDA-2A, which replaces the SDA-2 (introduced in 1983), contains a 12-inch planar passive radiator, two 6½-inch trillaminate-polymer woofers, and a 1-inch polyamide-dome tweeter. A phase-compensated driver alignment is said to result in improved imaging as well as lower coloration, smoother high-frequency response, and a more coherent mid-range. The new model's price has been lowered to \$998 per pair.

The stand- or shelf-mount SDA-CRS+ replaces the SDA-CRS (introduced in 1984) and contains the same active drivers as those in the SDA-2A, but it uses a 10-inch passive radiator mounted at the rear of the cabinet. Price is \$890 per pair. For more information on both new models, contact Polk Audio, Inc., 5601 Metro Drive, Baltimore, Md. 21215.



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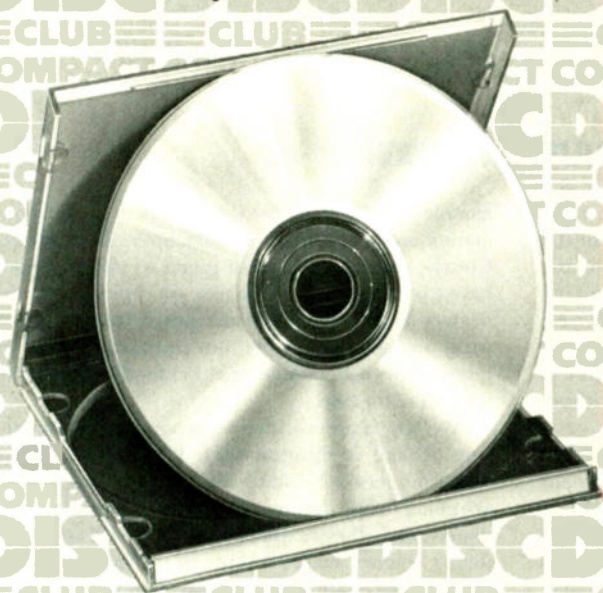
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## RELIABILITY AND SERVICE

EVERY ONCE IN A WHILE WE GET A LETTER THAT lambastes us for not rating the reliability of the products we test. Usually this criticism is accompanied by a tale of frustration that makes the writer's anger all too understandable. A product that we reviewed favorably fails (usually right out of the box), and the poor soul who bought it spends months trying to get it repaired or replaced. I can sympathize, because it's happened to me.

Unfortunately, there's not much we can do about the situation. For example, suppose we get an amplifier in for testing, only to discover that one channel is dead. What does that mean? That the manufacturer makes shoddy, unreliable merchandise? That this particular product in its line is failure-prone? Or that, by the luck of the draw, we happened to get the one bum sample out of a five-figure inventory? We have no way of telling. All we know is that the company probably didn't honor our request that it check the unit out before shipping. Otherwise, it would have found the problem and pulled another sample.

Surprised? Well, it's true: Most of the equipment we review arrives on our doorstep factory-sealed, not having seen the business end of a test probe since it left Osaka, Taipei, or wherever it got put together and checked for quality control. The typical test sample thus is a far cry from the hand-selected, tricked-up, one-of-a-kind wonder that people sometimes think is the staple of our laboratory diet.

And we wouldn't want it any other way. What we would like is for manufacturers to give every component they send to us a last look before it goes out the door to make sure that it is working the way it is supposed to. If it isn't, chances are very, very good that it is defective and therefore just as unrepresentative as a specially tweaked unit would be. The worst part for us is that we may waste a good bit of time on the beast before stumbling on the fatal flaw. When we do hit a snag, we first try to assess whether it is a design flaw (and therefore inherent) or a defect. If we decide the latter, the manufacturer gets the option of submitting a second sample or forgetting the whole thing. Whatever the second sample does is what goes in the magazine. You would think that all such second shots would get a thorough going over before coming to us, but our experience has been that this is not always the case.

That final prereview checks aren't more common is perhaps something of a tribute to the overall reliability of today's gear, particularly in light of how sophisticated and complex it can be. (Open up a videocassette recorder and take a look at what's going on inside—then try to figure out how come you can buy one for just a few hundred dollars.) Or it may, in some cases, be nothing more than evidence that someone is asleep at the switch.

Anyway, the main point is that the testing we do doesn't give us the kind of information we'd need to assess reliability. Even if a sample poops out on us, it's more likely a fluke than a tip-off of some deeper

trouble. The only people with access to good information on reliability are manufacturers and dealers. Clearly, the former are not going to tell us if they have a problem, and by the time we could survey the dealers (a difficult and chancy proposition to begin with) and get the results into print, the model in question probably would be either modified or on its way out of the line.

We can, however, give you some advice on getting broken components fixed. One good thing about modern solid-state electronics is that if they are going to fail, they usually will do so almost immediately, while they're still under warranty. If an amplifier or receiver makes it through the first couple of weeks, chances are it will give you many years of trouble-free performance. Products with mechanical elements—such as turntables, tape decks, Compact Disc players, and VCRs—will eventually require some sort of maintenance, but it may amount to as little as lubrication and a new drive belt.

In most cases, your best bet is a service facility operated by the product's manufacturer. The technicians are more likely to have worked on your model before, and if it has any characteristic failure modes, they probably will know what they are. This increases the likelihood of a correct diagnosis and should speed up the repair process. Another plus is the greater probability that the shop will have the necessary parts. This is particularly important for Japanese equipment, which sometimes incorporates parts that are proprietary or not widely distributed in the U.S. Even so, you may encounter long delays as the shop waits for some vital but out-of-stock item to make its way across the high seas.

The second choice usually is an independent factory-authorized repair center (possibly the dealer from whom you bought the component). It should have the necessary service manuals and a selection of parts that will cover at least the most common problems. And it probably will have had at least some experience with the model you own. There's even a chance that the technicians have received training from the manufacturer.

If the item you are seeking to have repaired is out of warranty, you should get an estimate before proceeding. Service work can cost \$50 an hour or more, plus parts. Fixing a complex piece of equipment may take a long time, especially if the fault is intermittent (in which case the cause could be difficult to track down). You can easily find yourself spending more to get something repaired than it would cost to buy an equivalent or superior replacement. Many shops charge a fee for estimates, so if the product is inexpensive, you may well be better off not even trying.

Finally, before you run to a repair depot of any kind, make sure that you really have a problem. Something as simple as a blown fuse or a loose signal cable may be at the root of an apparent failure. Paying \$50 to hear that you should plug the thing in pains the ego as well as the pocket. ■



# BEYOND CONVENTIONAL AUDIO



## THE ONKYO INTEGRA DX-320 WITH OPTO-COUPLING THE SOUND IS NO ILLUSION

The Integra DX-320 Compact Disc player is the first of ONKYO's new generation of CD players to incorporate our unique Opto-Coupling digital signal processing system. Conventional CD players transmit digital data internally via printed circuit board wiring, which interacts with analog audio signals to produce Digital Signal Interference (DSI), resulting in an audible "harshness" in the music.

Specially designed high speed Opto-Coupling modules in the DX-320 transfer the digital audio and other data signals to the analog output stage via fiber optics, preventing DSI. The result is noise-free, life-like reproduction with none of the harsh sound characteristics often attributed to other CD players. This remarkable new technology can only be found in the ONKYO DX-320.

Double oversampling and digital filtering greatly improve phase and harmonic accuracy. A fully programmable wireless remote control includes memory selection, phrase capability, and indexing for maximum convenience.

Our unique transport design incorporates ONKYO's exclusive Poly-Sorb, a rubber-like compound that improves isolation by absorbing extraneous vibrations, eliminating skipping and mistracking.

The Integra DX-320 Compact Disc player fulfills the promise of digital audio, with sound quality that's as close to the original as anything you've ever heard. Audition the DX-320 at your authorized ONKYO dealer today.

*Artistry In Sound*  
**ONKYO**

200 Williams Drive, Ramsey, N.J. 07446

**SCRATCH-PROOF COMPACT DISCS?**

NOT LONG AGO I READ AN AD FOR A COMPACT Disc cleaner that claimed that scratches on the surface of a CD can distort the sound. Is this true? I thought CDs were scratch-proof and that digital sound was distortion-proof.

**Emilia Tejada**

Middle Village, N.Y.

Compact Discs are much more scratch-resistant than LPs, but they are not totally immune. If a disc is too dirty or scratched, the laser pickup will have trouble reading it properly, which will cause clicks, noise bursts, or muting.

**TRACKING TROUBLES**

I AM USING A SHURE V-15 TYPE V-MR PHONO cartridge in a well-maintained Dual 1229 turntable. Of the seven pickups I have used in this system, the Shure delivers the best frequency response and tracking. Nonetheless, it will not play a significant portion of my LP collection. This is puzzling, since it tracks the company's test record adequately. The problem seems to be with signals between 3 and 10 kHz recorded at very high levels. The static produced when playing Band 12 of the B&K 2010 test record wors-

ens with each playing. Is there a cartridge that will play my records without distortion?

**Edward F. Pickering**

Los Angeles, Calif.

We're very surprised that you're having such a problem: We've never encountered a commercial record that the Type V couldn't track (though Shure, apparently, has found a few). If the troublesome records are ones you've had for some time, it may be that you're hearing the damage done by previous pickups' tracking failures. It's this sort of groove demolition that you're hearing build up on your test disc. Otherwise, the most likely culprit is a setup error. Check the tracking force with a good external gauge, such as Shure's SFG-1. Also, listen to see whether the distortion is predominantly in one channel or the other. You can do this by playing the offending passages first with the balance control all the way to one side, then all the way to the other. If it is coming mostly from one channel, the antiskating probably is misadjusted. Many turntables apply too much compensation if you follow the manufacturers' instructions. You may find that backing off a bit on the control will reduce or eliminate the distortion (at least on new, undamaged records).

If that doesn't help and the stylus is in good

shape, the tonearm emerges as the prime suspect. Unfortunately, the only way to test this hypothesis is to install the cartridge in another good tonearm and see whether the problem persists. If it doesn't, we can only conclude that you have an unusually demanding record collection, in which case you may be stuck, for we don't know of any cartridge that tracks better than the Type V. One potential solution is the Finial Laser Turntable, when and if it comes to market. The tip mass of a beam of light is pretty low, and the compliance is essentially infinite, so it should be very hard indeed to induce mis-tracking in such a device!

**CLEAN BACK CHANNELS**

I LOVE REAR AMBIENCE SOUND. I OWN A SANSUI QRX-80001 with surround sound and a Carver C-4000 preamplifier. By A/B testing with the same speakers in front and back, I have easily determined that the sound quality from the back channels leaves a lot to be desired. Is there any other system or brand that will deliver equal quality front and rear?

**Bernard Bank**

Yonkers, N.Y.

That depends on what you find objectionable about the sound from the back channels. The new

# RECOMMENDED FOR THOSE

To record at **high** levels you need the right tape. We recommend three. Maxell's new MX and XL-S high-performance tapes deliver just what you need for today's digital music. Great



digital surround-sound processors, such as the Sony SDP-505ES and the Yamaha DSP-1 (see September's test reports), add less noise and distortion to their back-channel outputs than do typical analog models. On the other hand, almost all surround units introduce a high-frequency rolloff in the back, which usually is desirable. It's not really fair to compare the front and back channels in a surround-sound system, because they have different functions. You must judge a system as a whole. In other words, if you're not hearing noise or distortion or balance problems in normal listening, don't go looking for them.

#### CD PLAYING TIME

SINCE A COMPACT DISC CAN HAVE AS MANY AS 99 individual tracks, why are double-length albums, such as Bruce Springsteen's *The River*, produced on two CDs instead of combined onto one?

**Jim Arendt**  
Geneseo, N.Y.

One reason is that CDs are limited to a total playing time of about 72 minutes. You can squeeze 99 tracks onto one only if almost all of the tracks are less than a minute long. Also, you'll notice that very few CDs run more than 60 minutes, and many

contain 40 minutes or less of music. The longer a CD is, the closer the music approaches the edge of the disc and, therefore, the more difficult it can be to make without defects. Consequently, the rejection rate for very long CDs often is greater than it is for ones boasting more modest playing times. Until the manufacturing technology improves, record companies will be reluctant to push the medium to its full capacity.

#### FOUR AGAINST TWO

AREN'T FOUR VIDEO HEADS ALWAYS BETTER than two? As I understand it, a well-designed four-head VCR has two wide-gap heads optimized for the high speed (SP or Beta II) and two narrow-gap heads tweaked for the slow speed (EP or Beta III). In a two-head machine, however, the gap width has to be a compromise between the two, which degrades image quality. My father and I have virtually identical Panasonic and Magnavox videocassette recorders (both made by Matsushita), except that the Panasonic has four heads and the Magnavox has only two. The Panasonic clearly gives a higher-quality picture.

**Harley W. Lond**  
Hollywood, Calif.

A four-head VCR with head pairs individually optimized for high- and low-speed recording usually will outperform a two-head deck. But these days, most machines use the extra heads strictly for special effects. In other words, you're getting the equivalent of a two-head deck with terrific freeze frame—not always, but usually. Also, it's dangerous to assume that any difference in picture quality is related solely to the heads. Two machines may look identical and still use somewhat different electronics, for example.

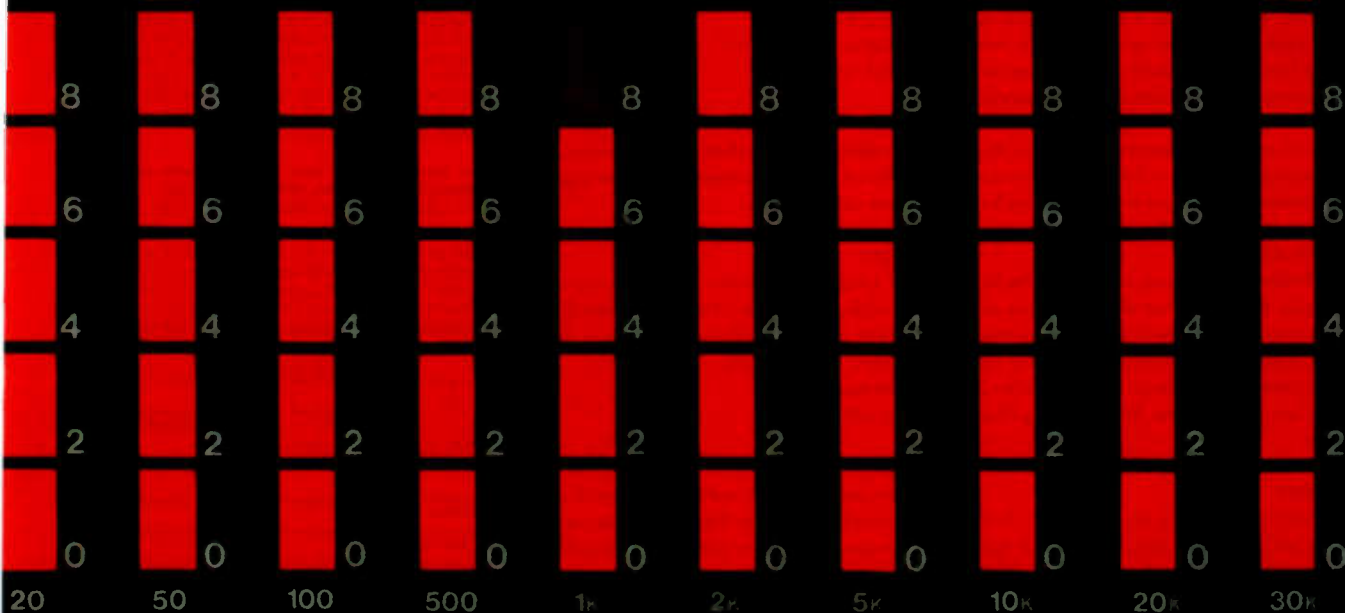
#### ONE OR BOTH?

I CURRENTLY AM USING A HEATHKIT AV-1510 tuner with a JBL SA-660 amp. As you can tell, both units have a few years behind them. The tuner has been acting up lately, so I am thinking about replacing it. But will the amplifier do justice to a modern, state-of-the-art tuner such as the NAD 4155, or would I be wiser to replace both components?

**Gene Chmura**  
Lisle, Ill.

We think that you will appreciate the new tuner even if you stick with your present amp. But it is, as you say, getting rather long in the tooth. Provided you select a well-made, high-performance replace-

## WITHOUT A FEAR OF HEIGHTS.



frequency response. Signal-to-noise ratios of extreme clarity. And MOLs engineered to knock you on your ear. Use Maxell MX and XL-S tapes the next time you're recording high-energy sources. Anything else just comes up short.

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The perfect response to digital technology.

ment, a new amp should prove a worthwhile investment.

#### PREAMP COMPARISON

RECENTLY A FRIEND BOUGHT AN APT HOLMAN preamplifier to replace his Harman Kardon Citation 11. Before he disconnected the Citation, I asked him to play a record. As soon as the Apt was in place, he played the same record again, and I could not hear any difference. Later I tried a similar comparison, between the Citation driving a 150-watt power amp and a late-model 40-watt Akai receiver, and found that the Akai sounded just as good, if not better, provided it was not over-driven. Are these reasonable results, or am I missing something?

Salvatore Randazzo  
Lindenhurst, N.Y.

They're quite reasonable—exactly what we would expect, as a matter of fact. When preamplifiers do sound different from one another, it usually is because of a difference in frequency response, most often resulting from errors in the RIAA phono equalization, improper cartridge loading, or undesired interactions between the phono input and the cartridge. These used to be fairly common problems, particularly in early transistor equipment, but advances in understanding and technology have almost eliminated them.

Early versions of the Citation 11 (the unit had several different phono sections in the course of its history) exhibited complex phono input impedances. In other words, they could not be modeled as a simple resistance in parallel with a capacitance. This can give rise to interaction problems. Fortunately, most of today's premium fixed-coil (moving-magnet and moving-iron) pickups have relatively low output impedances and therefore are less prone to such effects than were previous generations of cartridges. They also are less dependent on capacitive loading to achieve their flattest response. Moving-coil cartridges, because of their extremely low output impedances, are better still in these respects, though arguably not as good in others.

Tom Holman, by the way, was among the first to recognize the importance of these factors and to define how phono preamps should be designed to assure correct performance. The product that bears his name is to this day—nine years after its introduction—among the finest preamplifiers available.

#### TOO BRIGHT

A FEW MONTHS AGO, I BOUGHT A CARVER receiver and Compact Disc player and ADS speakers. I thought I was buying an excellent setup, but the sound turned out to be bright and seemed distorted at the high end. Violins and sopranos sounded shrill. Several weeks ago, I exchanged the receiver and speakers and am now using an NAD 7155 receiver and my old KLH 6 speakers in their

place. The sound from the NAD is much warmer and more pleasant to my ear, but it still has some problems. Would it help to exchange my Carver CD player for another model (such as one from B&O)? Or could the discs themselves be at fault? Would a European speaker correct the problem with the Carver player?

Ted Sacher  
Brooklyn, N.Y.

First of all, it is very unlikely that the receiver swap changed the sound at all. What's making the difference is the speakers: The old KLHs have a much mellower balance than the ADSs. Nor would switching CD players help, unless the Carver is malfunctioning in some way. And I doubt that you will find any modern high fidelity speakers less bright than your KLH 6s. It is possible that you have got hold of some CDs made from shrill recordings, or it may simply be that you don't like high frequencies. In that case, your best bet would be to buy an equalizer and use it to knock down the treble some more.

#### MISSING STEREO TV

I BOUGHT A MITSUBISHI HS-400UR VHS HI-FI videocassette recorder with a built-in stereo TV tuner [test report, May 1985] about six months ago. I have it hooked into my audio system so that I can enjoy prerecorded movies in Hi-Fi stereo and also record simulcasts. Television broadcasts are another matter. Two local channels transmit stereo signals, but they don't come through my cable hookup. Does the cable company have to install different equipment to pass the stereo signal along to me?

R. A. Gerbo  
Carmel, Ind.

Probably it does. A stereo television signal requires slightly more bandwidth than a mono signal, and this can cause interference between channels on some cable systems.

#### BLUE SKY

HOW ABOUT COMBINING A MICROCASSETTE deck with a PCM unit? It would get me digital audio in a small package. Would the micro unit have to be stereo?

Gabriel Pena  
Bell, Calif.

At least. In fact, it would have to be a phenomenal microcassette deck to handle the bandwidth of the PCM converter's output. That's why video recorders are used for PCM; no present analog audio recorder can do the job. But take heart: Word is that among the first digital cassette recorders will be ultraminiature models similar in concept and size to what you propose.

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

## Buy Any Sony Compact Disc Player and get 2 CDs free.

Between September 15, 1986 and January 31, 1987, buy any Sony home, car, or portable compact disc player and receive 2 CDs free from the 20 listed below. (You pay only for shipping and handling.) Just mail the coupon below, together with a copy of the proof of purchase for your Sony CD player.

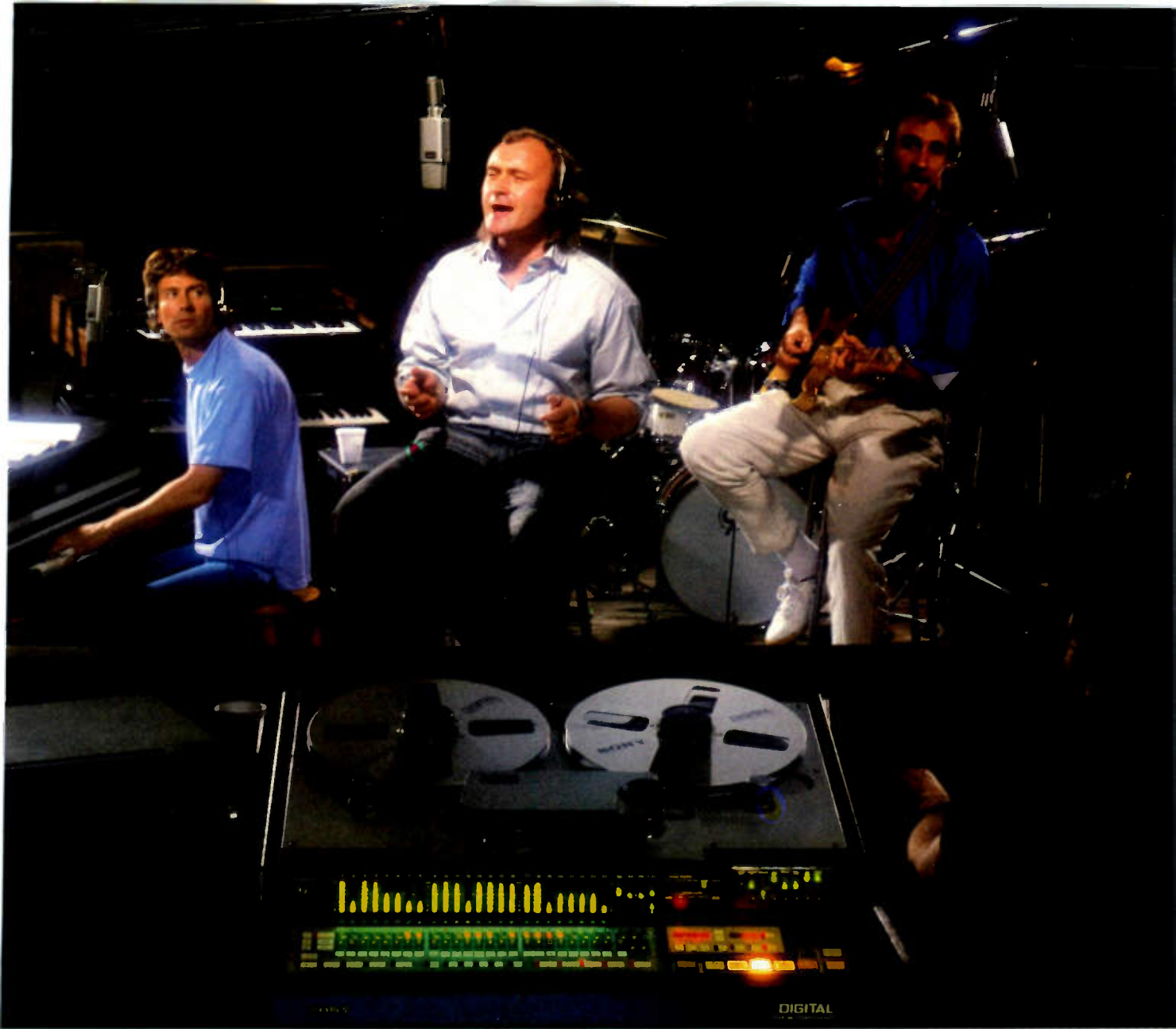
<b>346478 Madonna</b> True Blue (Sire)	<b>345553 Branford Marsalis</b> Romances For Saxophone (CBS Masterworks)
<b>346312 Billy Joel</b> The Bridge (Columbia)	<b>343947 Tony Bennett</b> The Art of Excellence (Columbia)
<b>346270 Wham</b> Music From the Edge of Heaven (Columbia)	<b>343582 Van Halen</b> 5150 (Warner Bros.)
<b>346023 Genesis</b> Invisible Touch (Atlantic)	<b>342097 Barbra Streisand</b> The Broadway Album (Columbia)
<b>343327 Wynton Marsalis</b> Jolivet/Tomas: Trumpet Con- certos (CBS Masterworks)	<b>339226 Michael Tilson</b> Thomas, Gershwin Rhapsody in Blue, Etc. Los Angeles Philharmonic (CBS Masterworks)
<b>346809 Enrique Batiz</b> Dvorak: Sym No 9 "New World" London Philharmonic (Verese Sarabande)	<b>336222 Dire Straits</b> Brothers in Arms (Warner Bros.)
<b>346015 Jean-Claude Malgorie,</b> Cond. Handel: Royal Fire works Music La Grande Ecurie Et La Chamber Du Roy (CBS Masterworks)	<b>334391 Whitney Houston</b> (Arista)
<b>345892 Ruthless People</b> Original Sound Track (Epic)	<b>326629 Bruce Springsteen</b> Born In The U.S.A. (Columbia)
<b>345827 Bob James and David</b> Sanborn, Double Vision (Warner Bros.)	<b>323261 Lionel Richie</b> Can't Slow Down (Motown)
<b>343095 Philip Glass</b> Songs from Liquid Days (CBS)	<b>339200 Stevie Wonder</b> In Square Circle (Tama)

And, as a special bonus we'll enroll you in the CBS Compact Disc Club—which offers you the CDs you want at substantial savings! But you have absolutely no obligation to buy anything, ever—and you may cancel your membership at any time.

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## To hear why Genesis records on Sony digital equipment, play them back on a Sony Compact Disc Player.

When it comes to capturing the experience of live music, no audio equipment delivers the lifelike reproduction of digital audio.

That's why the only digital recording equipment chosen by Phil Collins, Tony Banks and Mike Rutherford of Genesis is, not surprisingly, the leader in the industry: Sony.

Not only has Sony led the way in professional digital recording equipment, we invented the digital audio system for play-back—the compact disc player. Sony also introduced the first home, car and portable CD players. And Sony sells more types of compact disc players than anyone else in the world.

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Best of all, DPD gives you all of this extra power without your having to pay the extra price for a much larger amplifier.

So if you want totally uncompromising digital sound, you can't afford to compromise with your system. That's why you need Proton with DPD. With anything else, you'll be missing out.

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Proton's acclaimed 40 Series Audio Components top to bottom: D940 Stereo Receiver with DPD™, 440 Stereo Tuner, D540 Stereo Amplifier with DPD™, 740 Stereo Cassette Deck and the 830R Compact Disc Player.



## DIGITAL-VIDEO BASICS

**V**IDEO COMPONENTS SPORTING THE ALLURING descriptor "digital" are now appearing in stores. There is and for some time will be uncertainty about just what constitutes a digital television set or digital videocassette recorder. But there is no question that the same integrated circuit (IC) technology that made the Compact Disc feasible is about to spur several generations of extended-performance video products.

Two developments have brought about the coming digital-video era: fast analog-to-digital (A/D) and digital-to-analog (D/A) converter ICs capable of translating the high frequencies of a video signal into digital form and back again and large-capacity digital-memory ICs. The latter perform the function absolutely crucial to improvements in picture quality: temporary storage of the video image.

What can we expect from these devices? Unfortunately for those interested in high fidelity video, the ICs are being used first only to expand the repertoire of what Japanese engineers like to call "trick" features. These include adding such things as freeze-frame and picture-within-picture capabilities to monitors and television receivers. "Digital chassis" TV sets will, in addition, perform many of their picture- and sound-reception functions in the digital domain. This has little visual or audible benefit, but it enables the manufacturer to obtain more stable and consistent product quality along with a reduction in parts count and, I hope, a lower retail price.

Videocassette recorders also will gain added flexibility from digital processing. Noiseless fast-scanning and freeze-frame functions will become *de rigueur* for any "digital VCR." (This probably will become the industry's term for a conventional analog VCR with digital picture-processing functions, even though truly digital VCRs—using digital encoding of the recorded picture—already are being developed.) Although digital freeze frame may seem to some a trivial feature, it makes it possible to create a still picture of indefinite duration, in contrast to a conventional stop-the-tape freeze frame that can last only a few minutes before the video heads start slicing through the tape.

New components, too, will arise from the use of digital-video technology. High on the list of development priorities are video printers. Because the various printing processes being researched are quite slow compared with video frame rates, a video printer must store the image digitally while the printing takes place. And once a video image is in digital form, it can be distributed over any number of comparatively narrow bandwidth media (such as telephone lines, CDs, and computer floppy disks).

Eventually, when video manufacturers start running out of semi-useful trick features to add, they will use digital processing to provide enhanced picture quality. Several significant steps toward higher fidelity video become possible. These include contrast and detail enhancement, ghost elimination, flicker

reduction (important for European television), reduction of video noise (snow and grain), and noninterlaced scanning.

An examination of how this last function operates will provide an idea of how digital image storage can be used. The accompanying diagram portrays the scanning of a television frame. A 525-scan-line *frame* consists of two interlaced *fields* (diagonal solid and dotted lines). Each field consists of half of the active scan lines and takes one sixtieth of a second to trace out on a picture tube. Each frame, therefore, takes one thirtieth of a second. This scheme is designed to flash images of acceptable resolution on the screen fast enough to convey smooth motion without requiring that the information actually be transmitted at that rate. Motion picture projection uses a similar method, in which each frame lasts one twenty-fourth of a second but is flashed on the screen twice in that period by the use of a rotating shutter.

Several undesirable visual artifacts result from interlaced scanning, among them a visible scan-line structure (especially with large-screen and projection monitors) and flickering horizontal lines. They can be eliminated by *progressive scanning*, in which a complete set of 525 scan lines is traced every sixtieth of a second. There are several ways to do this. Interfield interpolation displays two successive fields simultaneously and therefore requires storage of at least one field. However, moving objects can blur when this method is used. Another scheme—line interpolation—produces a synthesized scan line (the average of the lines directly above and below it) between each "real" line of a field and requires storage of only two lines of video information at a time. It too has some visual drawbacks (flicker is not reduced, for example).

Video noise reduction also is a form of averaging. The smallest details in an image are likely to be the random grain and snow of noise. Averaging them over several frames results in less noise because random signals tend to cancel each other out. Unfortunately, such approaches stumble on the difficulty of determining what is to be processed and what should be allowed to pass unaltered. Frame-to-frame averaging yields a pronounced decrease in noise level but also a marked blurring of moving objects in the image. Ways to overcome these problems by applying sophisticated digital computations are the subject of intense research, not only because they promise additional video-component sales but because they will be useful in other important fields, such as military and medical electronics. ■



A COMPLETE 525-LINE TELEVISION FRAME CONSISTS OF TWO INTERLACED 262½-LINE FIELDS, REPRESENTED HERE BY SOLID AND DOTTED LINES.



B Y  
D A V I D  
R A N A



B Y  
R O B E R T  
L O N G

## GAIN—AGAIN!

IT KEEPS COMING BACK TO THE SAME QUESTION: HOW do you set gain for the best possible recording? I wish there were a single answer, but there isn't—thanks (if that's the word), in part, to the obfuscation of those who design and build cassette decks and their meters. Sometimes the difficulty seems to arise from outright kinkiness on the part of the designers. Other times, an effort to simplify life for the home recordist misfires by failing to take a broad enough view of the factors involved, and then the unsuspecting user is left to wallow in even greater uncertainty.

In the bad old days of open reels and "professional" VU meters, making good recordings often required specialized knowledge. Transients too brief for accurate display by a mechanical meter could easily pass through undetected and overload the tape. Professionals (the only users for whom professional equipment is truly appropriate) knew that bells, for example, had to be recorded at  $-20$  VU, whereas massed strings often could pin the meter (above  $+3$  VU) before causing audible signs of overload. This apparent discrepancy sprang from the very different peak-to-average ratios of the instruments and the inability of the slow VU meters to distinguish them.

Knowledgeable amateurs did understand that you had to "push" the level if you wanted the best possible signal-to-noise ratio. Further, they understood that therein lay the importance of the "three head" deck. Only by listening to the playback as you recorded could you tell how much level was too much; up to that point, the more the better. Professional metering could *sometimes* tell professional recordists the same thing, but much experience was needed to translate the needle's jitters into useful, precise, reflexively conceived information.

The days of the meter needle are almost gone in home recording and numbered even in professional work. Modern peak-reading display devices are so much more precise and communicative that there really is no longer any need for meters as we once knew them. The argument that they better reflect the subjective loudness of the signal is unimpressive: Ears do that even better, and they don't add to the cost of the equipment. But old habits die hard, and in this case, they often are responsible for metering systems designed with an almost perverse disregard for the advantages of today's fast-acting displays.

For example, not long ago, a manufacturer demonstrated the "quality" of his new top model to me by playing a tape that was peaking at around  $+8$  on its meters. I wouldn't call the sound particularly clean, but it wasn't showing signs of severe overload either. "You can really drive this baby," was the manufacturer's comment. But when we came to test the deck, we found that its overload characteristics actually were unspectacular and its metering preposterous in that the "0 dB" mark was about 6 dB below the DIN 0 standard reference level, forcing levels high enough to make use of the full dynamic range up into the stratospheric (and more coarsely divided) range at

the extreme right of the display. Consequently, most users, fearful of running into the red, will never exploit all of the headroom available to them and will wind up with recordings inferior to what they might have obtained had the display calibration been more intelligently designed.

To get good results, you must adjust recording levels quite differently on this machine from the way you would on one with a "0 dB" at DIN 0 or, as is more common, at Dolby reference level. And habits learned on such a deck simply won't work on most others—any more than level-setting techniques acquired with true DIN metering will work well on "this baby." Until the metering on consumer tape decks becomes relatively standardized (should that happy day ever arrive), you must learn each one anew. That's why we publish data detailing the overload and metering characteristics with the various tape types in each of our cassette deck test reports.

Make no mistake, the subject isn't easily mastered—particularly when you take into account the infinitely varying relationships between the music's spectral distribution and the recorder's overload curve for each of the tapes you might use. Here, I'm talking essentially of *midrange* overload and dynamic range. I'll talk about the highs another time.

### AND AGAIN!

IF YOU RECORD FROM FM, YOU'VE PROBABLY BEEN startled at times to see that relatively quiet passages in the music can register up near the meter reading for even the strongest tuttis, which seem very much louder. You may be seeing a compressor or peak limiter at work, or you may be witnessing a good job of manual gain riding. If you can *hear* oddities in the musical dynamics, chances are they're the result of automatic processing rather than human intervention.

But though the hand still can be quicker than the microchip (for this purpose, at least), manual gain riding is in danger of becoming a lost art, at least among amateurs, because we are so spoiled by automatic level setting and so on in tape decks. Without some skill in this department, you'll find getting very good live recordings on standard cassettes next to impossible, even with Dolby C or DBX.

If you want to develop the skill, you'll need practice. I sometimes work out, so to speak, by manually expanding radio programs in which overloud hosts play old 78s that have (or should have) greatly varying sonic properties. If songs are mixed with arias, for example, the maximum levels should not be the same for both, though they almost invariably are. Worse, the host's speaking voice—which usually comes out of his mouth at a distinctly nonstentorian level and therefore must be held at least 10 dB below musical peaks if it's to sound at all natural—usually is cranked up against the same ceiling. It isn't easy to pull good dynamics out of this sort of material, but you'll learn a lot about sound and music, and your perceptions of both, if you try. ■



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HIGH POSITION  
EXTRA

FIRST METAL PARTICLE FORMULATION  
FOR HIGH BIAS RECORDING

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EXTENDED HIGH END · HIGH MOL HIGH OUTPUT  
LABORATORY STANDARD CASSETTE MECHANISM

**90**

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

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

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

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**THE ART OF PERFORMANCE.**

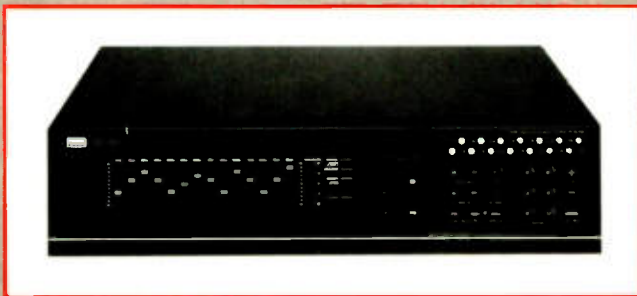
TDK is the world's leading manufacturer of audio & video cassettes and floppy disk products.

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



**NEC's basic CD player, the CD-500E, includes a full-feature wireless remote control. Reports follow. ▶**



**Sansui SE-88 Graphic Equalizer**



**Yamaha C-85 Preamp**



**Pioneer CT-A7X Cassette Deck**



**Denon DCA-3175 Car Power Amplifier**



# NEC CD-500E Compact Disc Player



**DIMENSIONS:** 17 BY 3 INCHES (FRONT), 10 1/2 INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. **PRICE:** \$329. **WARRANTY:** "LIMITED," TWO YEARS PARTS AND LABOR, EXCEPT ONE-YEAR REPLACEMENT ON LASER PICKUP. **MANUFACTURER:** NEC CORP., JAPAN; **U.S. DISTRIBUTOR:** NEC HOME ELECTRONICS (U.S.A.), INC., 1255 MICHAEL DR., WOOD DALE, ILL. 60191.

**T**HIS IS NEC'S LEAST EXPENSIVE CD PLAYER. We're always interested in observing how manufacturers distill their more elaborate products to create the budget models. Some don't try; instead, they create totally different designs at the price extremes. Others simply omit some high-ticket elements without much concern for the overall ergonomics of the resulting design. The CD-500E, on the other hand, is functionally almost identical to the CD-650E and resembles even the lavish 705 but, at the same time, strikes us as a carefully conceived, integrated design in its own right.

The trim front panel is fairly conventional. The AC switch is at the left, next to the disc drawer. Below the display window on the other side of the drawer are the open/close button plus a pair for MEMORY and REPEAT. To the right of the display window are the operating controls: PLAY/PAUSE, STOP, and SKIP in each direction. Below these are a headphone jack and a level control. All of the controls except the AC switch are repeated on the supplied wireless remote control, which is powered by two AA cells.

On the back panel are two sets of outputs: one fixed-level, the other variable. If you plan on doing a lot of headphone listening through the player itself, you're probably better off using the fixed outputs for con-

nection to the system (which will have its own VOLUME) and saving the CD-500E's control for the phones. In a system that doesn't have a remote volume control of its own, however, you may prefer to use the variable outputs anyway. The front-panel control is motor-driven to make the changes ordered from the remote, so it continues to display its setting visually even when volume is adjusted from across the room.

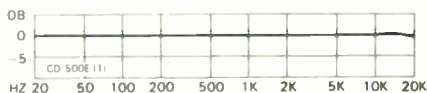
The display window, which also contains the remote-control infrared sensor, shows the track number (or "FU," for "full," if you try to program past the memory's 15-selection capacity) and has four status pilots: for disc loading (it stops flashing once the disc's table of contents has been loaded into memory), repeat, memory (it flashes when a track is memorized, stays lit during memory play), and play (which flashes in the pause mode). If you use the repeat function in regular playback, it will play the entire disc continuously from beginning to end; in memory playback, it will repeat the programmed tracks only, in the programmed order.

Immediately after disc loading, the display briefly shows the total number of tracks, but otherwise it tells you only the number of the one that is currently cued or playing. What you give up (and we're not sure that's really the right phrase) are the elapsed-time, time-remaining, and more esoteric readouts (like next-track or index number) of elaborate and relatively high-price players. Many users—particularly those who haven't already become accustomed to these functions—probably won't miss them at all.

Nor is the omission of SCAN—in which

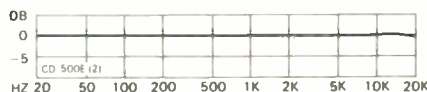
All data were obtained using the Sony YEDS 7, Technics SH CD001, Philips 410 055 2 and Philips 410 D56 2 test discs

#### FREQUENCY RESPONSE WITHOUT DE-EMPHASIS



— left channel + 1/4, -3.4 dB, 20 Hz to 20 kHz  
 - - - - right channel + 1/4, -3.4 dB, 20 Hz to 20 kHz

#### FREQUENCY RESPONSE WITH DE-EMPHASIS



— left channel + < 1/4, -3.4 dB, 20 Hz to 20 kHz  
 - - - - right channel + 1/4, -1/2 dB, 20 Hz to 20 kHz

**CHANNEL SEPARATION (at 1 kHz)** 80 3/2 dB

**CHANNEL BALANCE (at 1 kHz)** + 0 dB

#### S/N RATIO (re 0 dB; A-weighted)

without de-emphasis 93 3/4 dB

with de-emphasis 97 1/2 dB

#### HARMONIC DISTORTION (THD + N; 40 Hz to 20 kHz)

at 0 dB ≤ 0.078%

at -24 dB ≤ 0.053%

#### IM DISTORTION (70-Hz difference; 300 Hz to 20 kHz)

at 0 dB ≤ 0.028%

at -10 dB ≤ 0.013%

at -20 dB < 0.01%

at -30 dB < 0.01%

**LINEARITY (at 1 kHz)**

0 to -60 dB	no measurable error
at -70 dB	+ 1/2 dB
at -80 dB	+ 1 3/4 dB
at -90 dB	+ 6 1/4 dB

**TRACKING & ERROR-CORRECTION**

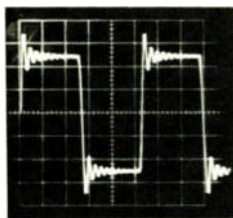
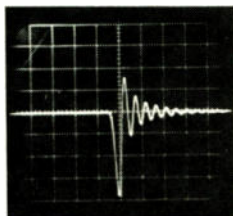
maximum signal-layer gap	≈ 900 μm
maximum surface obstruction	≥ 800 μm
simulated-fingerprint test	pass

**MAXIMUM OUTPUT LEVEL**

line output (fixed or variable)	1.62 volts
headphone output	see text

**OUTPUT IMPEDANCE**

line output (fixed or variable)	300 ohms
headphone output	150 ohms

**SQUARE-WAVE RESPONSE (1 kHz)****IMPULSE RESPONSE**

the recording is audibly sampled as the laser cues in or out—a major loss, except when you're trying to find your way around one of the many poorly laid out classical CDs issued, particularly in the early months of the medium. The Charles Dutoit recording of Ravel's *Daphnis et Chloé* (London 400 055-2), for example, is a single track lasting almost 56 minutes. With the CD-500E, there is no way you can skip to individual tableaux or dances within the score.

The player's lightweight laser pickup has its own subsuspension to isolate it from potential sources of vibration, and the audio electronics are based on a proprietary NEC dual op-amp integrated circuit. Unlike most other NEC models, however, the CD-500E evidently uses straight 16-bit, 44.1-kHz analog-to-digital (A/D) conversion with sharp, "brick wall" analog output filtering (as demonstrated by the amount of ringing and the absence of "preringing" in the pulse and square-wave traces). However, this is customary for budget players; none in the CD-500E's price range use digital filtration.

The filter introduces a slight (about 1/4-dB) response peak near 15 kHz before beginning its steep rolloff at the very top of the band. Ringing in the scope traces is about par or better for this type of player, though the impulse is "upside down," indicating that the CD-500E inverts signal polarity, or absolute phase. (We don't think this matters, sonically, particularly since there's no polarity standard for a lot of other components either, but we're still surprised at how many CD players flop the waveform.) Distortion isn't in the champion class, but it certainly is

nothing to look down on either. And sound quality proved excellent—perhaps very slightly "grittier" than average for a CD player, in some tests, but still superb by the standards of typical signal sources.

Like most players we test these days, the CD-500E had no trouble coping with any of the fingerprints or surface obstructions simulated on the Philips tracking test disk. It did falter very slightly on the most demanding of the disc's simulated scratches; we rate it as passing the 900-micrometer signal-gap test, but only just. Insensitivity to lateral shock is excellent, though we found that the player could easily be made to mistrack if struck vertically.

The CD-500E also matched typical current players in reproducing a seamless continuum when programmed to play contiguous tracks—as you would, for example, in playing a concerto whose movements are separate tracks. Many early players did poorly in this test. Perhaps our carping has helped bring about the significant improvement that we now enjoy.

As a budget model—and the CD-500E is one of the least expensive on the market—this player represents unusually consistent design. The most surprising feature, perhaps, is the full-function wireless remote control and, in particular, its level control. Few low-price CD players offer this important feature. And though some trade-offs have been necessary elsewhere, NEC has made them cannily, with a clear eye to how a relatively simple player is likely to be used. As a result, the CD-500E is an exceptionally attractive value. ■

## T E S T R E P O R T S

# Sansui SE-88 Graphic Equalizer

**DIMENSIONS: 17 BY 4 INCHES (FRONT PANEL), 11 1/2 INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. PRICE: \$500. WARRANTY: "LIMITED," TWO YEARS PARTS AND LABOR. MANUFACTURER: SANSUI ELECTRIC CO., LTD., JAPAN; U.S. DISTRIBUTOR: SANSUI ELECTRONICS CORP., 1250 VALLEY BROOK AVE., LYNDHURST, N.J. 07071.**

**W**HATEVER ELSE IT MAY HAVE GOING FOR it, the Sansui SE-88 can boast at least one big (and obvious) advantage over every other equalizer we've ever tested: a removable control panel, powered by a pair of AA cells. You can pluck it off the front of the chassis and carry it to your listening position, use all the controls (except the power switch, which stays behind), and when you're through, pop it back into its front-

panel "dock." The chassis's infrared sensor is just behind this position, so that the equalizer can receive signals from the control module when it's docked, as well as when it's across the room. This gives you, in effect, both remote and front-panel controls without requiring that you pay for an extra set. Better still, you can use the controls the way you must for best results with an equalizer: from wherever you're listening—even if you're moving around the room.

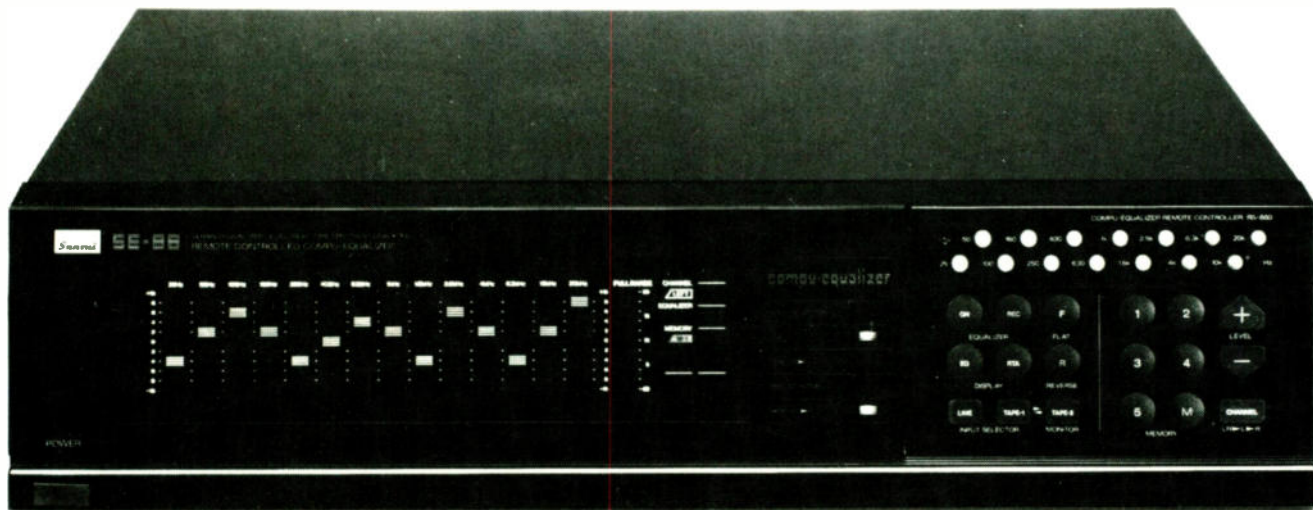
We successfully altered the SE-88's settings from as much as 90 degrees off-axis—that is, from the plane of the front panel—and some 12 feet away. When we moved behind the main chassis, we lost contact; in

most rooms, however, the equipment is set against a wall so that it's impossible to get behind it. At any rate, Sansui seems to be quite conservative in telling you to use its remote no farther than 30 degrees off-axis.

Across the top of the control panel is a series of 14 small, round buttons, each selecting a band for adjustment. Nominal center frequencies are 25, 50, 100, 150, 250, 400, and 630 Hz and 1, 1.6, 2.5, 4, 6.3, 10, and 20 kHz. The actual center frequencies are a little higher than marked, but not by enough to be of any practical significance for music listening.

The right-hand side of the panel controls what the equalizer does with the selected





bands. There are buttons for stepping response up or down (nominally, in 2-dB steps to  $\pm 10$ -dB extremes) and for stepping the channel mode through the sequence L-R (in which both channels are set identically), L, and R (the last two for use when you want different settings in each). Five memory buttons enable you to store and recall EQ curves you've created for different purposes.

The left-hand side controls various operating modes. The equalization can be switched on or off and in or out of the tape-recording feed at two of these. There's a FLAT button that returns all bands to home base for a fresh start. Two more buttons select the display mode: either the EQ settings or the frequency content of the audio signal (real-time spectrum analysis). The back panel has an on/off switch for a peak-hold feature that, in the latter display mode, keeps the maximum cursor in each band illuminated for about one second, rather than lighting each only for the duration of its triggering signal. There's a REVERSE to derive the reciprocal of the currently displayed EQ curve and more buttons for tape monitor switching.

The back has connections for two tape decks, which replace and improve upon the monitor loop the equalizer occupies in a typical setup. (Using processor jacks that are "downstream" of the system volume control, such as most pre-out/main-in jumper connections, can cause level-matching problems.) If you were to go by the manual, which is particularly confusing about these matters, you would think it impossible to monitor from either deck while you're recording on it. But the three control buttons are marked LINE, TAPE-1, and TAPE-2; under the first two is the legend INPUT SELECTOR and under the third, MONITOR.

In fact, we found we could monitor an appropriately equipped deck attached to the Tape 2 connections and recording from either Tape 1 or the main line input—but not with the EQ switched into the tape feed, which killed the output. And when we tried

reversing the setup, to record on and monitor Tape 1, it simply cut off the line source feed and created feedback with Tape 2 as the intended source. If you have monitoring decks, you should use these controls carefully, and if you're not a particularly methodical person, it might be best to take the manual's implication literally and ignore the word *monitor* on the escutcheon.

The other slightly problematical aspect of the design is the spectrum display, whose sensitivity is a bit low for some equipment. In our setup, we found that maximum levels usually registered, in the midrange, near the center of the display's 20-dB dynamic range. So only the top 10 dB of the signal was visible, and toward the frequency extremes there was even less to be seen.

As a matter of fact, Diversified Science Laboratories' pink-noise tests show that sensitivity rises in the bass (it's up 4 to 6 dB in all bands from 250 Hz down), but it falls off in the extreme treble (down about 6 dB at 20 kHz), further suppressing the already weak signal components (if any) at the top end. Otherwise, it's within 2 dB (1 display element) of the sensitivity in the 1-kHz band. So while the display can be informative, it can't claim the precision or flexibility of a professional spectrum analyzer, which it is not.

DSL's frequency-response trace with the equalizer set "flat" (to 0 dB in all bands) is virtually ruler-flat from about 100 Hz to 10 kHz, with a slight rolloff in the deep bass (to about  $-3/4$  dB at 20 Hz) and an even slighter one at the very top of the treble. With the individual bands set at maximum and minimum, the trace essentially confirms the 10-dB nominal range in each direction.

When the lab examined the action of the 1-kHz control in detail, it discovered that the increments aren't quite even, however. The first step in each direction away from 0 dB is about 3 dB at the center frequency; the last two steps in each direction measure about  $1\frac{1}{2}$  dB. And though this control has practically no influence below about 100 Hz, any setting except flat displaces the entire treble range by 1 dB or more in the chosen direc-

OUTPUT AT CLIPPING (at 1 kHz)	5.8 volts
MAXIMUM INPUT LEVEL	6.8 volts
AUDIO GAIN	< $1/4$ dB (open circuit)
S/N RATIO (re 0.5 volt, A-weighted)	
with all controls at max. (worst case)	69 $3/4$ dB
with all controls set "flat"	97 $1/2$ dB
HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)	
at 2-volt output	$\leq 0.031\%$
FREQUENCY RESPONSE	
	+0, $-1/4$ dB, 32 Hz to 17.2 kHz
	+0, 3 dB, < 10 Hz to 75.4 kHz
CHANNEL SEPARATION (at 1 kHz)	83 $1/2$ dB
INPUT IMPEDANCE	77k ohms
OUTPUT IMPEDANCE	2,200 ohms



THE SE-88'S CONTROL MODULE DETACHES FROM THE FRONT PANEL FOR REMOTE OPERATION.

tion (boost or cut).

Most interesting, however, are the curves for four settings in the three central frequency bands: 630 Hz and 1 and 1.6 kHz (all other bands were left at 0 dB). With all three at their extremes in either direction, the total adjustment range reaches about  $\pm 13$  dB—significantly greater than the nominal or the amount that can be achieved for a single band. Some ripple develops at these settings, but this is to be expected with any graphic equalizer (to get smooth envelopes at extreme settings, you'd need a parametric) and can be significantly more exaggerated than it is with the SE-88.

The two middle curves, for which adja-

cent bands are adjusted to opposite extremes, show the maximum slopes achievable and how band interaction limits maximum adjustment, to about  $\pm 7$  dB for the outside bands and  $\pm 3$  dB for the one sandwiched between them. In general, the steeper the maximum slope, the less the interaction—but the greater the ripple in the outer two curves. (As usual, there's no free lunch.) In its handling of these matters, we'd rate the Sansui fairly typical of home equalizers. We have just begun testing band interaction in this way, however, and it will be interesting to see how other models compare.

Gain is essentially zero—that is, level-in equals level-out within a small fraction of a

dB. The clipping level is lower than average at just shy of 6 volts, but it shouldn't prove a limiting factor with anything close to normal signal levels. Signal-to-noise (S/N) ratio is luxurious, at almost 100 dB, with all bands set at 0 dB. When the lab moved them all up one notch—probably a more representative condition—the figure was a still-good 77 $\frac{1}{4}$  dB. The worst-case setting, with all bands at maximum, is one you would not normally choose, but even it delivers an acceptable 69 $\frac{1}{4}$  dB.

Although the SE-88's unusual design gives it some significant advantages over conventional graphic equalizers, it may take a little longer to master. In particular, we found that we had to be fairly near the main unit to tell from its status readout whether we were adjusting the left channel, the right, or both; unless you know, you can easily misadjust it. But once we cleared that hurdle, using the SE-88 became almost as intuitive, though not quite as fast, as with a regular model. And frankly, we were surprised to find how seldom we felt a yen for finer gradations of adjustment.

The design's greatest benefit is, again, the portability of its controls. With the possible exception of ambience devices and the like, equalizers stand to gain most significantly from the current emphasis on remote controls because you can truly judge the effect of any adjustment only at the listening position. With conventional equipment, you must keep jumping up until you have all the controls set right. Once you've used the SE-88's hand-held equalizer controls, you may wonder how you ever got along without them. ■

T E S T R E P O R T S

# Yamaha C-85 Preamplifier

**DIMENSIONS:** 17 $\frac{1}{2}$  BY 3 $\frac{1}{2}$  INCHES (FRONT), 13 $\frac{1}{2}$  INCHES DEEP PLUS CLEARANCE FOR CONTROLS AND CONNECTIONS. **AC CONVENIENCE OUTLETS:** FIVE SWITCHED (200 WATTS MAX. TOTAL), ONE UNSWITCHED (800 WATTS MAX.). **PRICE:** \$800. **WARRANTY:** "LIMITED," TWO YEARS PARTS AND LABOR. **MANUFACTURER:** NIPPON GAKKI CO., LTD., JAPAN; **U.S. DISTRIBUTOR:** YAMAHA ELECTRONICS CORP., U.S.A., 6660 ORANGETHORPE AVE., BUENA PARK, CALIF. 90620.

**E**VEN AT FIRST GLANCE, THE C-85 preamplifier is unmistakably a Yamaha. It is a direct descendent of the C-70 (test report, April 1983), though several intervening Yamaha designs have been similar in approach and could be cited as more like the

C-85 and each other than like competing models from other companies. In a world in which novelty and imitation tend to be the two sides of the same new-product coin, Yamaha's steadfast refinement of an individual and worthy concept is an admirable exception.

Only the most-used controls are immediately accessible, in three groups. At the left end are the AC switch, pilot light, and headphone jack. At the opposite end is the large volume knob with its outer loudness-compensation ring and a balance "knob" that actually is a knurled wheel whose lower edge

protrudes downward from the bottom of the panel. Just to its left are the main (monitoring, as opposed to recording) source selectors, the mute button (which reduced output by 20 $\frac{1}{4}$  dB in Diversified Science Laboratories' test), and a tone-defeat switch. Most of the remaining controls are behind a flip-down door to the left of this group, though a few are on the back panel.

The recording selector, which includes dubbing options in both directions between the two decks for which connections are provided, is among those behind the door. To (CONTINUED ON PAGE 45)





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**AUDIO SYSTEMS**

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(CONTINUED FROM PAGE 42) its left are a pair of parametric tone controls, each consisting of a dual concentric knob cluster for boost or cut level (the center) and bandwidth (the ring), plus a separate knob for the frequency on which the control band is centered. Between these controls and the recording selector are switches for mono/stereo mode and infrasonic filtering.

At the right end of the hidden control panel is the phono mode selector, which, typically for the Yamaha preamps in this series, is unusually comprehensive, at least for Phono 1. For conventional moving-coil cartridges requiring extra amplification, it offers nominal input impedances of 100 and 1,000 ohms. For high-output moving-coil models, there's a 100-ohm setting, though these cartridges usually will also work well with settings designed for fixed-coil (moving-magnet or moving-iron) designs. For the latter, there are two options: 47,000 ohms with either 220 or 330 picofarads of capacitance. The Phono 2 input commands only one position on the selector switch: for 47,000 ohms and 220 picofarads. A back-panel switch ("normal/-10 dB") further tailors phono-preamp gain to cartridge output. NORMAL matches typical pickups, and the lab used this setting except where the lower gain is specified in our data.

All the input and output jacks are gold-plated. They include three high-level input pairs, marked CD, VIDEO, and TUNER. There are two output pairs, one with normal polarity and one inverted, for users who consider absolute phase important. The main purpose of the latter pair is to correct for polarity inversion in the power amp to which the signal is fed (reversing the hot and ground leads at the speaker terminals will achieve the same result), but it can also be used to "correct" sources that are phase-inverted with respect to normal practice—if you can tell which ones they are.

Though not as exotic and luxurious a touch as the phono-gain switch, Yamaha's unusually generous provisions for switching system power will be welcomed by a wider spectrum of users. Not only does the C-85 provide five switched AC outlets, but its parts carry current ratings great enough to allow a total of 200 watts through them plus 800 watts through the single unswitched outlet. For most other preamps, current ratings are skimpier; the sheer number of outlets almost invariably is. You still wouldn't

want to try plugging a behemoth amp into the C-85 (and its ungrounded outlets won't accommodate the plugs on most such amps in any event), but all the rest of your system probably can be handled quite comfortably by its power switching.

Even more unusual is the operation of the C-85's loudness compensation. Yamaha is among the very few companies to acknowledge that a simple on/off LOUDNESS makes no technical sense. Loudness compensation, if it is to be "scientific" (and we sometimes wonder whether it can be, in fact), must be tied to perceived level—not just to the volume control setting. Amplifier gain, loudspeaker sensitivity, room acoustics, and seating position relative to the speakers all influence the relationship between volume setting and how loud the music seems. In an attempt to account for these variables, Yamaha gives you a continuously adjustable loudness-compensation control.

With the LOUDNESS ring at maximum clockwise rotation, changing VOLUME adjusts level with no change in frequency response. When the LOUDNESS is turned counterclockwise, the level is lowered over much of the frequency range. But even with only 2 dB of midrange attenuation (with the VOLUME set at maximum for purposes of measurement), a slight prominence is introduced at about 27 Hz. As the LOUDNESS is rotated further downward, this prominence grows more obvious, and it never falls more than 8½ dB below the starting level. By the time the midrange has been attenuated by about 20 dB, a slight upturn also is apparent in the extreme top of the frequency range. At full rotation, the lower treble (centered near 2 kHz) has been attenuated by 41 dB and the extreme treble (20 kHz) by only 31½ dB.

We must admit that this extreme setting, with response at 27 Hz almost 30 dB above that at 2 kHz, produces graphs that look downright gross. And with VOLUME all the way up and LOUDNESS all the way down, the effect sounds gross as well. But that's not a setting at which you're likely to arrive by any rational or instinctive use of these controls. Normal settings attenuate audible output so much before you arrive at the compensation extreme that you can barely hear the music, and then the applied compensation does, indeed, enhance its audibility. In fact, the more we used the LOUDNESS, the more we came to admire it.

(CONTINUED ON PAGE 48)

#### OUTPUT AT CLIPPING (at 1 kHz)

main output	8.7 volts
headphone output	3.25 volts

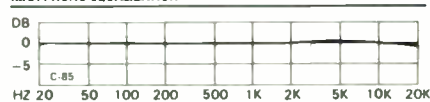
#### HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)

aux input	< 0.01%
phono input (fixed-coil)	< 0.01%

#### FREQUENCY RESPONSE (see text)

	+ < 1/4, - 1/2 dB, < 10 Hz to 15.7 kHz
	+ < 1/4, - 3 dB, < 10 Hz to 44.5 kHz

#### RIAA PHONO EQUALIZATION



fixed-coil (MM)	+ < 1/4, - 3/4 dB, 20 Hz to 20 kHz, - 1/4 dB at 5 Hz
moving-coil (MC)	+ 1/4, - 1/2 dB, 20 Hz to 20 kHz, - 1 3/4 dB at 5 Hz

#### SENSITIVITY & NOISE (re 0.5 volt; A-weighting)

	sensitivity	S/N ratio
aux input	52 mV	95 dB
fixed-coil phono	0.83 mV	81 dB
fixed-coil, -10 dB	2.65 mV	80 dB
moving-coil phono	34 µV	84 3/4 dB
moving-coil, -10 dB	110 µV	84 1/4 dB

#### PHONO OVERLOAD (1-kHz clipping)

sensitivity setting	normal	-10 dB
fixed-coil phono	175 mV	560 mV
moving-coil phono	7.1 mV	22 mV

#### INPUT IMPEDANCE

aux input	45k ohms
fixed-coil phono	50k ohms, 280/380 pF 120 ohms
moving-coil phono	100/825 ohms

#### OUTPUT IMPEDANCE

main output	50 ohms
tape output from aux input	direct
tape output from phono inputs	580 ohms
headphone output	73 ohms

#### CHANNEL SEPARATION (at 1 kHz)

CHANNEL SEPARATION	-3 dB at 14 Hz, ≈ 14 dB/octave
--------------------	--------------------------------

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MULTIPATH INTERFERENCE UP TO 92.9%!  
FROM CARVER, NATURALLY.**

The new TX-Seven and TX-Nine auto-reverse AM/FM tuner/cassette audiophile decks represent yet another example of Carver's ability to solve previously insoluble audio problems and deliver you more musical enjoyment.

**CARVER TUNER TECHNOLOGY  
TAKES TO THE ROAD.**

Each deck employs the same Asymmetrical Charge-Coupled FM Detection circuitry as Carver's revolutionary TX-11a home tuner, along with an ingenious automatic computer logic-controlled antenna switching system that further vanquishes multipath distortion.

In point of fact, no other autosound tuner/cassette decks in the world — regardless of price — even begin to approach the TX-Seven and TX-Nine's ability to maintain a hiss-free,

glitch-free, interference-free FM listening environment in your car.

Both also possess a multitude of other useful, state-of-the-art features which will recommend them to the most discriminating autosound audiophile.



## COLLIDING WITH MULTIPATH DISTORTION.

By its very definition as a moving reception point, a car's FM tuner constantly falls prey to signal reflections from hills, skyscrapers, bridges and even other vehicles. These extra phase modulating signals trick conventional tuners into producing audible sounds we call multipath.

Startling outbursts of clicks, pops, "picket fencing" and other rude and indescribable sounds.

The trouble is, by its very nature, multipath distortion cannot be cured by conventional circuit "improvements." In fact, the better an autosound tuner is, the more faithfully it is deceived into converting phase modulation into ghastly-sounding interruptions in your favorite station.

## COMPUTER LOGIC-CONTROLLED DIVERSITY ANTENNA SWITCHING DRIVES AROUND MULTIPATH.

One way to get temporary relief from interference at home is to move the antenna around slightly. That is in effect what the Carver TX-Seven and TX-Nine do with sophisticated circuitry in your car. Instead of physically moving one antenna, they turn your rear defroster into a second *separate antenna*, 180 degrees out of phase with the first. When multipath occurs, a special smart circuit automatically switches (at the speed of light) to the other antenna, automatically correcting phase and eliminating the multipath before you ever hear it. In serious cases, the circuit actually uses both antenna inputs at once, deriving a signal through sum and difference principles.

## ASYMMETRICAL CHARGE-COUPLED FM DETECTION CIRCUITRY BRINGS IT ON HOME.

What little multipath distortion gets through the TX-Seven and TX-Nine's unique smart antenna system runs headlong into the remarkable tuner innovation *High Fidelity Magazine* described as "distinguished (by) its ability to pull clean, noise-free sound out of weak or multipath-ridden signals."

It specially treats the critical, multipath-prone left-minus-right (L-R) signal with a Charge-Coupled circuit that detects "dirty mirror image" signals and cancels them before they can reach your ears. Then the Leading Edge Detector circuit processes the final 5% of the L-R and interleaves it with the tuner's receiver matrix.

Alone, without antenna diversity switching, the TX-Seven and TX-Nine's Asymmetrical Charge-Coupled FM Detection Circuit

delivers a *net noise and distortion reduction of 92.9%*. Together, they set a new standard for clear, clean FM autosound reproduction.

## THE MULTIPATH MARATHON: REAL WORLD CONFIRMATION IN THE MISTS OF THE NORTHWEST.

Bob Carver is both a theorist and a practical inventor. Circuits that work on paper get exhaustively tested in the field before release.

So he assigned a hapless engineer to map out the ultimate multipath-ridden route for confirmation of the TX-Seven and TX-Nine's special circuitry. With mountains, hills, huge evergreen trees, skyscrapers, large steel bridges, good robust traffic jams and a few assorted six-story-tall Boeing hangars, it didn't take long to map out a 6-mile course that could regularly deliver at least *287 separate multipath occurrences*.

Engaging the Asymmetrical Charge-Coupled FM Detection circuit and automatic antenna switching reduced occurrences to an average of *two* during the same 6-mile course while listening to the same stations!

Although results may vary in your locale, the same 90+% reduction in multipath has been confirmed in other widely diverse portions of the U.S.: The TX-Seven and TX-Nine work, and work well.

## OTHER REMARKABLE TUNING FEATURES, TOO.

First, the TX-Seven and TX-Nine also receive Long Wave and Short Wave stations. And of course, both tuner/cassette decks have plenty of random presets... you can tune any fifteen AM, FM, SW or LW stations quickly for instant recall. Plus auto-scan and manual tuning.

But they also have a system that makes setting up all fifteen presets virtually instantaneous. Just press the button marked BEST and the tuner's logic circuitry will *automatically select* the fifteen cleanest, strongest signals and lock them in on the presets!

And that's *in addition* to your fifteen individual random presets.

As with all Carver products, the TX-Seven and TX-Nine do not sacrifice ease of use for useless, complicated frills. Instead, they answer every possible need without resorting to elf-sized buttons or glitzy flashing light displays.

Their metal-compatible, Dolby® NR, auto-reverse cassette sections rival any in the world. Both the TX-Seven and TX-Nine have separate bass, treble, balance and loudness

controls and a full-function LCD display with night illumination.

All operations are signaled with a gentle "beep" that keeps your eyes on the road, not on the compact, ergonomically-styled deck.

There's even a security code system that renders the TX-Seven or TX-Nine inoperable to anyone but you (and a window sticker to impart this discouraging information to others).

Or, if you prefer, use the quick removal system that slips out your TX-Seven or TX-Nine in seconds for storage in trunk or house.

## THE BEGINNING OF THE PERFECT AUTOSOUND LISTENING ENVIRONMENT.

Out of the hundreds of tuner/cassette models currently available, only the TX-Seven and TX-Nine deliver home-stereo quality FM in your car. They achieve it with unique technology. And they are built to outlast your car, no matter what kind of climate you live in.

Coupled with a clean amplifier, such as The Carver M-240 Car Amplifier and state-of-the-art speakers, your ability to transform your car into a concert hall is almost unlimited.

We urge you to audition the TX-Seven and TX-Nine at your Carver dealer soon. They can put you in the driver's seat of a unique, interference-free musical experience.



## THE TX-SEVEN AND TX-NINE

**TUNER** ♦ Asymmetrical Charge-Coupled FM Stereo Detector ♦ Automatic Computer-Controlled Diversity Antenna Switching ♦ AM, FM, Long Wave and Short Wave Bands ♦ 15 Random Presets ♦ BEST Circuit for Auto-Selection of 15 Strongest Stations (in addition to 15 individual presets) ♦ Preset Frequency Auto-search ♦ Auto-scan Tuning ♦ Manual Tuning ♦ LCD Frequency Read-out. **CASSETTE:** ♦ Auto-reverse ♦ Programmable Music Search (TX-Nine only) ♦ Computer Logic Activated Controls ♦ Dolby BNR ♦ Dolby C NR (TX-Nine only) ♦ Metal Tape Bias Selector. **GENERAL:** ♦ Security Code System ♦ Audible Confirmation of All Functions ♦ Separate Bass, Treble, Balance and Loudness Controls ♦ Full-function LCD Read-out w/Night Illumination ♦ CD Line Level Input (TX-Nine only) ♦ Quick Release Removal System ♦ Year Warranty. **SPECIFICATIONS** ♦ Tuner S/N, 76dB ♦ S/N-65dB with Dolby BNR, 70dB with Dolby C NR ♦ Tape Frequency Response 20 Hz - 15 kHz ♦ Dimensions, 180mm W x 51mm H x 160mm D (DIN mount)

Dolby is a registered trademark of Dolby Laboratories.

**CARVER** Corporation, PO Box 1237, Lynnwood, WA 98046

POWERFUL

MUSICAL

ACCURATE



#### ABOUT THE dBW

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

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

(CONTINUED FROM PAGE 15)

The effect can also be tailored with the tone controls, whose multiple adjustments make them unusually flexible for such a purpose. The bandwidth adjustments are calibrated in arbitrary numbers from 1 (narrow) to 10 (wide). With maximum boost or cut, the curves are up or down by 3 dB (relative to reference level) at frequencies that are about 7 octaves apart for the maximum (10) setting, 5 octaves apart for the median (5½) setting, and less than 2 octaves apart for the minimum (1) setting. Maximum boost or cut, itself, is remarkably close to the nominal  $\pm 12$  dB calibration, though it falls a trifle shy of this mark in some instances with the narrowest bandwidth. Center frequencies, too, are quite close to the nominal calibrations.

All in all, the tone controls are remarkably symmetrical, consistent, and predictable in their behavior. Admittedly, the multiple knobs take a little getting used to if you've never experienced parametric controls before. Once you learn how to achieve the effect you're after, however, they will do things that are utterly beyond the reach of conventional tone controls (or even graphic equalizers). Our only regret in this respect is that they can't be switched into the recording circuit to help you re-equalize problem sources like early LPs, where they can do an audibly superior job of discovering sonic bloom in recordings that sound downright nasty with the modern RIAA EQ. The fact that the controls are relatively difficult to set up in the first place further argues in favor of taping the re-equalization and, in the future, playing the tape instead.

The phono section, too, measures closer to the nominal values marked on the various adjustments than is sometimes the case, even in such relatively expensive equipment. Response (measured through the various settings of Phono 1) is quite flat for both moving-coil and fixed-coil cartridges. There is a tiny prominence just below 30 Hz, with

an equally tiny rolloff below. A slight treble rise is more apparent: It amounts to about ¼ dB with moving-coil settings, even less for fixed-coils. Rolloff at the extreme top end is a little more precipitous in the fixed-coil settings: down ¼ dB at 20 kHz, as opposed to about ½ dB for moving coils. Phono noise is exceptionally low, as, for that matter, is the noise through the high-level inputs. Channel separation is much more than adequate, and all of the input and output impedances and sensitivities are appropriate.

We were a bit surprised at the overall response through the high-level inputs. Our data column shows the respectable frequency response measured with the standard HHF levels and settings, designed to simulate typical use. We would have expected something better than respectable of the C-85, however, and when the lab rechecked the measurement at the maximum volume setting, response did, indeed, prove superb: +0, -¼ dB from below 10 Hz to 100 kHz, and down only 3 dB at 390 kHz. Paradoxically, you're likely to reach anything approaching maximum volume setting (unless you're using a very-low-sensitivity power amplifier with a low-level source) only with the loudness ring turned way down and considerable loudness compensation applied. So the flat-test response is essentially unachievable in normal use.

Overall, not even excepting this minor response anomaly, we consider the C-85 an excellent preamp and an appropriate successor to the C-70, which is saying a lot. There's a lot to be said, too, for its approach to adjustability, though cost saving isn't among those virtues. It also demands more understanding of high fidelity for correct use of these controls than is needed to make best use of a high-performance model at the other extreme—say, with no tone controls at all. Which is to say that while the C-85 isn't for everybody, it will delight those who want or need its particular abilities and know how to make good use of them. ■

#### T E S T R E P O R T S

## Pioneer CT-A7X Cassette Deck

DIMENSIONS: 16½ BY 5 INCHES (FRONT), 14 INCHES DEEP PLUS CLEARANCE FOR CONTROLS AND CONNECTIONS. PRICE: \$550. WARRANTY: "LIMITED," TWO YEARS PARTS AND LABOR. MANUFACTURER: PIONEER ELECTRONIC CORP., JAPAN; U.S. DISTRIBUTOR: PIONEER ELECTRONICS (USA), INC., P.O. BOX 1760, LONG BEACH, CALIF. 90801.

**T**HE CT-A7X, POSITIONED JUST BELOW THE top of Pioneer's current cassette-deck line, is a three-head unit allowing monitoring from the tape during recording. It has the company's proprietary laminated-sensidust recording and playback head elements mounted in a single housing, a

closed-loop dual-capstan drive, Dolby B and C, and, as befits a model intended for serious recordists, a defeatable multiplex filter.

There are also the usual convenience features (timer operation, music seek in either direction, automatic source/tape monitor

(CONTINUED ON PAGE 79)





# 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 \$699.*

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.

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.

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

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 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 micro-

cassette 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.

And, most important. By using normally dead time that gets wasted every day, you'll find you have more free time to spend with your family and friends and to pursue your hobbies. Wow!

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, profit, and more in just about an hour.

Just imagine how effectively you can get your ideas across to clients when you can change variable models of their potential costs or profits right in front of their eyes in their own offices or even at a restaurant while you wait for lunch.

Plus there's a scheduler program for setting up appointments with day by day calendar screens that you can print out.

You can even look at a bar chart that shows how you've planned every 1/2

hour for the next 24 days. It's great for slotting in new appointments.

Of course there's a vast reservoir of programs you can buy or even 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, you can study your stock portfolio or log onto databases to make airline reservations, check the latest price of gold or the specific history of one of your stocks. You can even get the current S&P Green Sheet Reports.

And, look at this. You can actually  
Next Page Please. . .



...Epson Continued look up on-line information about public companies' 10K reports, such as earnings, officers' salaries and trends. Wow, what a great way to keep track of your competition, suppliers and customers!

If you're a student, you'll find a wealth of research information available through your modem on thousands of diverse subjects. There are lots of group forums on-line to help you with educational research. Plus, when you're through studying, you can even log onto a computer dating board and choose your ideal mate.

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, complete with a full manual and \$25 worth of free on-line time.

While many bulletin boards are free, you'll find that learning your way around CompuServe with \$25 worth of free time, will give you a good solid knowledge of how to get the information you want from bulletin boards across the country.



### 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.

```

not editing
      <<<  O P P I N G  M E N U  >>>
D  Open a document file      F  PRINT a file      T  TRANSMIT a file
#  Open a non-document file  O  COPY a file      C  RECEIVE files
L  Change logged drive      Y  DELETE a file    X  EXIT to system

      C U R S O R  M O V E M E N T S
--Cursor Movement--  Delete  Miscellaneous  Other Screen
B char left  D char right  O char  TAB  B Before  X Block
A word left  F word right  DBL chr LP  Y INSERT CG/OPP  O Onscreen
B line up    Z line down  T word at  L Find/Backup again  O Print
--Scrolling--        T line  #STOP End paragraph  O Quick
* up line    Z down line  B insert a RETURN  HELP display/
B up screen  C down screen  U Stop a command  remove menu
  
```

If you already use WordStar, you know why it's the most popular word processing program in the U.S. 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.

No matter where you use Epson's computer, you'll have up to 10-20 uninterrupted hours of computing from its internal ni-cad batteries. Then it will automatically shut down. Even after battery-low shutdown, your memory will be protected by the internal backup battery.

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



Geneva's microcassette drive gives you a choice of storing your files on the RAM disk or on microcassettes. The on-board microcassette drive uses standard 30 or 60 minute microcassettes.

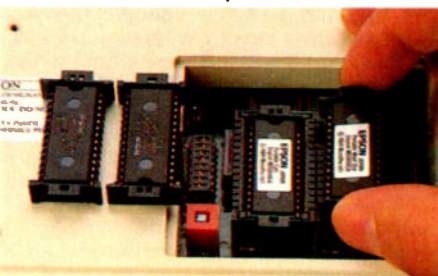
Just one 30 minute tape will store up to 50,000 bytes of information (about 25 pages of text).

And, don't forget, this intelligent machine actually stores a directory at the front of each cassette and in RAM. You can directly access any whole file without having to search a whole cassette.

This computer will power off after 10 minutes if you don't enter data to save its batteries. (Shut off time is adjustable.) Just flip a switch and you'll be exactly where you were when it powered down.

It can use its on-board clock to turn itself on. And, if you type in a password, your information will be secret.

This \$995 Computer comes complete with 4 powerful software programs plus a group of Utility Programs. The programs are stored on ROM Chips 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.

You can write very sophisticated programs in Basic. This advanced Basic is so powerful that it even supports such obscure extensions as Inkey\$. And, it supports sound, so you can even finish Schubert's 'Unfinished Symphony'.

```

*** RAIS ROBO ***
Select a program or ESC t exit
1:auto power off          * RAM disk
2:CFP # function key      *#F 232C
3:cursor & function key display  @screen mode
4:date a time             @serial
5:disk drive              @user BIOS
6:printer                  @country

CONFIG V1.0
  
```

Here's just one menu from the Utility Programs Rom.

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, don't fret, there is lots more RAM and power to come.

### THE FLYING WEDGE

A 24K RAM disk may sound like a lot of writing to some. But if you write as much as I do, you're sure to want more.

Another reason for more RAM is that WordStar creates back-up files which occupy memory space.

Back-up files are really great, because if you are editing a file you've written and you really mess it up, you can go back and get your untouched back-up file and start over. So read on for more memory.

Epson makes a \$360 accessory (included) called a Multi-Unit which gives you a 64K RAM disk and leaves all the RAM within the computer free for processing.

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. The 1st modem I described earlier is included inside the Multi-Unit Wedge. It's a 300 baud auto-answer, auto-dial, Tone & Pulse Modem.

It's a terrific modem that comes with a modular phone cable that you plug into any standard phone jack and away you go.

Well you won't go far, since Epson doesn't include a modem program. The modem program is a \$79 value. We've included one that lets you dial in Tone or Pulse, and send or receive files. It's very sophisticated but it's very easy to use.

And oh yes, the Multi-Unit has one more feature. It has a 3rd ROM slot for the Utility ROM. So, you can keep 2 programs loaded in the computer. You can swap ROMs in less than 10 seconds, so it's no big deal, but an extra slot is nice. Once attached, the Multi-Unit actually becomes part of the computer.

### GENEVA USER'S GROUP

There is a terrific guy who knows just about everything about the Geneva, including where to find all types of software for more diverse applications.

It's a free bulletin board. If you have a modem now, you can log on by dialing 1-313-538-6968. The SysOp, as system operators are called, can answer questions and even supply you with public domain software.

He's been an incredible help to me and he's got everything from a spelling dictionary to an outline formatter to games. He can even produce ROMs for you or direct you to various bulletin boards you'll find of interest.

Since he doesn't work for DAK, I can't guarantee he'll always be there, but he has been for me, and at least you'll get a running start on doing a whole lot more than you, or frankly Epson, probably ever imagined with this computer.



Here's the 2nd included Modem. It's an external Acoustic Modem. One last word about modems. If you're Next Page Please. . .



...Epson Continued on the road, you may need Epson's \$129 acoustic coupler modem. It fits on pay phone and hotel room handsets (the rounded traditional kind only).

It's a 300 baud modem that you can use with any computer. It has its own internal ni-cad batteries and its own charger. Wow, this is some system.

#### 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 has a Self Test Mode, Bold, Underline, Condensed and Expanded Type capabilities. It's a superb value at \$299, but to be honest, I've seen it selling for as little as \$199.

This printer is the best NLQ printer I've used. I'm proud to have my important business letters produced on this printer mailed from my office.

I can't overemphasize what a powerful word processing system this is. You can even do text screen dumps (print out exactly what you see on the screen).

#### AND YOU THOUGHT THAT WAS ALL

Epson didn't include free cables to connect any of these devices, but we have. You'll get a \$29 cable to connect the Geneva to the printer or to your desk top computer.

But, does your computer have male or female Serial plugs? Well I don't know, so we've included a \$19 Gender Bender so you can connect to male or female.

For external modem use, you'll need what's called a Flip (included). It's a \$19 value and it makes Epson's cable suitable for a modem. So, wherever you take your Geneva, you can plug in.



#### THE BEST FREE PART OF ALL

We've written an easy to understand, step by step instruction book that basically instructs you how to take the computer out of the box and how to plug it in.

Then in step by step detail, you'll get into each facet of its basic capabilities.

Of course, you'll get a massive set of individual instruction and reference manuals from Epson and MicroPro too.

By the way, if you suffer from fear of spreadsheets and modeling, in an hour you'll be a confirmed user. MicroPro's Calc tutorial is fabulous.

#### 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 and what it does. So, only the very sophisticated

consumers who figured it out themselves were able to put together a really productive system.

Enter DAK. We were stuck with 6714 computers. We made them a ridiculously low offer (we frankly didn't think they'd accept) for everything. Well, 6714 computers isn't very much to a company the size of Epson, so they accepted.

Then, we sifted through all the components and chose just the most useful, added the printer, the cables and the programs required and slashed the \$1,968 retail price down to just \$699.

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

#### THE COMPLETE COMPUTER SYSTEM RISK FREE

Wait till you experience the power and your own increase in productivity, as I have. I'm amazed at the amount of work I can get finished in half hour segments if I'm stuck at a restaurant or during unexpected breaks between meetings.

What's even more 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.

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 just \$699 plus \$18 for P&H. Order Number 4610. CA res add tax.

#### OPTIONS

Once you attach the Multi-Unit Wedge or options below, the computer initializes itself to the installed component. So, the following 2 options are instead of, not in addition to, the Multi-Unit.

If you don't need the extra 64K RAM disk memory, you can have the complete system with a Wedge that contains only the Modem for just \$629 (\$18 P&H) Order No. 4611.

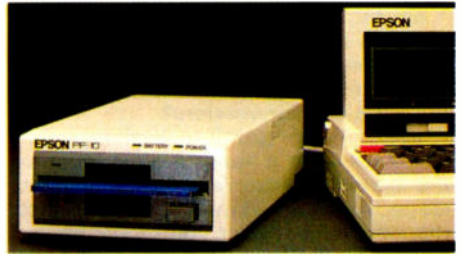
If you don't need a modem and you're into writing long novels, we have the complete system less the modem and CompuServe package but with a Wedge that gives you a 120K RAM disk (Wow!) for just \$799 (\$18 P&H) Ord. No. 4612. Note: You can still use an external modem.

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 3½" floppy disk drive. It's rated at 320K. It has internal Ni-Cad Batteries and an AC Adaptor/Charger. Ep-

son'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. Note: You may connect up to two disk drives.



A box of 10 Double Sided Double Density 320K Floppy Disks is just \$34 (\$1 P&H) Order No. 4615. Note: 3½" disks are the standard format for many of the newest computers.

High Grade Microcassettes for the cassette drive are available in 30 and 60 minute lengths. They come in hard plastic boxes. 30 minute microcassettes are just \$2.00. (\$0.50 P&H). Ord. No. 4616. 60 minute microcassettes are just \$3.00. (\$0.50 P&H). Ord. No. 4617.

The Seikosha printer comes with a unique long life ribbon (up to 2½ million characters). Extra ribbons are just \$7 (\$1 P&H) Order No. 4618.

You'll buy or download software as you broaden your computing needs. Epson had some great programs in stock.

You can have Travelers Pack: Time, Appointment, & Expense manager which is fabulous for a lot of reasons. But, if you bill your time, it lets you feed in projects and multiple billing amounts for each client. Each program is on its own ROM and it's a \$139 retail value. It's yours for just \$29 (\$2 P&H) Order No. 4619.

Epson even had a small supply of Ashton-Tate's dBase II on ROMs for the Geneva. It's a sophisticated relational database management program. It's file compatible with desktop dBase II versions. It's a \$469 retail value that's yours for just \$199 (\$3 P&H) Order No. 4620.

Epson also has Ashton-Tate's dBase II on ROMs which is a less expensive version of dBase II with most dBase II functions. It's also file compatible with desktop versions of dBase II. It's a \$329 value that's yours for just \$129 (\$3 P&H) Order No. 4621.

As you can see from the above software, the Geneva can run even the most complex, sophisticated programs. It makes duck soup out of most of the standard \$20 to \$99 programs you'll find.

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 desktop PCs.



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# Escort Refuses!

Dear Customer, *From: Drew Kaplan*

Escort turned down our \$10,000 head to head challenge described below. Escort says that Maxon's Radar Detector is "primitive", "bottom-end" and "an off-shore produced electronics 'gadget' ". I don't know about you, but to me these words conjure up visions of a cheap toy being produced off in the middle of a rice paddy somewhere in the middle of nowhere.

Escort, on the other hand, which is made in the U.S., exudes a high cost, quality image. Don't you just bet that it costs a fortune to build Escort and Passport (the smaller version)?

Well, we are going to challenge Escort AGAIN to a head to head 'duel to the death' on Maxon's electronic merits alone. And, we plan to win. But first there are a few things you should know.

Cincinnati Microwave, the company that makes Escort & Passport, is a public company. And being public, they have to file financial information with the SEC.

The public information they have published appears to show that in the year that ended Dec. 1985, Cincinnati Microwave with "substantially all of its revenues and profits derived from the sale of radar warning receivers" made an operating profit of about \$45,810,000 on sales of about \$112,605,000. Wow!

The \$45 million profit is after all engineering, selling and General & Administrative expenses, but before taxes.

Their cost of sales (goods) was only about \$40,027,000. So, if you divide \$40,027,000 by \$112,605,000 it doesn't take a genius to figure out that cost of goods represents an average of only about 35.5% of selling price. Wow!

I only bring up their profit to illustrate that a high retail price doesn't always

mean a high manufacturing cost.

There's no question in my mind that Maxon can manufacture cheaper in an off-shore 'rice paddy', but if you pay \$245 for Escort or \$295 for Passport, it should be based on a head to head test with Maxon, not on perceived retail price points.

## FORGET PRICE COMPLETELY

So, forget that Escort costs \$245, Passport \$295, and Maxon \$99<sup>90</sup>. Let's judge them on their own merits. And, let's look at just what Escort itself has to say about our challenge. (Please read DAK's and Escort's letters to the right.)

Escort says that, "Regardless of the results, such an event lends credibility to the challenger." Well, they are absolutely correct. That's why I put up the \$10,000 in the first place. Fair is fair.

Plus, there are several radar detectors that claim to have won this or that ranking in "Independent Magazine Reviews." So, I'm ignoring any reviews and asking for a one on one, head to head test.

*But look at what Escort says in their letter:* "Range is the easiest detector quality to measure, but by no means the only important quality." Wow, I thought range was really important?? Escort refers to "goodness" being determined by things not so easily measured.

Well frankly, I don't know how to measure "goodness". Escort, in my opinion,

is a top notch company. They make a superb product I'd be proud to sell. And, they have great customer service.

DAK has great toll free technical and regular customer service. But, I'd be the first to admit that with over \$45 million in profits, Escort can probably run circles around us in advertising, and maybe even in service. But, I don't think they can beat Maxon's Radar Detector.

## HOW GOOD IS GOOD?

When Escort was introduced, it was revolutionary. But, you can only go so far. And in my opinion (someone else might object), radar detecting has gone about as far as it can go. So, while Escort has made improvements, it's Maxon who has moved mountains to catch up.

## DAK UPS THE ANTE TO \$20,000

Now I realize that next to \$45 million dollars, \$20,000 isn't much, but it's a lot to DAK. And, I'll even go one step farther. I'll print the exact results of the test, win, lose, draw, or no-show in the first catalog I publish after January 1, 1987.

Escort, the ball is now in your court. Below is the "NEW" version of my challenge with the time and amount changed.

I don't know what else DAK or Maxon can do to prove that the RD-1 Superheterodyne Detector should be judged on its head to head performance against Escort, not on its selling price!

WAS \$10,000

# A \$20,000 Challenge To Escort

*Let's cut through the Radar Detector Glut. We challenge Escort to a one on one Distance and Falsing 'duel to the death' on the highway of their choice. If they win, the \$20,000 (was \$10,000) check pictured below is theirs.*

By Drew Kaplan

We've put up our \$20,000 (was 10). We challenge Escort to take on Maxon's new Dual Superheterodyne RD-1 \$99<sup>90</sup> radar detector on the road of their choice in a one on one conflict.

Even Escort says that everyone compares themselves to Escort, and they're right. They were the first in 1978 to use superheterodyne circuits and they've got a virtual stranglehold on the magazine test reports.

But, the real question today is: 1) How many feet of sensing difference, if any, is there between this top of the line Maxon Detector and Escort's? And 2) Which unit is more accurate at interpreting real radar versus false signals?

So Escort, you pick the road (continental U.S. please). You pick the equipment to create the false signals. And finally, you pick the radar gun.

Maxon and DAK will come to your highway with engineers and equipment to verify the results. And oh yes, we'll have the \$20,000 check (pictured) to hand over if you beat us by more than 10 feet in either X or K band detection.

## BOB SAYS MAXON IS BETTER

Here's how it started. Maxon is a mammoth electronics prime manufacturer. They actually make all types of sophisticated electronic products for some of the biggest U.S. Electronics Companies. (No, they don't make Escort's).



Bob Thetford, the president of Maxon Systems Inc., and a friend of mine, was explaining their new RD-1 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 design can beat theirs".

So, since I've never been one to be in second place, I said, "Would you bet

\$20,000 (10) 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 (was \$10,000) is serious.

...Next Page Please



**...Challenge Continued**

- 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 both tests.
- 4) We'd like an answer from Escort no later than December 31, 1986 and 60 days notice of the time and place of the conflict. And, 5) We'd like them to come with a \$20,000 (was \$10,000) check made out to DAK if we win.

into action in just 1/4 of one second.

Just imagine the sophistication of a device that can test a signal 4 times in less than 1/4 of one second. Maxon's technology is mind boggling. But, using it isn't. This long range detector has all the bells and whistles. It has separate audible sounds for X and K radar signals because you've only got about 1/3 the time to react with K band. There's a 10 step LED Bar Graph Meter to accurately show the radar signal's

And you'll have a very high level of protection. Maxon's Dual Conversion Scanning Superheterodyne circuitry combined with its ridge guide wideband horn internal antenna, really ferrets out radar signals.



By the way Escort, we'll be happy to have our test around a bend in the road or over a hill. Maxon's detector really picks up 'ambush type' radar signals.

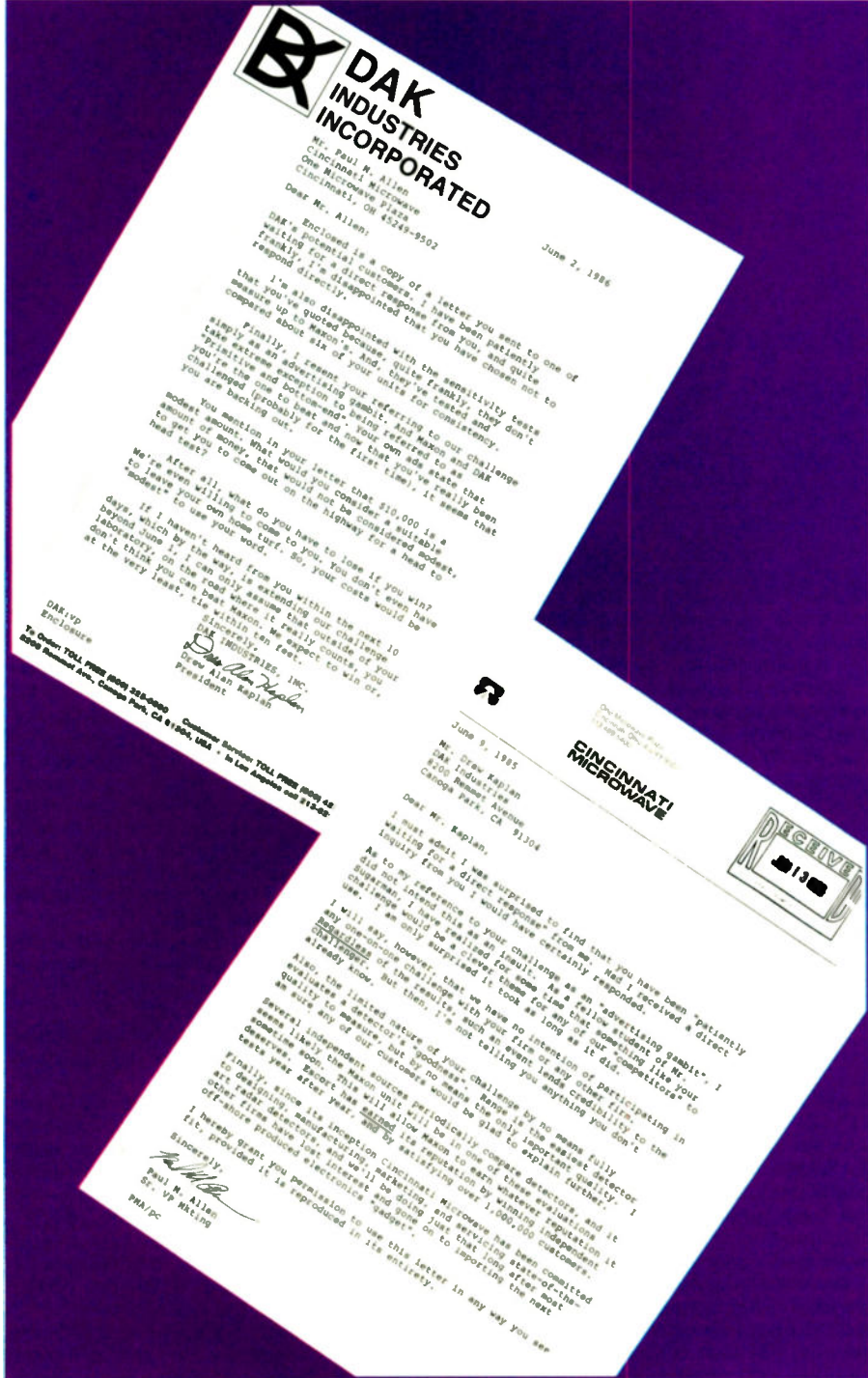
And the key word is 'radar', not trash signals. The 4 test check system that operates in 1/4 second gives you extremely high protection from signals from other detectors, intrusion systems and garage door openers.

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 reduces the less important X band reception in the city.

Maxon's long range detector comes complete with a visor clip, hook and loop dash board mounting, and the power cord cigarette adaptor.

It's much smaller than Escort at just 3 1/2" Wide, 4 3/4" deep and 1 1/2" high. It's backed by Maxon's standard limited warranty. Note from Drew: 1) Use of radar detectors is illegal in some states.

2) Speeding is dangerous. Use this detector to help keep you safe when you forget, not to get away with speeding.



**CHECK OUT RADAR YOURSELF RISK FREE**

Put this detector on your visor. When it sounds, look around for the police. There's a good chance you'll be saving money in fines and higher insurance rates. And, if you slow down, you may even save lives.

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

To get your Maxon, Dual Superheterodyne, Anti-Falsing Radar Detector risk free with your credit card, call toll free or send your check for just \$99<sup>00</sup> (\$4 P&H). Order No. 4407. CA res add tax.

OK Escort, it's up to you. We've got \$20,000 (10) that says you can't beat Maxon on the road. Your answer, please? Escort and Passport are registered trademarks of Cincinnati Microwave.

**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

strength. And, you won't have to look at a needle in a meter. You can see the Bar Graph Meter with your peripheral vision and keep your eyes on the road and put your foot on the brake.  
So, just turn on the Power/Volume knob, clip it to your visor or put it on your dash. Then plug in its cigarette lighter cord and you're protected.

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# Weird Music?

Now you can listen to music that's coursing through the AC wiring system of your home. It's exciting. It's soothing. It's vibrant. And, it's all around you.

By Drew Kaplan

No, I don't want you to listen to the 60 cycle hum of your AC power. No, I don't want you to listen to a 120 volt blast.

But, if you're like me you're going to find that this 'Weird Music' is really going to end musical frustration. And frankly, I've been frustrated.

As you might expect from reading my catalogs, I have 4 complete music systems in my home, and a very large collection of records, cassettes, open reel tapes and CDs.

One reason I'm frustrated is because I can't listen to my open reel tapes unless I'm at one of my two main systems.

And, if I'm on the patio, in the kitchen, or in the garage, I'm relegated to AM, FM or cassettes on a pocket stereo or portable.

And frankly, I've never taken the time to transfer all my albums, open reel tapes and CDs to cassettes. So, I haven't been able to listen to what I want where I want.

## WELL, NO MORE

It may seem weird to plug a speaker into an AC outlet, but a new technological breakthrough has allowed me to listen to any music I choose from my best stereo, anywhere in my home.

The music (or speaking) is transmitted through the AC wiring in my home.

So, instead of running speaker wires all over my house, I just plug in a speaker wherever I want rich, room filling sound.

I really like it. I had always wanted to have wireless speakers in my living room because my wife hates having me run wires everywhere.

In the dining room, we can have uninterrupted music from one of my auto-reverse cassette decks 'piped in' while we entertain guests.

In the bedroom, now I can listen to my old open reel tapes. And in the garage, I can use the continuous programmable playback from my CDs. Of course, my system can transmit AM or FM too.

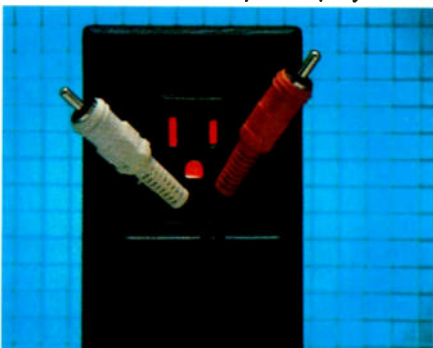
## NOT STEREO AND PROBLEMS

It's not a perfect system. But, you'll be shocked by the magnificent rich sound.

And, installation consists of simply plugging its cable into the left and right tape jacks of your receiver and plugging in the AC power transmitter.

It will have no effect whatsoever on your stereo system.

**NOTE:** Don't worry about your tape jacks. Extra jacks are provided so you won't lose the use of your tape jacks.



But, it's not stereo. It combines the signals from the left and right channels



and transmits a combined signal throughout your home's electrical system. So, you'll enjoy full rich music anywhere.

You can plug in as many 2-way speaker systems as you wish. And, you can plug them in anywhere in your home, or office, that you'd like vibrant, room filling music.



The 9½" X 4¾" X 6" speakers will knock your socks off with their rich full sound. A 4½" woofer combined with an acoustically designed cabinet really belts out the bass, while a 2½" tweeter easily matches the high frequency response of most traditional speaker systems.

**A word about noise.** You can virtually forget it. This system is virtually noiseless. It operates on VLF (Very Low Frequency) FM that is virtually unaffected by noisy motors and fluorescent lights.

It will, however, react to wireless intercoms and the BSR's X10 remote control system that we sell. But, the reaction is momentary and not too bothersome.

So, in short, although it's not stereo (you can put two speakers in a room), it's a fabulous sounding way to listen to your favorite music wherever you are.

**IT'S PORTABLE**

Installation of the speakers consists of simply plugging them in. Then you can adjust their On/Off volume controls.

Each even has a handle on the back so you can take them out to the garage, the patio or even to unattached barns.

As long as you're on the same side of the AC transformer (most houses are), virtually any plug in your home should be a source of your favorite vibrant music.

It's made by Universal Security and backed by their limited warranty.

**NON-WEIRD MUSIC EVERYWHERE  
RISK FREE**

Wait till you hear the quality and depth of the sound. Wait till you listen to your favorite music in the bathroom, guest room, laundry or bedroom.

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

To order your Wireless Music System complete with Transmitter, Cables and a 2-Way Speaker System risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$69<sup>99</sup> (\$5 P&H). Order No. 4631.

You can add as many extra, Dramatic Sounding 2-Way Powered Speakers as you wish. Each is just \$49<sup>99</sup> (\$4 P&H). Order No. 4632. CA res add tax.

It's big sound wherever you are. Don't just expect boom box quality. You'll have rich deep bass and clean highs. And, best of all, you'll have your favorite music.



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# Thunderstruck

*It's like riding a roller coaster. You never know what to expect next. About the only thing you can be sure of is that you'll have great sound from this magical new deck. It's yours for just \$149<sup>99</sup>, with no catch.*

By Drew Kaplan

It's no secret. You can see that it's a double deck for dubbing. You can also see that it features auto reverse for non-stop entertainment.

And, you can even see that it has high speed dubbing for expanding your tape collection or making tapes for your car or personal stereo.

But, what you can't easily see is what you're going to get when you add up all these sophisticated innovations and then throw in some surprising extras.

## STRANGE EGG

And speaking of strange extras, what would you think of being able to listen to two tapes at the same time. It's great for mixing vocals, but it's a feature that I've never seen before.

But, let's look at some everyday useful features that make this deck totally unique and superbly useful. Of course, it has a frequency response to 17,000hz, so whatever you do will really sound great.

First, let's just listen to a tape. Just put the tape in deck '1' and activate the 'soft touch' play button. Well, that's really too simple. Let's listen to song 3 on side two of the tape.

This deck features forward and reverse APSS. Just touch forward APSS and the deck will locate the beginning of the next song on the tape and start playing.

If you'd like to skip the rest of the song or continue skipping songs, just press forward APSS. If you're listening to a song you'd like to hear again, just touch reverse APSS. The deck will locate the beginning of your song.

Since APSS locates the beginning of each song on your tape, this feature will make it really easy to choose the exact order in which you want to copy songs. APSS even allows you to have the deck pause at your song.

If you noticed above that I said song 3 on side 2 of the tape, it must be clear that this is an auto reverse deck and that APSS will search both sides of the tape.

When you're playing a tape, the deck will reverse automatically at the end of a cassette, or at any time you touch the 'Tape Direction Button'.

## JUST THE BEGINNING

Just imagine listening to both sides of a cassette and then having a second cassette start to play both sides on and

on, forever. Well, this deck features sequential play between its two decks.

So, you can listen to 3 hours of un-repeated music from 2 standard 90 minute cassettes. Then, the second deck will keep repeating, forever.

Both decks give the option of conventional one-way play or continuous play. Now you can have uninterrupted music while you work or while you relax. And, isn't that what enjoying your music is all about?



## AND OH, DOES IT RECORD

Imagine putting a recorded tape in deck '1' and copying BOTH SIDES automatically. Well, with Sharp's new deck, that's exactly what you'll do.

You can copy both sides of a pre-recorded tape onto a single side of a 90 minute cassette automatically. (Both decks can reverse totally independently.)

You can duplicate at normal or high speed. So, you can make copies in half the time of both sides of your cassettes.

This deck has electronic high speed dubbing. Each of its decks has 2 capstans for rock stable tape transport. About the only thing this deck doesn't have is Dolby C. But with its 66db signal to noise ratio with Dolby B, it sounds great.

Note: When you copy tapes, you turn off Dolby. If the tape is already encoded with Dolby B or C, the copy will be identically encoded as well.

Add Sound On Sound. If you sing, this is the deck for you. Here's what you do. You can play a music tape on deck '1', plug in a mike and sing along while you record everything on deck '2'.

Or, if you're really into professional applications, look at this. Plug in a mike and record your own voice on deck '2'. Then play the tape back on deck '1' and

copy the tape onto deck '2'. While the tape is being copied, you can add yourself singing harmony. In this way, you can be a duet, a trio or even a chorus.

## ROUND AND ROUND IT GOES

It goes forward. It goes backward. And, it goes round and round. Just wait till you see this recorder in action.

You'll sit mesmerized as one tape stops and the other starts. Then it reverses and goes back and forth and back and forth. Are you getting sleepy?

Except for the occasional click as this machine changes decks or reverses direction, nothing will disturb your music for as long as you want with this incredible new deck.

Each deck has its own equalization switches to match tape type. Each deck has full play, pause, and reverse controls. Deck '2' is the deck that records.

The deck is 17" wide, 4 3/4" tall and 9 3/4" deep. It's backed by Sharp's standard limited one year warranty.

## BE THUNDERSTRUCK RISK FREE

Wait till you hear the clean pure music that this deck will produce. Wait till you get your hands on its solid controls. Wait till you enjoy uninterrupted hours of your favorite music from two different cassettes. And finally, wait till you copy both sides of cassettes automatically.

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

To order your Sharp Dual Cassette Deck with High Speed Dubbing, Sequential Automatic Play, Dual Auto Reverse, and much more, call toll free, or send your check for DAK's breakthrough, no catch, price of just \$149<sup>99</sup> plus \$6 for postage and handling. Order No. 4521. CA res add tax.

Sure it's fancy. Sure it does just about everything but fly. But, what you'll really love is the sound quality and the musical freedom you will enjoy from now on.



## TOLL-FREE ORDER LINE

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# 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 ambient 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 ambience.

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 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, 19¼" wide and 10½" 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 \$298 for the MATCHED PAIR plus \$22 for Postage and Handling. Order No. 4352. 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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**\$49<sup>50</sup> BREAKTHROUGH!**



When you are at rest, so is your heart. A low resting heart rate usually means you're in good condition. Have you checked yours?



When you exercise, you should reach your heart's target zone. But, have I reached my exercise target zone, or just had too much coffee?



# Heart Window

**Now you can exercise, rest, swim or go out to dinner wearing the latest in computer pulse takers on your wrist. Plus, it's a talented sports watch and a formal dress watch too.**

By Drew Kaplan

It's a fact. You can tell a lot about yourself from your heart rate. You can evaluate the condition you are in, how much stress you're under, and how hard you should be exercising.

Think about it. How fast does your heart beat when you climb a flight of stairs? And how long does it take for your heart rate to return to normal?

Well, if you're at all like me, you may be a little out of shape. While I'm only 37, several friends of my own age have recently had heart attacks. And frankly, I'm getting just a bit worried.

You see, I am getting past the point where I can simply say, "I'll get back into shape next year."

So, whether you're a long distance runner (this is the ultimate jogging companion), or just a few pounds overweight like I am, your heart rate will give you a picture of your heart and body's condition.

Now you can take your heart rate anytime, anywhere with the newest in sophisticated electronic pulse takers.

And best of all, this heart computer is contained in a beautiful 24 hour alarm, 24 hour chronograph, LCD watch, that you will be as proud to wear with a coat and tie as you are when you're running.



## YOUR HEART'S TARGET ZONE

Your heart, just like any other muscle in your body, requires exercise. Unfortunately, unlike your arms, you can't see your heart's condition just by looking.

The type of exercise called aerobic exercise is specifically designed to exercise your heart. The purpose of aerobics is to reach your heart's target zone.

So what is your target zone? Your target exercise zone is between 60 and 80% of your maximum heart rate. And here's an easy way to figure it out.

Simply subtract your age from 220 beats per minute. So, for me at 37, my maximum heart rate is (220-37) or 183.

So when I exercise I should get my

heart rate up to at least (183 X 60%) or 110 beats per minute, and no higher than (183 X 80%) or 146 beats per minute.

With the Heart Window to help me, I can be sure that my workouts are valuable for my heart and neither dangerous escapades or total wastes of time. Of course, before beginning any exercise program you should consult your own doctor. Note: The Heart Window is designed to indicate your pulse rate and aid your exercise, not to make medical diagnoses. **BUT ISN'T EVERYONE DIFFERENT?**

Here's the really exciting part. The worse shape you're in, the faster you'll reach the target zone and the less work you'll have to do to stay in the zone.

You see, as you get in shape, your heart doesn't have to beat as hard to do the same amount of exercise. Just as when you work out with weights your arms become stronger, your heart becomes stronger with aerobic exercise.

So the Heart Window is safe for the beginner or the athlete. And, you'll really see your improvement as you exercise.

But you don't have to exercise. Just wearing the Heart Window and using it at the office when you're under stress, after you've walked up some stairs or around the block, will make and keep you aware of your body's physical condition.

And look at this. Sit down at your desk and take your pulse. Then drink a couple of cups of coffee and take your pulse again. You'll see just what your morning 'pickup' actually picks up, and if, God forbid, you smoke, take your pulse before and after a cigarette. Wow!

## ALL ELECTRONIC

With Innovative's new Pulsemeter watch, you'll have supreme accuracy. It's like a direct electronic line to your heart.

You see, unlike other pulseimeters that use a light shining through your finger, or a microphone to take your pulse, this instrument actually measures the electrical impulses that cause your heart to beat.

The back of the watch is one receptor, and the metal touch sensor on the front of the watch acts as the other sensor. Just touch the sensor, and you'll see your pulse on the large LCD Display.

## IS IT A DRESS OR SPORTS WATCH?

Innovative Time thinks that everyone interested in their pulse must be a pro-

fessional athlete. So, they've built this watch with all the athletic extras.

It's not only water resistant, it's guaranteed to 60 feet (although you can't actually take your pulse underwater). It has a stopwatch, a lap timer, and dual finish mode. Its band is made of very tough polymers. So, it's a sports watch.

But wait, I don't like black watches for dress. So, I've gotten Innovative to add a deluxe matching stainless bracelet to the watch. It's rendered in stainless and black and is a perfect high fashion choice. So, it's a dress watch.

Plus, there's a 24 hour alarm and an hourly chirp. The stainless band is great for sports or dress. So, you'll get the watch with the black band on it and the high fashion band packed with it, compliments of Innovative Time's superb engineering and DAK's good taste.

The Heart Window is backed by Innovative Time's 1 year limited warranty and comes with a 1 year battery in place.

## TRY THE HEART WINDOW RISK FREE

Now you can look at your heart as easily as the time. You'll see how you react to stress, foods and exercise. Don't let DAK's low price confuse you. Take this pulse watch to your own doctor and have him test it.

Try the Heart Window risk free. Try exercising and then check your cardiac recovery rate. If you don't like what you see, you'd better keep the watch. But if you just don't like the pulse watch, simply return it within 30 days in its original box for a courteous refund.

To order your Heart Window, Pulse Sports/Fashion Watch, complete with 2 bands risk free with your credit card, call toll free or send your check for just \$49.50 plus \$3 for postage and handling to DAK. Order No. 9844. CA res add sales tax.

In the gym, at the track or at the office, you'll have a direct connection to the condition of your heart.



**DAK** Dept. SR 36  
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# Cable Controller Plus

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 \$88, we're sure to break the cable market wide open.

If you've got cable, we've got it all. Now you can tune in up to 60 cable channels from your easy chair.

The Universal Cable Controller receives all VHF Low Band channels 2-13 and VHF Midband 14(A)-22(I).

Plus it tunes the Super Band VHF channels 23(J)-36(W) and Hyper Band channels from 37-60. You'll get a lot of stations for our breakthrough price.

## 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. You can select your favorite channels (up to 6) and store them in a special section.

Then just touch the special 'RCL' Recall Button and you'll be able to sequence through only your favorite channels. This is especially convenient if you like to flip through movie channels during commercials on regular TV.

For the 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 crystal controlled frequency phase lock loop synthesizer 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 ready video recorders that don't even tune in 60 channels can cost hun-

dreds of dollars extra. You can feed both your TV and video recorder. Or, you can separate them so that you can easily watch one thing 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 Ready' TVs and video recorders do basically the same thing as the Cable Controller, but cable tuning is usually an added on 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 20 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 60 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 \$88~~ plus \$5 for postage and handling. Order Number 4147. 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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# 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.

And what a secure feeling for teachers, to be able to see the children on the yard at a nursery school. It's a perfect 'parent group' gift to your school or church.

**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.

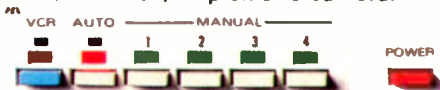
You can have one or all 4 cameras connected. And, connecting the cameras is the simplest thing of all.

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 12 1/2" deep. Each camera is just 9" deep, 4.5" 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 \$39<sup>00</sup> (\$3 P&H). Order No. 4550. CA add tax.

57' extension cables are just \$19<sup>00</sup> (\$2 P&H) Order No. 4551. **Note:** a pair of cable ends is included, so you can make your own cable, up to 300'.

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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# Tape Collection Expander Plus

Copying tapes is the simplest thing this dual auto reverse, dual recording cassette deck with Dolby C, RMPS, AMPS, Intro Scan and Sequential Record and Play can do. It's much more than just two recording decks.

By Drew Kaplan

You're listening to FM. Suddenly you realize that a song you really like is being played. And unfortunately, you've already daydreamed through half of it.

Well, now you can effortlessly build yourself a flawlessly recorded cassette collection of only your favorite songs.

Simply set this new relay recording dual cassette deck to record your favorite FM station, and leave. It will record **TWO COMPLETE CASSETTES** on both sides in sequence so you'll have 3 hours of recording from two 90 minute cassettes.

When you return, just start listening to one of the cassettes. When you hear a song you'd like, just put the other deck into record and you'll end up with a flawlessly recorded tape of only your favorite songs.

**But look at this!** This deck has a feature called Intro Scan. So, if you're wondering when you're ever going to have the time to listen to 3 hours of recordings, worry no more.

You can automatically play just the first 10 seconds of each song and only stop and record the ones you want.

And, recording from FM is just one of the many uses for this incredible deck.

## LOOK AT ALL IT DOES

If you're copying a record, you can make **two** copies at once. You can make one for your car and one for your main stereo at the same time.

You can even use different bias tapes in each deck because each deck has automatic bias sensing.

Of course, copying tapes is where this deck really excels. And, making flawless copies of **both sides** of a cassette at normal or high speed is just the beginning.

You can find a selection on the tape by using AMPS. AMPS (Automatic Music Program Search) lets you touch a button to advance to the next song on the tape. Or, you can return to the beginning of the current song you are playing.

It's a manual version of Intro Scan which I described earlier. It's important to remember that both Intro Scan and AMPS automatically function on both sides of the tape. In fact, they ignore the different sides and simply look at your cassette as a 90 minute piece of tape.

**But there's more.** There's RMPS. RMPS (Random Music Program Search) lets you play or listen to 15 random selections on your cassettes.

So, you can listen to song 7, 2, 15, and 6 on either side of the cassette. And you can copy a tape in any sequence you like.

Again, RMPS doesn't care what side of the tape a song is on. It lets you listen or copy in any order. This may seem odd, but I tend to use this feature to get rid of songs more than I use it to select them.

Let me explain. When I'm copying a record, it's a pretty good bet that I like most of the album or I wouldn't be copying it. But there are always a few songs I don't like. So I make a tape, then use RMPS to eliminate the songs I don't like.

## DREW LIKES IT

Before I talk about the quality of the sound, I've just got to tell you about this deck's automation.

Once you've programmed RMPS, one deck will fast forward, stop, then start playing a song. The other deck will switch into record and start at the same time.

Then both decks stop while the first deck 'looks' for the next song it is to play. Then they both start up again. This deck is simply mesmerizing to watch in action.

And I also like its continuous relay play. It first plays both sides of deck 1, then it plays both sides of deck 2. That's 3 full hours of non-repeated music.

But it never stops. It switches back to deck one and starts the whole 3 hour musical experience over and over again.

## BUT IT'S THE SOUND

As fascinating as this deck is to use and watch, without Sansui's meticulous attention to electronic detail, it wouldn't be worth its computers.

Sansui uses a unique High-Bs hard permalloy head and a double-gap ferrite erase head in **each** deck. In fact, the specifications are identical for both decks.

The frequency response extends from 20hz to 15,000hz with normal bias, to 16,000hz with CrO<sub>2</sub> and to 17,000hz with metal. The signal to noise ratio with Dolby C is 74db.

Each deck has dual capstans. Each deck has an electronically controlled DC motor for rock stable tape movement. And each deck's takeups and unwinds are operated by still another DC motor.

There is one set of controls for all the mechanical functions. Just select deck A or B. There is record mute for clean intros and exits.

And there is 'Auto Fade'. Just touch this button when you're recording, and in 4 seconds your recording volume will

fade to zero for clean professional endings. It also operates for intros.

What if you start recording a song that you decide you don't like. Well, just touch the RCPS button and the deck doing the recording will stop, rewind to the beginning of the selection you are recording and place itself in record pause.

If you are dubbing, the other deck will automatically fast forward to the next song and place itself in pause. Sansui has produced a very intelligent deck.

But, speaking of intelligence, there's one surprise that I think we 'tape nuts' will just have to get used to.

This deck features Automatic Level Control for each deck. Frankly, it does a great job. You won't notice any of the dynamic range compression that I've always associated with ALC.

What you will notice is perfectly recorded tapes every time. I still miss the controls, but I must admit that the recordings are flawless.

The Tape Collection Expander Plus is made by Sansui. It's their top of the line, and it sounds like it. It is 17" wide, 4½" tall and 9½" deep. It's backed by their standard limited warranty.

## EXPAND YOUR TAPE COLLECTION AND YOUR MUSIC RISK FREE

Record from the most dramatic digital disk you own. Then listen to the tape. You'll be sold. Then copy the tape and listen to the copy. You'll be amazed.

Wait till you see this deck explode into action. Wait till you feel the quality of its controls. If you're not 100% satisfied, simply return it to DAK in its original box within 30 days for a refund.

To order your Sansui Dual Auto Reverse, Dual Recording Cassette Deck with RMPS, AMPS, RCPS, Intro Scan and much more risk free with your credit card, call toll free or send your check for just \$349<sup>90</sup> (\$7 P&H). Order No. 4542.

Now you can have great music and total automation. And best of all, along with the audiophile quality, you can easily build a massive, totally personalized tape collection that you'll enjoy for years.



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# Answering Attack Phone

*Let's vanquish the problem of bulky complicated answering machines. And let's conquer the problem of lost beepers. Now when you're out, just the sound of your voice is all you need to retrieve your messages.*

Stamp out beepers. Here's a microprocessor controlled answering machine that's so smart it will give you your messages without using a beeper.

But, before we explore just how easy it is to use and all of its sophisticated features, such as, toll saver, 2-way record, and remote saving or erasing of messages, let's take a look at the phone.

Like the answering machine, the phone has attacked wasted motion, complicated commands and uncomfortable fit with the latest in technology.

Here's a phone that will dial any of your 10 most frequently called numbers with the touch of a single button. Just touch another electronic button and the phone will operate in Tone or Pulse.

Another button gives you instant redial. And, as for comfort, well just wait till you cradle the great sounding Phone Company style handset on your shoulder.

This phone which can be desk or wall mounted, is no larger than a conventional feature phone. It's just 9" deep and 8½" wide. And, a standard instantly changeable audio cassette (included) is concealed just to the right of the handset.



## TOLL SAVER, OR THE 4TH RING

If you're across town or out of town, why invest a dime or pay for a toll call if you have no messages?

Each time you reset your machine, it will answer the first call on the 4th ring. After it's taken its first message, it automatically starts answering on the second ring. So, when you call in, just hang up if you get to the third ring. You'll automatically know that you have no messages.

If you do have messages, just give the machine a special signal with your own voice, and you'll receive your messages. Then you can have the machine save or erase the messages that you have heard.

## MISSILE GUIDANCE

This machine is so smart that it electronically marks each message's location. It knows precisely where your outgoing announcement as well as each message that has been left is located.

The action is fascinating to watch. First, it plays your outgoing announcement. Then, it sounds a tone as it zips to the end of the last message it took.

It then beeps and starts taking the new message. Finally, it rewinds back to the precise start of your outgoing announcement, prepared to start again.



## MORE SMARTS

If you want to record both sides of a call, just touch the 2-way record button

and you'll have a record of the call.

Everything is automated. Just touch one of the full logic controlled buttons and this computer answers with a confirming beep and jumps into action.

To play back messages at home, just touch the 'Message Report' Button. A flashing message light even tells you at a glance if you've received any messages while you were out.

## EASY INSTALLATION

Just plug in the modular phone jack and the included AC adaptor. Then, just record your announcement.

The Answerer Attack Phone is ready to take messages or act as your super automated office or home telephone. It's made by Unitech and backed by their standard limited warranty.

## THE ANSWERER ATTACK PHONE RISK FREE

It's new. And, it will set you free. From its Phone Company feel handset to its electronic convenience extras to its state of the art answerer, you'll have incredible convenience and simply great sound.

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

To order your Unitech Answerer Attack Phone with totally automated telephone features and easy to use answering machine risk free with your credit card, call toll free or send your check for DAK's breakthrough price of just \$99 plus \$7 P&H. Order No. 4359. CA res add tax.

Wait till you hear the phone. Wait till you use the 1 touch dialing. And, wait till you hear the sound quality and enjoy the convenience of this answering machine.



## VANQUISH THE REST

Easy to use. Forget cumbersome 'fixed time' outgoing announcements. Most machines make you fill a 20 second continuous loop cassette.

If you've ever tried to do this, you know just what a pain it is to make your message just the right length. With the Attack Answerer, just push 'Record Announcement' and talk into the built-in microphone from 2 seconds to 50 seconds.

After you've recorded your announcement, the machine will automatically play it back for your approval.

When you get your first call, it will be answered on the 4th ring. (Read on to see why.) If you're at home, you'll hear the message being left by the caller over the built-in speaker if you desire.

If you wish to talk to the person, just pick up the receiver and start talking. If you don't, you've just experienced the privacy protection called 'call screening', which lets you hear who's calling before you decide to answer.

This machine will let your caller leave any length message up to one minute long. If they hang up in 20 seconds, that's how long the message will be.

If they don't choose to leave a message, the machine will ignore the call. So, when you play back your messages, all you'll hear are messages, no dead space. And of course, you won't have to listen to your own announcement between each message you receive.

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# Stereo Phone Plus?

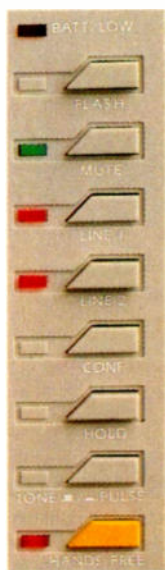
*It has two channels. It has a great sounding speaker. And like a jukebox, simply touch its buttons to choose any one of your 20 favorite selections. Get two channels for \$69<sup>90</sup>, or a single channel unit for \$59<sup>90</sup>.*

By Drew Kaplan

It doesn't play music. But it does have two channels, two ways of speaking and two ways for you to listen.

This two-line telephone system has an AC powered speakerphone that almost can be called HiFi. And, it remembers 20 of your most frequently dialed numbers. **Note:** The identical phone is also available without the two-line features.

## TWO-LINE CONVENIENCE



Just press the Line 1 or Line 2 button and your choice of lines is selected. LEDs display which line you are using, which line is ringing, and if the Speakerphone or the Mute functions are in use.

And there's 'Hold', so you can put someone 'On Hold', hang up this phone and continue your conversation from any other phone in your home or office.

When either line is 'On Hold', its 'In Use' LED blinks to remind you that it is 'On Hold'. The 'In Use' LEDs also light whenever any extension is in use, so you don't accidentally interrupt a conversation in progress.

Look what you can do. While you are talking on one line, you might want to add a third person to your conversation.

You can put whichever line you are using on hold, and use the other line to call out or answer a call. Then just push 'Conference' to join both calls.

It's easy. And, group conversations can be productive for work. And, they are a lot of fun with friends and family.

## ELEPHANT BRAIN

Just touch the name of the person you want to call. Each of the 20 name positions at the top of the phone is actually a quick one-touch dialing membrane.

And, one touch is all it takes with no numbers for you to remember. So, you won't have to remember that 'Mom' is button 16. Just push the button that says 'Mom'. It's incredibly easy.

One of the buttons is a Long Distance Service Button to store your MCI or Sprint Code. Just push it, then push any memory button or manually dial a number, for fast, effortless discount calling.

Discount services are great, but who needs to remember complicated numbers.

Now, save money with a single button. But, it's more than money. The next time you are dialing a discount service manually and you make a mistake around the 14th digit, think how nice it would be to have this automatic dialing phone.

You'll also have Last Number Redial Memory in both tone and pulse. So forget manually dialing busy numbers over and over again.

Each memory location will hold up to 16 digits. You may insert pauses for switchboards and discount services, and



## 2-LINE PRICE BLITZ

you may change stored numbers at any time. Plus, 3 AAA batteries (not included) activate the phone's memory backup system. An LED shows battery condition.

## FISH IN A BARREL

Imagine walking around the room or sitting at your desk with your hands totally free while you talk on the phone.

And, with this speakerphone, anyone else in the room can join in too. You'll be heard loud and clear whether you are nearby or across the room.

This speakerphone uses a new, lighting fast auto-simplex (half-duplex) design. You won't get the hollow barrel sound and squeal, because the mike actually overrides the speaker.

You won't even notice it. All you and the person with whom you are talking will hear, is clear, echo free conversation.

## AND MUCH MORE

The real claim to fame of this phone is its marriage of Phone Company fit and feel with super convenience features.

And, just look at the extra features. There are two distinctly different sounding electronic ringers.

So, you'll always know which line is ringing without having to look at the 'In Use' LEDs. Of course, the 'In Use' LEDs also light so that you can see which button to push in the dark.

Each line's ringer also has its own independent Hi, Lo, and Off setting.

If you only wish to receive calls on one line (like a private line) and ignore the other line, a simple touch of a switch will put you in control of your incoming calls.

There's a top mounted Tone/Pulse switch so you can easily use discount services even in Pulse areas.

The phone may be desk or wall mounted and there's an AC adaptor included for great speakerphone performance.

## THOUGHTFUL INSTALLATION

There are two standard modular jacks

on the back of this phone. One can be used for both Lines 1 and 2 if you have a 2-Line modular jack in your wall.

The second jack is only used if you have two separate modular jacks for your phones now. So, as long as you have jacks, this phone plugs in.

It's made and backed by Unitech, the stereo people, which explains this ad's title and why the sound is so good.

## TWO CHANNELS, TWO LINES RISK FREE

Wait till you hear the sound. Wait till you feel the K style handset against your ear or cradled on your shoulder.

Talk on the speakerphone. Touch a one-touch dialing pad. Then make a conference call and really use your two lines.

If you're not 100% satisfied with the feel, the automation or the sound quality, simply return it in its original box within 30 days for a courteous refund.

To order your Unitech 2-Line Speakerphone with 20 number Memory including Long Distance Memory, Redial, Hold, and more, risk free with your credit card, call toll free, or send a check for DAK's earthshaking price of just \$69<sup>90</sup> (\$4 P&H). Order No. 4634. CA res add tax.

If you'd like the exact phone without the two-line features, it's yours for just \$59<sup>90</sup> (\$4 P&H). Order No. 4635.

Dial a number on either line with just the touch of a Memory Button. Dial without ever lifting the receiver. And talk while you move around the room. It's a great sounding, great looking, automated communication tool.

**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  
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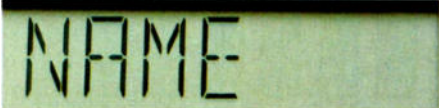
# a rose by any other name

*It's the sweetest phone that this writer has ever used. From its elegant good looks to its elegant sounding speakerphone, it's a class act. And, it remembers and dials up to 200 numbers by THE NAME of the person you want to call. Plus, it's now available in ivory and 1-line models too.*

By Drew Kaplan

It's not red. And it has no aroma. But it is definitely a rose amongst the thorns. Here's an all new name dialing 2-line conferencing speakerphone that will revolutionize your concept of telephones.

As president of DAK, I've tested hundreds of phones. Some are very good and you will find them in DAK's catalog. But, I've never used a better sounding, more useful phone, at home or at the office, than the phone pictured above. Let me tell you some of the reasons why.



## FIRST, IT DIALS BY NAME

I hate having to remember phone numbers. With this phone, all I do is push the 'H' button when I want to dial Home. The 'D' button dials DAK. And, the 'I' button dials my insurance broker.

Most other dialers make you remember location numbers, such as '26' for 'Mom'. So, you're really just substituting one number for another. 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 can scroll through the names before it dials, or enter just the first 3 letters. So, if I want to dial Howard instead of home, I push 'H', 'O', 'W'.



It's quick, it's easy and you'll never have to remember or look up and dial anyone's number again. Each memory location can hold up to 32 digits and you can store up to 200 different names. It has a memory capacity of 4096 digits.

You can store your Sprint and MCI codes with the person's name, in a separate location that the phone automatically accesses as it dials, or totally separately so that you can automatically access the service and then dial a number manually.



And speaking of manual dialing, you don't even have to push the speakerphone button to dial. When you touch the first number on the dial, the phone automatically seizes the line, turns on its speaker, and you have on-hook dialing.

So, you never have to lift the receiver or activate the speakerphone unless someone answers the line.

## FORGOTTEN HANDSET

This phone has the latest K2 handset. It gives you traditional Phone Company fit and feel, yet, I find it even more comfortable to use.

But, you'll probably never use it. The speakerphone is so powerful, so clean, and so easy to use, you'll never pick up the handset unless you need privacy.



I've used good speakerphones before, but this speakerphone's sound quality rivals an in-person conversation, not a phone call. How's that for a description of a phone you can try on a 30 day risk free trial?

## 2-LINE MASTERPIECE

You can select Line 1 or Line 2. And, you can push 'Conference' to combine both lines for convenient business conferences or friendly group calls with friends. There are LEDs that show which line is 'In Use', 'On Hold', or 'Ringing'. And, there are different rings for each line.

**Installation is a breeze.** It simply plugs into one standard modular 2-line jack or two modular 1-line jacks. Nothing could be simpler. Just plug it in.

## PAGES OF HELPFUL FEATURES

The list of features would have to be microfilmed to fit on this page. There's a large LCD display that shows you the name you want to call and the number.

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

Every conceivable feature from Mute to Tone/Pulse switching, to Pause, to Flash, to battery backup (2 C batteries included), to three direct Emergency Memory Keys and more is included.

There's even Automatic Redial which will redial a busy number for you every 30 seconds.

## YUPPIE POWER

I'm anything but a yuppie, even though I just turned 40, but when you look at the sleek, swept back, silver-grey HiTec appearance, and when you examine its complete computer keyboard, you'll understand why it would warm a yuppie's heart. My heart is warmed by what it does, but I must admit it is impressive.

It's made by Colonial Data, a research company partially owned by one of the largest inter-connect (big business phone systems) companies in the world.

It is 9½" wide, and it's backed by Colonial's standard limited warranty. **PUT NAME DIALING ON YOUR LINE RISK FREE**

It's the best sounding speakerphone I've ever heard. Dialing by names instead of numbers is a quantum leap in both technology and convenience.

Now, I don't have to remember people's phone numbers. I just touch a 'C' for customer and let the phone do the rest.

If you are not 100% convinced, as I am, that this is the best sounding, most convenient phone you have ever used, simply return it in its original box within 30 days for a courteous refund.

To order your Name Dialing 2-Line Speakerphone with God only knows how many features risk free with your credit card, call toll free or send your check for DAK's breakthrough price of just \$129 (\$4 P&H). Use Order No. 4335 for Silver-Grey. Or, use Order No. 4452 for Ivory.

If you'd like the 1-line model in Ivory without the 2-line features, it's just \$99<sup>00</sup> (\$4 P&H). Order No. 4453. CA res add tax.

In DAK's electronic world, where a new best is achieved almost every day, this phone stands out as the 'best' best I've ever had the pleasure of introducing. DAK and the 'a rose by any other name' phone are not affiliated with CXC Corporation's Rose Console.



**DAK INDUSTRIES INC.**

Call Toll Free For Credit Card Orders Only  
24 Hours A Day 7 Days A Week

**1-800-325-0800**

For Toll Free Information, Call 6AM-5PM Monday-Friday PST  
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8200 Remmet Ave. Canoga Park, CA 91304



SAME OLD DOG, BRAND NEW SUBWOOFER

# 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 99<sup>90</sup>.

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 \$164<sup>50</sup>.

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

By the way, the puppy sitting on top of the subwoofer is the same puppy I used with Cerwin-Vega's, but wait till you hear what's under him now. You'll have BSR's 15" massive infusion of explosive bass, added to your system for just \$99<sup>90</sup>.

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 \$99<sup>90</sup> (\$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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8200 Remmet Ave., Canoga Park, CA 91304



## The \$999 Typewriter/Computer BOMBSHELL



# Unfair Competition?

## An Unfair Challenge to IBM's Typewriters and Computers

What if you and every secretary in your office could have powerful computers that were as easy to use, but cost less than IBM electronic typewriters? What if they also ran IBM compatible software? Well, now you can get this 256K IBM PC Clone, the Amber Monitor, the Letter Quality Printer, and The \$400 Software Library for just \$999.

By Drew Kaplan

Look around your office. Are your secretaries wasting time typing and re-typing letters and documents?

Well, throw out your dumb typewriters. Now typing on an IBM compatible computer can be as easy, and yes, cheaper than using an IBM electronic typewriter.

Every word you type can be stored in the 256,000 character memory or on floppy disks. So, when you make corrections to a letter or document, you'll never need to retype the whole letter again.

### 30 MINUTES TO PRODUCTIVITY

In 30 minutes you or your secretary will be comfortably typing letters faster than on any typewriter. This computer is so easy to use that there's no 'computer fear' from non-computer typists.

But, if you're looking for computing power, get ready to blast off. It is so powerful that it will run Lotus 1-2-3, Flight Simulator and every other IBM compatible program that we've tested.

In fact, the manufacturer states in the Operator's Guide that, "The computer is ultimately and completely compatible with the IBM Personal Computer."

Actually, typing letters is child's play for this sophisticated machine. But for \$999, it's sure to be the most popular typewriter in any office or even at home.

So, compare it to the typing ease and durability of say the new IBM Wheelwriter 5 at about \$1045, or a Xerox Memorywriter 625 at about \$1595.

Or compare just the computer section to the agility, speed, and intelligence of an IBM computer. Then, check our price.

### FORGET LIFT OFF CORRECTION

Think about making a change in the first paragraph of a letter you have dictated. Just mark up the draft copy and give it back to your secretary.

She can bring the letter back onto the 80 column 25 line Amber Monitor, make the corrections, touch one button and

the letter will automatically print out with your corrections and additions.

You'll never have to reread or re-proof retyped letters again for errors. And instead of spending 15 minutes retyping and re-proofing, your secretary can be working on your next project.

A typewriter-type word processing program whose commands flash on the screen, when needed, makes this the ideal transition from typewriter to computer.

Look how easy it is to use. Simply touch the F1 key at the left of the keyboard to delete a character. F2 deletes a word. And, F3 deletes a whole line.

F5 turns this machine into a line by line typewriter for typing directly onto envelopes or forms. F6 prints out anything on screen at any time.

This is a magnificently simple program that you or your secretary will be comfortable with in 30 minutes.

But when you are comfortable, you'll want to open our sophisticated \$400 Software Library that lets you really start to use the power of this computer.



(DAK's added Software shown, with included Visual Manuals)

You can type in lists of your customer's or employee's names and addresses. Then create a letter, select which names you want to receive the letter, and the computer will automatically print out individualized letters for each person.

So if you want 5 people or 500 people

to be notified personally of your newest product or policy, now it's all automatic.

There's also a Budget Program, a Calendar Program and even a Portfolio Management Program we have included.

Of course you can use any IBM compatible PC programs from Lotus 1-2-3 to Norton Utilities. Or, you can buy other even more sophisticated word processing programs that even correct your spelling or give you an on-line thesaurus.

### MORE THAN A TYPEWRITER

This IBM compatible computer with its two 360 kilobyte drives, 256K random access memory (more is available), composite video and yes, even RGB full color graphics output, is made by Visual, the 5th largest manufacturer of office graphics terminals.

Visual's computer is loaded. It has both a Centronics parallel printer output (we've included a superb daisy wheel letter quality printer) and an RS232 serial communications port (yes, you can add a modem to access outside data banks, or your main frame computer).

Visual's 1985 price list shows a list price of \$1895 for this computer. And, that doesn't include the Amber Monitor, the Printer, or the Software Library that we've added. It just includes the computer and of course the IBM compatible MS DOS 2.1 operating system.

### WHY SO CHEAP?

Visual makes terminals. They thought they'd design a superb IBM Clone and sell it with their terminals.

Well it turned out that Visual's salesmen weren't equipped to sell computers and Visual had put too much money into these computers (the built-in color graphics, TTL output, 2 floppy disk drives and lots of other features) to sell them at today's stripped down prices.

So, Visual has sold them all to DAK and has taken an enormous loss. (But don't worry about Visual. They are a



large company and 'dumping' these computers just lets them get back to concentrating on their main terminal business.)

So, you'll save a fortune and that's why this is an unfair comparison to IBM.

You see, you're saving money only because Visual lost money. IBM not only needs not to lose money, but needs to make a profit as well.

And, don't worry about ending up with an orphan. Unlike small computer companies that come and go, as long as Visual makes terminals, they will be around to protect your investment. Plus, they use the Sorbus Network for service. **TAKE YOUR WORK HOME TOO! Wow!**

With the addition of a \$149 optional 25 line 80 column LCD display, you can take this computer home. It only weighs 18 pounds, so it's easily transportable.

So, when it gets to be 6:00 and there's still work to be done or files to be studied, just take the computer home or send it home with your secretary.



And, with the addition of a modem, you can even transmit files from home to the office. Or, you can log onto data bases like CompuServe or Dow Jones.

**THE GOOD, THE BAD, & THE BEAUTIFUL**  
From your first touch of the rugged sculptured keys of this computer, you'll appreciate the built-in rugged quality.

There's even a 10 key numeric pad. The 83 key keyboard is identical to IBM's PC, except for the addition of lights on the 'Cap Lock' and 'Number Lock' keys.

The contoured keyboard is extremely comfortable. But, I must warn you that if you've never typed on an IBM PC, they've made the Shift keys and Return Keys slightly smaller than on a typewriter and it will take you a few minutes to adjust.

The computer has two floppy disk drives that use double sided double density 5¼" floppy disks. Each floppy disk holds 360,000 characters.

As a free gift from DAK, we're including a box of 10 disks. You can store 3,600,000 characters.

The computer uses a 16 bit 8088 Intel processor with a 4.77 MHz clock speed. It is AC powered and UL and FCC listed.

There is 256K of installed random access memory (RAM) for you to use as compared to 128K for most computers and the 7K on the IBM Wheelwriter 5.

We've included Magnavox's latest 80 column 25 line 12" non-glare Amber Monitor. It has 900 lines of horizontal resolution and 350 lines of interlaced vertical resolution to display graphics.

You can also connect an RGB (red green, blue) monitor for full color graphics. With most computers, the internal 'color card' can cost you several hundred dollars. Visual's has it built-in.

You can expand this computer by adding custom cards. There is an expansion port that can be directly connected to an IBM expansion chassis. Of course, the computer is infinitely expandable by running IBM compatible software.

Here's another bad point. This system is bigger than a typewriter. The computer is 18" wide and 15½" deep. And, with the monitor sitting on top, it is 14½" tall. Actually, the computer really isn't any bigger than a typewriter.

But don't forget the printer. It can be placed up to 6' away, but it really belongs next to the computer so that you can easily put in paper, envelopes etc. It is 15½" wide and 12½" deep.

So for most productive use you need a return on your desk that is about 33½" long. Of course, the printer can sit on a typing stand next to your desk or even your credenza. You'll be amazed at the increase in your productivity.

**THIS IS NOT A CHEAP STARTER COMPUTER.** Forget our price. Put it side by side with a similarly equipped IBM, run the same programs and you'll get the same results.

In fact, it's so compatible that you can interchange disks of your letters and programs between Visual's computer and an IBM PC whenever you wish. Wow!

#### THE PRINTER

This Silver Reed daisy wheel printer will type on your standard letterhead, envelopes, 3 X 5 cards or mailing labels.

It uses the same type interchangeable daisy wheel direct impact print system as typewriters (heavy duty of course).



The printer prints at 10-12 characters per second bidirectionally. You can set horizontal spacing, 'pitch', for expanded or contracted letter spacing. You can underline automatically and you can print normal or Bold.

But, don't worry. You can simply put in your paper and type. You can even use continuous form tractor feed paper with the optional \$69 tractor feed.



Or, use your own letterhead with the optional \$119 cut sheet feeder.



#### FINAL NOTES

Both the Silver Reed Printer and Magnavox monitor are backed by their respective manufacturers' limited warranties. The Visual Computer is backed by Visual's limited warranty and serviced by Sorbus (or Visual).

#### DON'T FORGET IT'S PORTABLE

For just \$149, you'll get the factory installed 80 column 25 line (graphics capable) LCD display which simply lifts off when you're using the Amber Monitor.



You may not take your computer home or to another office every day, but the versatility is phenomenal.

#### ACCEPT OUR TYPEWRITER COMPUTER CHALLENGE RISK FREE

Wait till you see this state of the art computer marvel on your desk. And wait till you see what its incredible computing power can do for your productivity.

If you're not 100% satisfied with its typing or computing ability, simply return it to DAK in its original boxes within 30 days for a courteous refund.

To get your Visual 256K IBM Compatible Computer with Two 360K Floppy Disk Drives, Composite and RGB Outputs, Amber Monitor, Silver Reed Letter Quality Daisy Wheel Printer, \$400 value Software Library, 10 Free Double Sided Double Density 5¼" Disks and connecting cables for the monitor and the printer risk free with your credit card, call toll free or send your check for DAK's limited Close-Out price of just \$999 plus \$24 for P&H. Order No. 4500. CA res add tax.

#### OPTIONS

If you're into massive spreadsheets and the largest programs, order the 512K upgrade which doubles the 256K memory. It's installed by the factory for an additional \$129 (\$5 P&H) Ord. No. 4625.

Add the Factory installed 80 column LCD 25 line display so you can move Visual's computer and work wherever you want. It's just \$149 (\$5 P&H) Order No. 4626.

If you want to run continuous forms, from mailing labels to checks to letterhead, the Silver Reed Tractor feed snaps on and off in about 30 seconds. It's just \$69 (\$3 P&H) Order No. 4345.

Use your standard letterhead automatically with the cut sheet feeder. It feeds paper like an automatic copier tray. It's just \$119 (\$5 P&H) Order No. 4627.

Standard 300,000 character black poly ribbons are just \$6 (\$0.50 P&H) Order No. 4346. You'll never see a lifted off correction mark that shows where errors have been removed again. You'll get 'Presidential Quality' letters that you'll be proud to mail every time.

IBM & IBM Wheelwriter 5, Lotus & Lotus 1-2-3, Flight Simulator, and Xerox & Xerox Memorywriter 625, are registered trademarks of International Business Machines, Lotus Development, Microsoft, and Xerox Corporation respectively.



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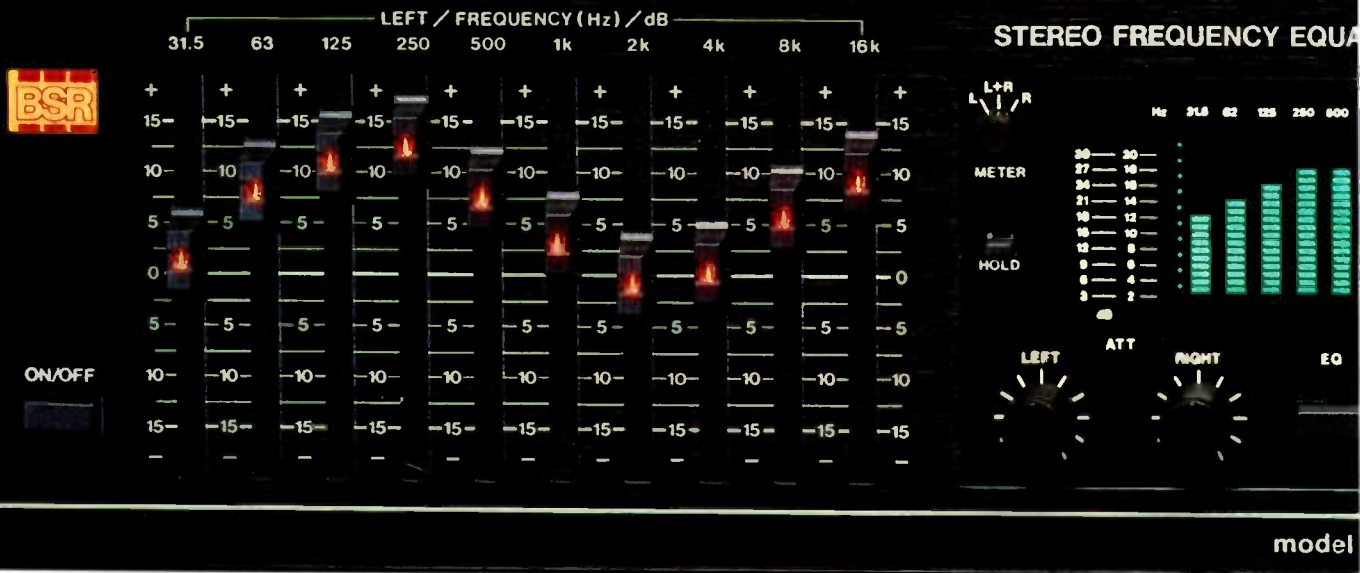
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Technical Information. . . . 1-800-272-3200

Any Other Inquiries. . . . . 1-800-423-2866

8200 Remmet Ave., Canoga Park, CA 91304



# Smart Sound Detonator

*Obliterate the wall between you and the individual instruments in your music. Infuse your own stereo system's sound with a breathtakingly vibrant 30 to 50% improvement in sound quality that you can measure with this superb BSR Equalizer/Spectrum Analyzer limited \$149 close-out.*

By Drew Kaplan

Close your eyes. Touch a button. And you'll hear your stereo system literally explode with life.

You'll hear the gentle brushes on a snare drum, the startling bone-jarring realism of a thunder clap, or the excitement of a full cymbal crash.

You'll hear string basses and other deep low instruments emerge from bass (that will sound murky by comparison), with such clarity and such definition that you'll feel you can almost touch each instrument.

This astoundingly distinct yet powerful bass adds such a full bodied warm feeling to your music, you'll feel as if you've been lovingly wrapped in a warm soft blanket on a cold winter's night.

**But don't take my word for the sound quality improvement.** With the Pink Noise Generator, Calibrated Electret Condenser Mike and the 220 Element Spectrum Analyzer, you can instantly measure each and every improvement you make.

Plus, there's more. A subsonic filter effectively adds the equivalent of many watts onto the power of your amplifier.

Plus, with its provision for two separate tape decks including two way dubbing, you'll have much more than just greatly improved sound.

You can count on great sound from this top of the line Equalizer/Analyzer. It has a frequency response from 5hz to 100,000hz  $\pm 1$ db. And, it has an incredible 100db signal to noise ratio.

BSR, the ADC equalizer people, make this super Equalizer/Analyzer and back it with a 2 year standard limited warranty. Our \$149 close-out price is just a fraction of its true \$379 retail value.

**FIRST THE EQUALIZER  
YOUR STEREO'S HIDDEN SOUNDS**

Your stereo can sound incredibly bet-

ter. Just a 5db roll-off at the high end, up around 14,000hz to 16,000hz, can just decimate the harmonics that give you the open feeling you'd experience at a live concert. A similar roll-off at 60hz, causes the fundamental bass notes to just fade away into the 'murk'.

An equalizer isn't some magical device that manufactures sounds that don't exist. Most of the frequencies that will make your music really vibrant, are actually already recorded in your music.

You'll be able to prove this with a few simple tests we'll try when we discuss the Spectrum Analyzer.

You see, certain frequencies are simply not reproduced with as much volume as are the mid-range frequencies which stretch from about 800hz to 2,000hz.

An equalizer simply lets you establish accurate control of all frequencies to fit your equipment, your recordings, your taste, and your listening environment.

## TOTAL MUSICAL CONTROL

And, what a job it can do. It's totally unlike bass and treble controls which simply boost everything from the mid-range down for bass, or everything up for treble. You can boost the low-bass at 31.5hz, 63hz and/or 125hz to animate specific areas or instruments.

And, when you boost the part of the bass you like, you don't disturb the mid-range frequencies and make your favorite singer sound like he has a sore throat.

The high frequencies really determine the clarity and brilliance of your music. The problem is that highs are very directional. Wherever you move in your listening room, you'll find a big difference in high end response, as you'll see when we test the Analyzer.

No recording engineer or equipment manufacturer can even begin to control your listening environment.

You can control the highs at 4,000hz, 8,000hz and/or 16,000hz, to bring crashing cymbals to life at 16,000hz while at the same time you can cut tape hiss or annoying record scratches at 8,000hz.

But there's more. Don't leave out the mid-range. You can boost trumpets at 300 to 500hz or a clarinet at 1000hz. You can boost or cut any part of the frequency spectrum a full  $\pm 15$ db.

## TAPE DECK HEAVEN

You can push a button and transfer all the equalization power to the inputs of two tape decks. Now you can pre-equalize your cassettes as you record them and get all the dramatically enhanced sound recorded right on your cassettes.

This is an especially great feature when you play your cassettes on bass-starved portables or high-end starved car stereos.



## SIMPLY PLUG IT IN

Use your tape monitor circuit, but don't lose it. Now your one tape monitor circuit lets you connect two tape decks.

Just plug the equalizer into the tape 'in' and 'out' jacks on your receiver or preamp. We even supply the cables.

As you listen to your records, FM or any 'Aux', any time you push the tape monitor switch on your receiver you'll hear your music jump to life.

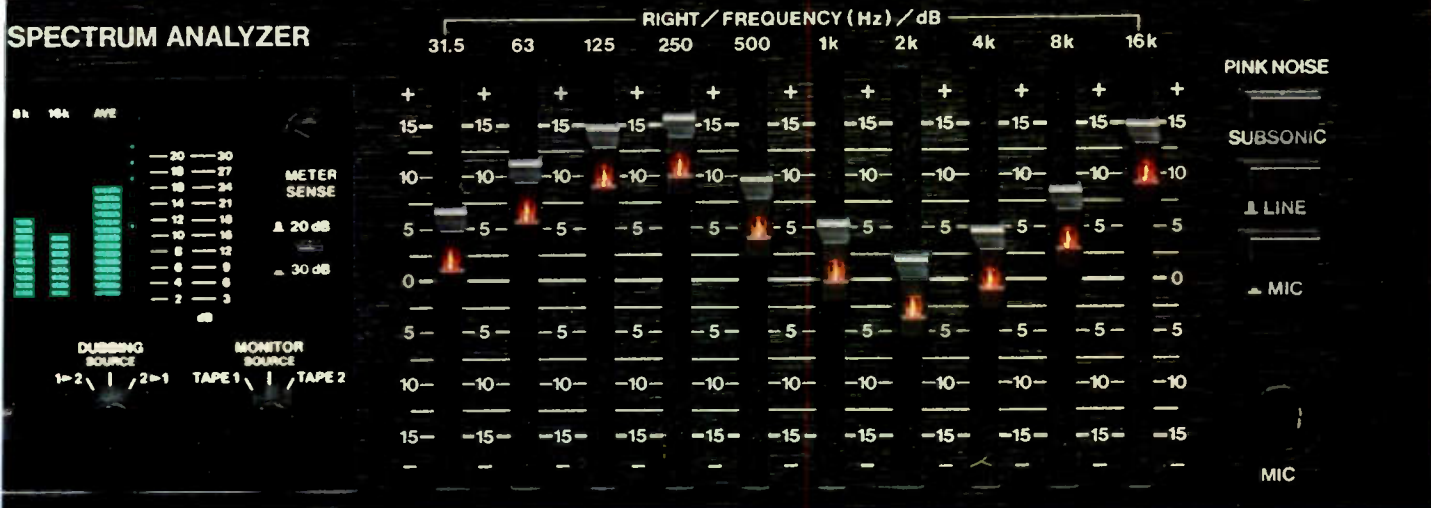
The output from your receiver is always fed directly to your tape deck(s) for recording, and with the touch of a button, you can choose to send equalized or non-equalized signal to your deck(s).

When you want to listen to a tape deck, just select which tape deck you want, turn the switch on the equalizer,



# \$149 CLOSE-OUT

## SPECTRUM ANALYZER



00

and your tape deck will work exactly as it did before. Except, now you can listen with or without equalization.

Look at this. You can dub tapes from deck 1 to deck 2, or from deck 2 to deck 1 with or without equalization.

### THE SUBSONIC FILTER

Much of the power drawn from your amplifier is used to drive your woofers. When you drive the amplifier too hard, it clips and you end up with distortion.

A subsonic filter removes a lot of non-musical material you can't hear that exists below 20hz. So, it relieves your amplifier of a lot of work. It doesn't actually create more watts (Please, no letters from my 'technical' friends) for your amplifier.

But, it's like turning off the air conditioning in your car. It saves you using about 7hp of what you have. And therefore, you'll have more watts for clean powerful sounding music.

### THE SPECTRUM ANALYZER

Now you can scientifically analyze your stereo listening room and test your equipment by using BSR's Real Time Frequency Spectrum Analyzer.

Plus, you'll see your music not as a single level on a VU meter, but as a kaleidoscopic parade of 10 individual 20 element VU meters.

Each is tuned to a specific octave of the sound spectrum. An eleven 20 element meter averages all levels.

The effect is awesome. You can visually isolate a string bass or cymbal, and actually see each individual instrument almost as a wave moving across the 220 individual fluorescent elements.

### THE MOUTH AND EARS

It talks. The Analyzer speaks with a voice of pure calibrated Pink Noise. Pink Noise is the standard composite 'sound' of all frequencies used for testing in labs around the world. All frequencies from 20hz to 20,000hz are generated at the exact same level at the exact same time.

It listens too. If you are testing a cassette or a component in your system, use the 'Line Button'. If you're testing your whole system with speakers, use the matched calibrated electret condenser

microphone (included). Either way, you'll have a quick, easy and accurate way to evaluate the total sound of your system.

### HOW TO TEST

#### SPEAKERS, EQUIPMENT AND TAPE

Testing your speakers in your listening room is the really crucial test. Simply place the calibrated microphone where you normally sit to listen to your stereo.



At the end of an 18 foot cord is the ear of the system. Just clip the mike wherever you sit and test your room.

Turn on the Pink Noise. You can switch to Left Channel, Right Channel or both. There's a meter range button, a sensitivity control, and even a switch that lets you freeze the meter.

Just sit down at the equalizer. Start with one channel. You'll see all 10 octave bands on the meter. Just slide the corresponding controls to increase or decrease any area that needs help.

You have now set up your system to its maximum capability. But as you'll see, location is very important. Move the microphone 5 feet to the left or right.

Then turn on the Pink Noise and check the Spectrum Analyzer. Now you can see why the specifications that come with your system are only a starting point.

Here's a way to test your tape deck and tape. First record Pink Noise for 3 minutes at -20VU. Then play it back and note the readings on the meters.

Now, record the Pink Noise again at 0VU or +3. Wait till you see how much the high end falls off. Now you'll see why all specifications are listed at -20VU.

With the Equalizer/Analyzer you can enjoy the finest stereo sound from your system and be a test lab too.

### WHY SO CHEAP

BSR now only sells equalizers under their ADC name. Well, as Detroit comes out with new cars each year, ADC comes out with new equalizers. We got them to supply us with just 30,000 of last year's

ADC model before they shut it down.

They had already paid for all the tooling, all the research and design, so we were able to buy these for less than half the normal price, for cold hard cash.

### THE FINAL FACTS

There are 20 slide controls, each with a bright LED to clearly show its position. Each control will add or subtract up to 15db. (That's a 30db range!)

There are separate sound detonation slide controls for each channel at 31.5hz, 63hz, 125hz, 250hz, 500hz, 1,000hz, 2,000hz, 4,000hz, 8,000hz, and 16,000hz.

BSR backs this top of the line Graphic Equalizer/Spectrum Analyzer with a 2 year standard limited warranty. It is 17 1/2" wide, 3 1/2" tall and 8 3/4" deep.

### MAKE YOUR MUSIC EXPLODE RISK FREE

It's startling. Music so vibrant with life you'll swear it's 3 dimensional. Sculpture your music any way you want it. If you're not 100% satisfied for any reason, simply return it to DAK within 30 days in its original box for a courteous refund.

To order your BSR EQ3000 Smart Sound Detonator 10 Band Graphic Equalizer with Real Time Spectrum Analyzer and Calibrated Mike, with Subsonic Filter and Two Way Tape Dubbing risk free with your credit card, call toll free, or send your check, not for the \$379 retail value. Don't even send the \$227.97 dealer cost. Send just \$149 plus \$8 for postage and handling. Order No. 4100. CA res add sales tax.

The sound of your stereo will explode with life as you detonate each frequency band with new musical life. And, you can see and measure exactly what you've done.



## DAK

INDUSTRIES INCORPORATED

TOLL-FREE ORDER LINE

For credit card orders call 24 hours a day 7 days a week  
**CALL TOLL-FREE. . . 1-800-325-0800**  
 8200 Remmet Ave., Canoga Park, CA 91304



# 1200 Baud Smart Duck

*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 one heck of a duck. And, it's a market buster at just \$169.*

By Drew Kaplan

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?

ADC's modem is made in the same factory, by the same people, as one of Hayes's biggest competitors. And, ADC is a division of BSR, the enormous half-billion dollar electronics giant.

So for \$169, 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.

Don't forget. Now you'll get the \$39 value (DAK sold it for \$24) complete CompuServe Subscription Kit, including \$25 worth (Yes, that's twenty five dollars. Wow!) of on-line time, added by DAK, when you buy ADC's Modem.

## DUCK SOUP

Any computer with an RS232 standard serial port, will work flawlessly with this modem. And, virtually any modem or terminal software that's compatible with Hayes, will be compatible with ADC.

We've even got intelligent programs, cables, and interfaces (if you need them) to activate your IBM PC or Clone, and your Apple IIE or IIC. Of course, you can supply your own cables and modem programs for these computers or for any other computer you may own.

I've owned a Hayes 1200 baud modem for about 2 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. So, you'll love it for discount services.

## DO YOU NEED TO KNOW?

Just think, you can transform your PC into a terminal that can interact with main-frames. You can download information from your main office computer and run Lotus, Wordstar, or you name it. It's all possible with your PC and modem.

You can exchange information with other computers. Say you're a writer, you can send a chapter from your home or office in Los Angeles to New York, have it edited and sent back to you.

You can even send it directly to typesetters and have a book or a newsletter prepared from your transmitted file.

It's really great when drafts of contracts are flying back and forth. Why retype everything over and over again?

Electronic mail lets you type in your message and you won't have to worry

**NOW WITH \$25 COMPUSERVE ON-LINE BONUS**

It's An Added \$39 Value That DAK Sold For \$24

Plus, you'll Get CompuServe's Complete Subscription Kit



about playing telephone tag any longer.

You can get the weather in Baltimore, the latest quote on your company's stock, or even reserve a seat on the next flight to Las Vegas. You can upload public domain software (there's an enormous amount of free software) or sample the newest programs before you buy.

There are pay data bases like CompuServe and The Source that have information about anything, and thousands of free bulletin boards about everything from Ham Radio to Parapsychology.

There's even a book that lists and describes such diverse data bases as one with 6500 references about coffee, to one with 2,000,000 on agriculture.

Of course, economics, medicine, law and computers are all well represented.

## THE TECHNICAL SIDE OR, WHY 1200 BAUD?

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.

So, it's clearly a decision of money and time. 1200 baud is roughly 400% faster than 300 baud, so if you transfer data across the country, you save 400% on your phone bill. And think of the time \$169 can save you!

If you download material from pay data bases, even though some charge more for 1200 baud, you still come out way ahead because of the amount of information you get per dollar.

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. 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 \$29 (\$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 below, you'll note that ADC's RS232 Modem connector 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.

If you don't have an RS232 port, we have a serial interface card for your IBM or Clone, complete with cable and modem program for \$99 (\$4 P&H). Or. No. 4355.

For your Apple IIC, your serial interface is built-in. All you need is our cable and modem program on disk. They are just \$29<sup>00</sup> (\$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 \$89 (\$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.

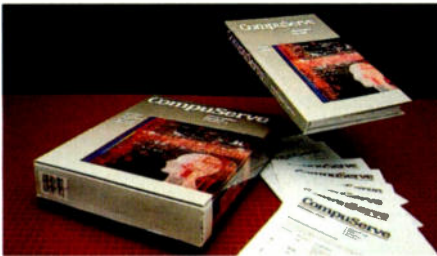
To Order Your ADC 1200 Baud Intelligent Modem, now including CompuServe's Complete Subscription Kit (nothing else to buy), with \$25 worth of on-line time, risk free with your credit card, call toll free or send your check for DAK's market busting price of just \$169 plus \$6 P&H. Order No. 4334.

The OnLine Directory of over 1,100 Data bases, complete with descriptions  
...Next Page Please



... Modem Continued is just \$14<sup>95</sup> (\$2 P&H). Order No. 435B.

The ducks be will sure to be quacking up a storm when they see BSR's factory direct, through DAK, price on this state-of-the-art 1200 baud intelligent modem.



### A LOOK AT COMPUSERVE & MORE

Get a date, check your stocks, leave E-Mail, or post messages on Electronic Bulletin Boards. Transfer files or download public domain programs. Let your computer bring you the wealth of elec-

tronic information that's on-line.

Imagine dialing a number and hooking up to a free Electronic Bulletin Board where people post messages about everything, from new jokes (I've signed on a joke bulletin board.) to computer equipment they want to sell.

Most are free, some cost money. But until you are on-line yourself, no brief description that I can give you will even scratch the surface of what's available.

But, let's take a brief look at part of the menu (index) that you'll have at your fingertips when you log onto CompuServe. I've used CompuServe's names or descriptions. This is by no means complete. And CompuServe is just one of many data bases available to you.

No matter what your interests are, you'll spend hours on-line learning about things, making plane reservations or even playing logic games. And, on most bulletin boards, you'll find the numbers of other bulletin boards.

### PARTIAL COMPUSERVE INDEX

AIRLINES, ARTS (Art & Literature), ATARISIG (Atari Forum), AVIATION (Aviation Forum), BANK (Home Banking), BANSHI (Banashi Game), BROKER (Brokerage), Business (Business Menu), C64SIG (Commodore 64 Forum), CASTLE (Castle Telengard Game), CBIG (CB Interest Group), CBMSIG (Commodore Programming Forum), Clarke school (For the Deaf), COCO (Color Computer Forum), COMMODITIES, CP/M, COOTE (Current Quotes), DEMOGRAPHICS (SuperSite), DISCLOSURE (Public Company Details), EARNINGS (Earnings Projections Menu), EASY (EasyPlan), ECONOMIC, EDUCATION, EMAIL, ENCYCLOPEDIA (On-Line Grolier's Academic American Encyclopedia), ENGINEERING (Engineering Menu), ENTERTAINMENT (Entertainment Menu), ENVIRONMENT (Environmental Forum), EPIE (EPIE Forum), FINANCE, FINTOL (Personal Finance), FLIGHTS (Travel Menu), FOOD, FORUMS (Menu of Forums), GAMES (Menu of Games), GOURMET (Electronic Gourmet), HEALTHUSERS (Health Users Group), HOBBIES (Hobbies Menu), HOLLYWOOD (Hollywood Hotline), HOME (Home Menu), HOTELS (A to Z Hotels), IBMNOVICE (IBM Novice Forum), IBMSIG (IBM Users Forum), INSURANCE, INTERESTS (Other Interests), INTERFACE, INVESTMENTS (Investments Menu), IQINTERFACE (IQ Interface Program), LAWSIG (Law Forum), LEGAL (Legal Menu), LEISURE (Leisure Travel Menu), LIBRARIES (Home Reference Menu), LOTUS (World of Lotus), LOVE (Love Messages), MAGAZINES (Electronic Publishing Menu), MAUG (Apple Users Group), MEDICAL (Medical Menu), MOVIES (Movie Reviewettes), MSOFT (Microsoft Users Group), S&P (Standard & Poors), SCI-FI (Science Fiction Quiz), SCIENCE (Science Education Forum), SHOWBIZ (Showbiz Quiz), STATE (Department of State), SPORTS (Sports Menu), TECHNOLOGY, TICKER (Ticker retrieval), VACATION, VIDEO, WEATHER (NOAA Weather Wire), WINEFORUM (Bacchus Wine Forum), and MUCH MORE.

On one board, I found the numbers of 40 other boards. Wow, there's so much information, education and entertainment.

Hayes, Lotus, Wordstar, IBM, and Apple IIe & IIc are registered trademarks of Hayes Microcomputer Products, Lotus Development, MicroPro, International Business Machines and Apple Computer.



**Protect your computer and 5 peripherals from spikes, turn everything on and off from the front & swivel your monitor.**

By Drew Kaplan

It's great. Now you don't have to reach around the back of your computer to turn it on. And not only can you turn on each peripheral separately, you can turn them all on or all off with one switch.

But there's more. This all new Power Director is much more than just a fancy 'octopus' that supplies you with 6 outlets to get rid of cumbersome tangled cords.

It aids in the prevention of damage caused by voltage surges and spikes. It then goes on to filter your AC to help protect your equipment and data from line noises caused by power disturbing air conditioners, refrigerators and the like.

And look at this. It protects your equipment from itself. There are 4 separate filtered sections. So, your computer will be protected from your printer, modem or other peripherals.

Each of the 5 switched outlets has a non-glare status light so you know what's on. Push a button for on/off control.

You can swivel the monitor from side to side. So, if you have a separate keyboard, you can really type in comfort.

Above, you can see The Power Director between the Visual IBM® Compatible Computer and its monitor. It is 1 3/4" high, 13 3/4" wide and 12 3/4" deep.

You can use it with virtually any computer. (It can hang off the back up to 3 1/2 inches with no problem.) It's a perfect combination of convenience and protection for your computer system. It's backed by a limited warranty.

**PROTECTION & CONVENIENCE RISK FREE**

I've only had my data wiped out once by a power surge. But, I had over 2 hours of irreplaceable 1st draft copy in my computer when it happened. Now, I'm using my new Power Direc-

tors with 4 different computers. With this added protection, maybe I won't lose data again. And, I've learned to save my data much more often since my loss.

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

To order your 6 outlet Power Director with Spike Protection, Line Filtering, Circuit Breaker and a 10' 3-wire grounded power cable risk free with your credit card, call toll free or send your check for DAK's blockbuster price of just \$79 (\$6 P&H). Order No. 4623. CA res add tax.

I like the convenience. It's something that helps me every day. But, I'm thrilled with the added protection. If it even helps once, it's worth many times the cost.

**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



### BUT IT'S CONVENIENT

There are 6 protected 3-wire outlets





# Stealth Bomber Improved

The Pentagon may pay billions for the new Stealth Bomber that flies automatically and is invisible to enemy radar. But, you can have Teac's Stealth Reversing Automated Cassette Deck with dbx that can even record the full dynamic range of CDs for less than the price printed on Teac's February '86 dealer cost sheet.

Stealth's invisible. Enemy radar can't see it. And, it's the newest electronic marvel to come off the drawing board.

Now, you may be thinking that there's not much in common between a Stealth Bomber and an automated cassette deck.

After all, a Stealth Bomber sure can't fly backward. But wait, before you decide.

This automated auto reverse deck has a 'radar avoidance system' called dbx. No, it's not an MX missile. But, if the Stealth Bomber is invisible to radar, wait till you hear how 'invisible' tape hiss will become to your ears with this dbx deck.

Of course it has other 'radar avoidance' in the form of Dolby B & C, but dbx does much more than noise reduction.

When you record using dbx, this deck gives you a 90db signal to noise ratio and an amazing 90db dynamic range. This is one of the few decks that can copy the brilliant impact of CD discs.

## AUTOMATIC PILOT PLUS

The Stealth similarity doesn't end at 'radar avoidance'. While the Bomber controls are still top secret, I can tell you a lot about this deck's automated controls.

From the first button you touch, you'll appreciate this deck's total IC logic control. A DC servo controlled motor drives both capstans for low flutter and wow, while a second DC motor operates the unwind and rewind functions.

With record mute, you'll have clean intros and exits to your recordings. And, what recordings you'll get.

In addition to switchable Normal, CrO<sup>2</sup>, and Metal bias switches, you'll have fine bias adjust. You can actually fine tune the bias to decrease or increase high frequency response.

So, you can exactly match the brand of tape you use (DAK, I hope), or tailor the sound to fit your taste. And, you'll make perfect recordings when you use the linear input level controls and sensitive peak reading LED VU meters.

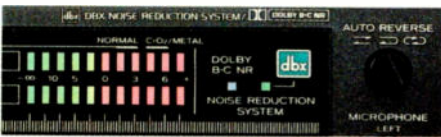
## COURSE CORRECTIONS

When you're listening to a tape, you may want to skip to the next song or play the same song over again. This is really useful when you're recording.

Just push the » button during play to automatically advance to the next song. One touch of the « button will automatically return you to the beginning of the song being played. Wow, the Stealth Deck really does have automatic pilot.

## WRONG WAY CORRIGAN

This autopilot can take you backwards, forwards or around the world again. You can play and record in both directions.



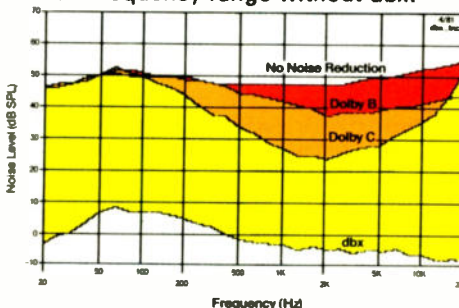
And finally, without even worrying about refueling, you can have your music totally uninterrupted. With just a touch of the button above, you can have your music play over and over again.

Now you only need to get up to change cassettes when you feel like it, not when the cassette ends. It's the best way to enjoy your music, your way.

## BUT IT'S THE dbx

While dbx is the ultimate noise reduction system, complete with its vibrant 90db dynamic range, this deck also lets you record and play with Dolby B and C.

But, you just can't get the full-range dynamic hiss free response across the entire frequency range without dbx.



This graph supplied by dbx clearly shows just how good recording with dbx can be. You can easily test the day and night difference for yourself. The test is described in the next column.

The graph above says it all. dbx will give you cassette recordings that are virtually free from surface noise across the

entire frequency range, not just the highs.

Plus, you'll have the incredible vibrance of 90db dynamic range. (The difference between the very softest and loudest possible sounds.) With this deck, you're ready for CD or any possible recording need.

DAK bought over 4000 of these superb decks to get this blockbuster price. Dolby C will give you a 72db signal to noise ratio. There are Left/Right Mike inputs as well as a headphone output.

You'll have a conservative frequency response of 30-16,000hz with CrO<sup>2</sup> and Metal, and 30-15,000hz with normal bias tapes. It's a top quality deck And, it's backed by Teac's limited warranty.

## TRY REVERSING STEALTH RISK FREE

Set your tape counter at 000. Record some blank tape with no input and without noise reduction. At 020, switch in the Dolby B. At 040 switch in Dolby C. At 060, switch in dbx. Then play it back.

You're sure to be astounded. It's a great deck for a lot of reasons. But dbx makes it phenomenal. If you aren't 100% satisfied, simply return it within 30 days in its original box to DAK for a refund.

To order your Teac Stealth Auto Reverse Cassette Deck with Dolby B, Dolby C and dbx risk free with your credit card, call toll free, or send your check for DAK's blockbuster price of just \$149<sup>00</sup> (\$7 P&H). Order No. 4451. CA res add tax.

The Stealth Bomber is still on the drawing board. And don't forget it still won't fly backwards. But, you can get your own Stealth Deck and be ready to record CDs, live music or just fabulous sounding copies of records.

Of course, the bomber can fly over the mountains in the picture above, the deck can only make them ring with music.



**DAK INDUSTRIES INC.**

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



# Ion Tidal Wave

*Like the awesome thundering power of a tidal wave, negative ions will wipe pollution out of your environment. And like the rising and falling tides remove pollution from the beach, your environment will be kept pollution free.*

Nothing stands up to the mighty force of a tidal wave. And when the wave recedes, it takes everything with it.

And like the mighty suction of the receding ocean waters, pollutants in your air, from smoke to pollens, will succumb to the power of the Ion Tidal Wave. Here's how it works.

## IN AND OUT

First the mighty wave strikes. The force of this wave's wall of water consists of 15.5 trillion negative ions per second.

Being negatively charged, the ions attach themselves to any positively charged particles in your air. Pollutants such as cigarette smoke, pollen, smog, car exhaust and insecticide dust, all have positive charges. So, the negative ions are drawn to them like magnets.

Then the awesome wave of negative ions stops. The negative ions, complete with the attached pollutants, start drifting to your positively charged walls, ceilings and floors.

**But wait.** Just as the ocean reclaims the water that it so forcefully delivered in a tidal wave, the base of the Pulsair becomes a powerful positive collector and sucks the ions, with the pollutants attached, back to itself.

So, instead of falling to the floor or sticking to your walls, most of the pollution is pulled back to the Pulsair. Just like the rising and falling tides, your environment will be cleansed by the action of the ion wave.

If you want to see an ion generator remove smoke, here's an easy test. Place a standard clear kitchen bowl over the ionizer. Puff some cigarette smoke into the bowl. Then plug in the ionizer.

Before you can say, "Pulsair Kill", the smoke will be totally gone. It's an easy test and it's sure to make you a believer.

You'll get a graphic example of just what will happen to pollen, smoke and other pollutants in your environment.

## BIG BERTHA OF GENERATORS

Pulsair is the third generation of ion generators. First there were simple generators that generated negative ions.

Negative ion generation is used in hospital burn wards and computer chip manufacturing to remove microscopic particles that can adversely affect patients and chips alike.

These ion generators worked fine. In fact, they worked so well that your walls became black from the particles they removed from the air.

In my opinion, black walls are a lot better than black lungs. But they worked so well, that consumers complained.

Then came bipolar collectors which sent out ions and concurrently collected them in the base. (We still sell one that works great for just \$39).

Your air could be cleaned, your walls didn't get too dirty and everyone was happy. The only negative was that the ions couldn't go as far because they were being pulled back by the collector even as they were sent out.

**Enter Big Bertha.** Pulsair is different. It is bipolar, but it operates just like the ocean's rising and falling cleansing tides.



By sequentially sending out a massive wall of negative ions, then shutting off, and finally turning on its collector, a massive constant circulation of ions occurs that cleanses your room like never before.

Minute by minute, hour by hour, day by day, the sequence continues. First a massive wave of ions is sent out. Then seconds later, it's sucked back to the collector. You can't hear it. You can't feel it. But, watch the smoke disappear.

## CIGARETTE BUTTS & BOULDERS

Fans with charcoal or furnace type filters may remove some large particles like cigarette butts and large ashes from the air. But, they're just about useless for anything under 5 microns.

Over 90% of air pollution particles are smaller than 5 microns. So, there just isn't any other reasonable defense for you other than a negative ion generator.

Pulsair is just about the only air cleaning system which can remove and collect tobacco smoke, dust, pollen and even bacteria from the air.

**Pulsair constantly cleanses all of the air throughout its tidal area. In contrast, fan driven filter type machines can only clean the air that they actually draw through themselves.**

## NOT A NEW IDEA

Actually, the negative ion manufacturers didn't think of this great way to clean the air. God did.

If you've ever smelled the sweet country air after a thunderstorm, or near the breaking surf at the beach, you know the invigorating feeling that comes over you.

Pulsair does for a 250 square foot area, what Nature does for the entire countryside. It seems that positive ions

are associated with pollution and negative ions with good fresh natural air.

There are lots of claims that a negative air ionizer will let you think more clearly, sleep better and feel happier.

There's no way to prove or disprove the claims. But, it is safe to say that if all these things come from cleaner, pollution free air, it just may be possible.

A removable, washable filter comes with Pulsair. You just rinse the filter when it gets dirty. And wait till you see just what Pulsair removes from the air before it gets into your lungs.

It is 6" tall. It's made by ISI, an innovator in negative ion technology. And, it's backed by their standard limited warranty.

## A CLEANSING TIDAL WAVE RISK FREE

Make the smoke test. Let it wipe out the pollution (like other people's cigarette smoke) in your home or office.

If you don't think you're breathing cleaner fresher air, simply return it in its original box within 30 days for a refund.

To order your Ion Tidal Wave Negative Ion Generator with your credit card risk free, call toll free or send your check for just \$89<sup>90</sup> (\$4 P&H). Order No. 4633.

I can't guarantee that it will help you sleep, solve crime, or improve your sex life. But it's tidal surges will give you cleaner air to breathe, and that's priceless.



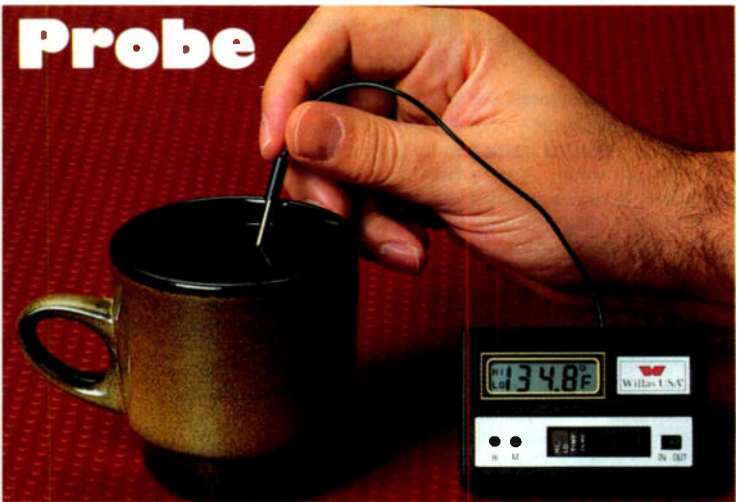
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# Hot Probe



**Now you can test your air conditioner, your hot water heater, your wine or your pool. Here's the latest in temperature measuring devices, at a breakthrough price. Plus, you can even set temperature alarms.**

Does the air conditioner in your car need Freon™? Is your refrigerator set for the right temperature? And, just how hot is your hot water?

Now, with the all new Hot Probe Temperature Sensor from Willas, you can check the temperature of virtually anything from your Jacuzzi, to your aquarium, to your attic, in 1/10 degree increments.

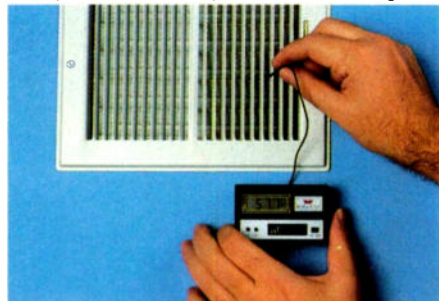
You can measure anything from 0°F to 160°F. The Hot Probe has an attached probe that stretches out to 10". Plus, it has an internal sensor to measure the ambient (surrounding) air temperature.

Now you can measure the temperature drop of your car or home air conditioners. (That's the difference between the room air temperature and the temperature of the air coming out of the duct that's measured by the probe. See picture.)

The extra large LCD display is exceptionally clear. And, because it never shuts

off, it's the perfect room air temperature sensor for your desk or night stand.

If you're like me, you'll be checking the



temperature of everything from your coffee to your bath. When I measured the output air from my typesetter that I use to make this ad, I found it was 107°F.

It's not supposed to be above 90°, so I installed a fan. The Hot Probe might

have just saved me a bundle of money.

## TEMPERATURE ALARMS

Because of the experience with my computer, I got the manufacturer of the Hot Probe to add temperature alarms. You can set alarms to sound if the temperature rises above or drops below any temperatures you have selected.

It operates on one AAA battery (not included) and it's backed by Willas's limited warranty.

## TRY THE HOT PROBE RISK FREE

If you're not 100% satisfied, simply return it within 30 days in its original box for a refund. To order your Hot Probe Sensor risk free with your credit card, call toll free, or send your check for only \$29 (\$3 P&H) Order No 4330.

You may not save an expensive computer like I did, but if your air conditioner is low on Freon™, you might just save your compressor. It's a neat device.

# Audio Telescope

**Pick a voice out of a crowd or a sparrow's song out of a tree with this super-directional shotgun microphone**



It's tough. If you've ever tried to record a singer while you're sitting in the audience, or a conversation from across the yard, you know that your microphone seems to pick up everything but what you want to record.

Now you can record a lecture from the back of the room or a bird's chirp from across a field.

The sound will be crystal clear with a wide full frequency response from this incredible super-directional electret condenser microphone.

Electret condenser microphones cap-

ture sounds never before possible outside the recording studio. By using battery driven circuits, these microphones can use a more sensitive sensing membrane to capture sound vibrations.

Very little mass must be moved, so these new mikes are incredibly sensitive. The Audio Telescope is powered by one AA battery (not included).

It comes with both a conventional mike stand mount and a stand. And, it's great for video recording.

The microphone itself is totally isolated from the stand by polymer O-rings.

So, it actually floats. It will not pick up motor noises or vibrations.

It is 17" long and comes with a full length foam wind screen. There is a mini phone plug for video camera use, plus a 20 foot mike cable with both mini and 1/4" plugs for conventional professional recording. It's backed by a manufacturer's standard limited warranty.

## TRY THE AUDIO TELESCOPE RISK FREE

Record lectures, concerts or nature, risk free. If you don't feel you've made totally professional recordings, simply return the Audio Telescope in its original box within 30 days for a refund.

To order your Audio Telescope risk free with your credit card, call toll free or send your check for only \$69<sup>99</sup> plus \$4 for postage and handling. Order No. 9736.

You'll be able to make superb recordings that were never before possible.

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# The \$599 Plain Paper Muncher

Royal is out to take over the plain paper copier field with a barrage of features and reproduction quality that's equal to DAK's \$3000 copiers. At home or at the office you can now have superb copies on plain paper for \$599.

By Drew Kaplan

It was my first luxury. I rented 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.

## ROYAL BLASTS PRICES

Well, now at home or in my own office at DAK, I can make perfect copies of letters, documents and even pictures from magazines with Royal's all new plain paper desk top copier.

I use the same paper I used with my Xerox. I can even use DAK letterhead. And, I can even copy on both sides.

This copier lets me keep plain paper in its cassette paper holder (on the right) and I can feed different paper like DAK letterheads or the back side of a page I've just copied into the left side.

Frankly, it makes just as good copies as DAK's main \$3000 copiers. In fact, because it's only 14½" wide, it sits on my desk, so I use it most of the time.

I do get up and use our main copiers when I have to enlarge or reduce something. And I use our main copiers when I copy large computer reports. Royal's copier only copies 8½" by 11" paper.

You can make up to 79 unattended copies at the rate of 10 per minute. And here's something I really like.

All of our main copiers turn themselves off after about 7 minutes of inactivity to save energy. Well, so does Royal's.

But Royal's does more. When you turn it on, it takes 30 seconds to warm up before you can make your first copy, as do our main copiers.

But with Royal's, you just touch the copy button twice and leave. In 30 seconds it will make 1 to 79 copies for you automatically.



lighten up for colored backgrounds. This copier simply produces identical quality 8½" by 11" copies to DAK's main office machines. Wow!

So, if you don't need to copy 11" X 14" computer reports or enlarge or reduce your originals, there's simply no reason to spend more than \$599.

If your family is like mine, a day won't go by that you won't use this copier. My wife copied the text of my son's speech. I made a copy of a disputed bill. And there's so much more.

My son borrowed a book for a report and copied 20 pages. We had to send a copy of our cancelled check for a house payment. And, I copied a poem from a book for my son to learn.

At the office we have several large

which is a major cause of service, is user removable. Just turn one thumbscrew and pull it out. A new drum assembly, complete with rollers that you simply slide in yourself, costs just \$79<sup>90</sup>.

So if yours goes bad, Royal figures it's good for about 2 years if you make about 400 copies per month, just slide in a new one. Everything else can be cleaned.

So, with Royal you can forget typical service problems. It's backed by Royal's standard limited warranty.

## MAKE PERFECT COPIES RISK FREE

I love having a copier. I make copies of things that I file so I don't lose the originals. I never have to get in the car when I need a copy of a document at home. And, I don't need to leave my own office to make a copy when I'm at work.

If you're not 100% satisfied with the perfection of the copies or the ease of use, simply return it to DAK in its original box within 30 days for a refund.

To order your Royal Plain Paper Copier complete with a toner cartridge and with Both Sides Copying Capability, and the ability to Copy Books and Magazines risk free with your credit card, call toll free, or send your check for just \$599 (\$18 P&H) Order No. 4434.

Extra 2500 Copy Black Toner Cartridges are just \$49<sup>90</sup> (\$3 P&H). Order No. 4435.

Now, every small business, every Doctor's office, every hard working executive and every home can have a plain paper copier. Wow, it's so great to have.

Xerox is a registered trademark of Xerox Corporation.



## SAME METHOD

Just like our other office copiers, this machine uses a photoconductor drum and dry toner. What's really nice is that the toner comes in a slip-in cartridge.

The inexpensive toner cartridge will provide you with up to 2500 copies.

And by inexpensive I mean \$49<sup>90</sup> which works out to about 0.019 per copy. And look at this, because Royal's copier uses dry toner, it won't dry out. So, if you make 10 copies a month or 500, just turn it on and it's always ready.

So, at your desk you'll copy letters without walking half way across the building and at home you'll copy letters, school projects, newsletters and recipes.

## HOME OR OFFICE

You'll love the quality. As you can see on the control panel, you can not only select the number of copies you want, you can alter the intensity.

You can make dark solid copies or

expensive copiers. But, we have a 64,000 square foot building. I can buy 5 of these for the cost of one standard machine.

And, since the copy quality is identical, several departments are putting them in. They're thrilled and I'm happy because they'll save time (which is money for me).

## THE UGLY SERVICE PROBLEM

Well, it had to rear its ugly head. Everyone knows that copiers need service. But Royal has made a quantum leap in eliminating most service.



The dreaded photoconductor drum

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# Remote Control Blowout

## Command Consoles, Modules & Computer Interfaces

Burglars will think you've got a family of 10 at home when you're out. And, you'll feel like you've got a butler, 2 maids and a security guard when you're home. And now, for just \$19<sup>90</sup> you can interface your computer.

By Drew Kaplan

It's late at night. You're in bed. The lights are romantically low. The stereo that is playing in the background, as well as your lights, will be automatically turned off after you're asleep.

As you peacefully drift off, you'll be secure in the knowledge that to a burglar on the prowl, your family still appears to be moving about.

### CHEAP THRILLS

Romantic lighting, burglar deterrents and energy saving controls, are just the beginning of this remarkable, installation free, remote control system.

Now you can remotely turn on, off and dim your lights, thwart burglars, and even turn the lights on or off in an unattached garage or barn.

It's exciting. Just imagine effortlessly retrofitting your home for remote control without running a single wire.

From my own nightstand, I can dim the lights in the bedroom, turn off my son's TV and turn on our outside security lights or all the controlled lights in the house. Wow!

This instant remote control system simply plugs-in in seconds and consists of inexpensive space age control modules and command consoles.

It actually uses your existing house or office wiring. And if you can plug in a lamp, you can plug-in this system.



### THE COMMAND CONSOLE

Imagine that you're watching TV. You can dim the lights from your easy chair. If you hear a noise, touch a button and your outside flood lights jump to life.

It's all easy when you have this top of the line Command Console, shown above, sitting next to you. It can let you control up to 16 different lights and appliances.

You can turn each on or off. You can dim or brighten lights. And look at this. You can turn all your controlled lights on or off for instant security with the 'All On' and 'All Off' buttons on the console.

You can even move it from room to room because its total installation consists of simply plugging it in. Or, at DAK's



super low price, you can put Command Consoles in as many rooms as you wish.

No matter where a Command Console is, you can control lights, fans, TVs, and stereos anywhere in or around your home.

### HERE'S HOW IT WORKS

As you push each button on the command console, a powerful but silent, encoded signal is sent down its AC cord into your home or office wiring.

This safe, silent encoded signal, travels throughout your electrical system. And, it won't disturb your TV or your FM.

It can even reach your unattached garages, barns, sheds and even your pool light, porch lights and yard lights.

Wherever you want to control a light or appliance, all you have to do is plug-in one of the system's controller modules.

Each module has a rotary dial numbered from 1 to 16. Just dial in a number to match one of the 16 number buttons.

Then, just plug the module into the wall and the lamp or appliance into the module for instant remote control.

**Important note:** You will still have local control of all your lights and appliances by just using their normal switches, even though they are plugged into modules.

Each module actually senses when you turn the controlled unit's switch and automatically relinquishes control.



There are separate modules for lamps that have full range dimming capability from 0% to 100%, and handle up to 300 watts. There are appliance modules that have no dimming but can handle up to 500 watts, or 1/3hp motors.

And, there are even light switch modules that have both full dimming and 500 watt capability which you can install instead of your present wall switches.

You can move the modules from place

to place or change their code numbers in seconds. And of course, if you move, your system goes with you.

### THE TIMER

This sophisticated electronic brain can perform 32 tasks. Just plug it in and you're in operation.

Select the module number you want to control, then decide if you want the controlled device to come on or off.

If you only want something to happen once, just push the 'Once' button.

There is a 'Daily' button that lets what you've programmed occur every day.

There's a 'Security' button. You can program lights and radios to give your house a lived-in look when you're away.

With The Timer, you can set your window air conditioning to come on an hour before you return from work.

Or, you can have your porch lights come on so you'll never enter a dark house. You can set your hall light to come on at 11PM and off at 6AM. And you can have your electric blanket shut off at 7AM and come back on at 10PM.

### TELEPHONE CONTROL TOO

You can even phone home and control anything. Just plug it into both your AC line and any modular phone jack in your home or office.

Then just call your regular phone number, hold up its 'beeper controller', give your 3 digit code that you set yourself, and start controlling.

You can call home and turn on your lights before you leave work or before you leave a midnight party. It's a great security device.

### SOME NEAT IDEAS

You'll find the system changes and bends to meet your exact needs. You can set several modules to the same number so that the front and rear lights can come on together.

Or, you can set all the lamps in a room to come on and even dim together.

You're sure to want a module in your dining room. Eating by subdued light is a real pleasure. And it's important to remember that not only do you get full remote control, you get 0% to 100% brightness control of your lights.

It's like getting free dimmers thrown  
...Next Page Please



## \$19<sup>90</sup> BLOWOUT

Computer Interfaces were originally \$129 for:

● IBM ● MACINTOSH  
● APPLE ● COMMODORE



... X10 Continued in with your remote control system. So, for bedside lamps, swag lamps, ceiling lights, track lights and garage lights, you'll be in full command.

And, you'll automate your fans, coffee-maker, humidifiers, and crock-pots.

With a little imagination, you can adapt other electronic devices that will let you water plants, control green houses, and of course, make use of audio cassette decks with 'timer ready' switches.

And, if you own a second home, now you can activate pipe heaters if there's an early frost, or 'switch on' the house so it's warm or cool and lit when you arrive.

### QUITE A SYSTEM

As you get into bed tonight, think about what you'd do if you heard a noise outside or downstairs. Just push a button.

Think about how nice dimmed lights would be in your bedroom or living room. If you're at all like me, you'll love all the 'plug-in' things you can do with X10.

### 19<sup>90</sup> COMPUTER CONTROL TOO

It's amazing. Look at your computer screen. Pick a lamp anywhere in your home and touch a button. Both the lamp on the screen and the 'real' lamp will jump to life. And, it's yours for just \$19<sup>90</sup>.

You can choose 10% to 100% intensity. And, not only can you turn anything you choose 'on' or 'off' right now, you can program the device to come 'on' or turn 'off' multiple times today, tomorrow, or any day(s) you wish during the week. **USE YOUR COMPUTER-DON'T LOSE IT**

What's really neat is that you can operate the system directly from your computer, but you store all your programmed instructions in X10's 80C48 microprocessor based Control Center.

And look at this. The Control Center instantly connects and disconnects from your computer without tying it up.

The control center has battery back up (9V battery not included), and you can back up all your stored commands on the copyable X10 master disk.

So, not only is your programming protected, but you can store summer, winter, and vacation schedules on disk.

In fact, although the included software supports at least 95 devices (minimum, depending upon which computer you own), you'll have access to 256 command capabilities. So, you can program anything you like. **Imagine all the excit-**

**ing things you can program your computer to do. Wow!**

### FULLY COMPATIBLE

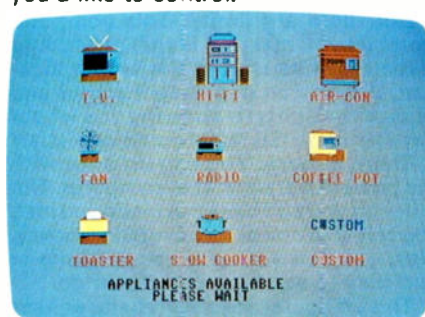
DAK has over 70,000 customers with X10 systems. The standard modules that you already own are 100% compatible. So, for \$19<sup>90</sup>, how can you go wrong?

How is it done? Well, your computer tells the Command Center what you want done. The Command Center then sends a silent encoded signal throughout your home's electrical system.

If it says, "Number 7 module turn on to 40%", only number 7 will respond. Of course, groups of modules can be controlled and you can assign several lights, such as outside flood lights, to the same number. It's all easy. It's all flexible.

### BACK TO THE ACTION

OK, you're sitting at your Commodore or Apple IIE or IIC Computer. You'll see pictures of a variety of rooms. Just tell your computer what types of devices you'd like to control.



Whenever you would like to place a lamp or appliance, just choose one from a screen like the one shown above. These pictures, or ICONS as they are called in computerese, will appear. **There are many types of devices to choose from.**

If you were at your IBM PC you'd see text. (You can even control your whole office or factory.) If you were at your Macintosh, you can draw your own rooms, even using Macpaint. **Wow!**

So, with Command Consoles or with your computer, or with both, you'll have control never before possible of electrical devices in your home or office.

Wait till you feel the power of your computer surging through your home. A security mode can make your lights come on and off at random times for security. You can even manually control 8 devices

from the Console itself.

All Command Consoles, Modules and Computer Interfaces are backed by X10's standard limited warranty.

### FINAL CLOSE-OUT RISK FREE

It's simply thrilling to use. It's security. It's convenience. And, it's fun.

If you aren't 100% satisfied, simply return any component to DAK in its original box within 30 days for a refund.

To order Any Combination of Command Consoles, Modules and Computer interfaces call toll free, or send your check for the amounts shown below.

**Order any combination of Command Consoles and modules you desire.**

1) **The Control Console**-Lets you control up to 16 different modules. On/off/dim/all on/all off. Just \$19<sup>90</sup> (\$2 P&H). Order No. 4622.

2) **32 Event Clock Timer**-Lets you control 8 modules with up to 2 on and 2 off commands to each. Also acts as a command base plus sleep and security extras. Just \$26<sup>90</sup> (\$2 P&H). Or. No. 9777.

3) **Telephone Responder**-Phone home and control 8 devices. It's also a base. It's just \$39<sup>90</sup> (\$3 P&H). Order No. 9778.

4) **Lamp Module**-Controls/Dims lamps up to 300 watts plugged into walls. Just \$11<sup>90</sup> (\$1 P&H). Order No. 9779.

5) **Wall Switch Module**-Controls/Dims lights now controlled by wall switches. 500 watt capacity. Just replace your wall switch with this automated module. Just \$12<sup>90</sup> (\$1 P&H). Order No. 9780.

6) **Appliance Module**-Control stereos, TVs, or anything with motors. 15 amps, 500 watts, 1/3hp rating. Just \$11<sup>90</sup> (\$1 P&H). Order No. 9781.

An X10 Computer Home Controller complete with Appropriate Software Disk and Cable is just \$19<sup>90</sup> (4 P&H).

7) For your Commodore 64 or 128, it simply plugs in. Use Order No. 4378.

8) For your Apple IIE or IIC, use Order No. 4379. **Note:** For the Apple IIE only (the IIC has one built-in), you'll need a serial interface (same as for a modem). It's just \$79 (\$2 P&H). Order No. 4380.

9) **Most IBM PCs & Clones** have a serial port, so X10 should simply plug in. Use Order No. 4410.

10) For your Macintosh, the X10 simply plugs in. Use Order No. 4411.

Commodore, Commodore 64 & 128 and Apple, Apple IIE, IIC, Macintosh & Macpaint, IBM & IBM PC are registered trademarks of Commodore Electronics Ltd and Apple Computer and International Business Machines.





# No Button Chess

*Just follow the blinking lights for the most challenging game of your life. There are 8 levels. It's fully automated. And, wait till you see the price.*

It's you against the computer. Chess comes alive with the latest breakthrough in computer technology.

There are no more bothersome buttons to push and complicated calculator displays to decipher. This computer uses 'sensor technology' to interpret what you have done, and simply lights 2 LEDs to tell you what it wants to do.

It's the newest version of 'follow the bouncing ball'. Now it's follow the blinking light. So, let the war begin!

It's smart. It has 8 levels of difficulty and its brain is an 80C50 Processor running at 6 megahertz with a memory capability of 32,000 bits, so you better come out fighting.

## SIMPLE TO USE

Notice that I said, "simple to use", not simple to beat. Using this computer is incredibly easy. Just move your man. The computer will know exactly what you've done.

Then it's the computer's turn. Two LEDs will light to show you the man the computer wants to move. Then two more light show you where to move the man.

It's simple. It's easy. And, there are no buttons to push. You can concentrate on the game, not on the computer.

## BUT, THERE ARE BUTTONS

The only buttons you really need are the on/off switch and the new game button. But, look at this.

**There's help.** Just touch a button, and the computer will join your team. It will pick your best possible move. A second button touch will send its brain back to pick its best response.

**You can cheat.** Let's say you make a really dumb move. After you see what the computer is going to do to you (hor-

rors, you've lost your Queen), you make the computer take back its last move and then you can take back yours.

And that's not all. If you're the type of person who says, "If I only had my Queen back, I could beat this thing," no problem. You can add back in any piece anywhere, with the push of a button.

**But there are limits.** This computer won't let you make an illegal move. And if you move its man to the wrong location, it emits an unpleasant sound and flashes the lights re-showing you where it wants to go. So, what could be easier?

**There's more.** You can do a lot with the powerful brain of this computer. Not only can you add back in a piece you lost, you can take one of the computer's away. Plus, you can set up a classic game in mid-play to see how you would do.

This computer does everything a chess master would do. It castles, it has pawn promotion and en passant. So brush up, you'll have to play your best.

Even level one is a challenge. I can't beat this computer at level 4. And, I don't even want to talk about levels 5, 6, 7 and 8. And here's a nice extra.

You won't have to wait for the computer. With its super fast 6 megahertz speed, it thinks while you're playing (I think it knows what you're going to do). It reacts in 5 seconds on level 1, 30 seconds on level 4 and so on. See if your brain can keep up with this computer.

## WOW, IT'S REAL CHESS

But, when all is said and done, playing chess is what it's all about. And this game is very smart, very tough, but incredibly easy to use. Every move is even audibly confirmed.

It is only 10½" X 11" X 2½". The com-

batants are magnetic and the King stands 2" tall. Using the newest IC technology, this computer operates for more than 500 hours on 4 C batteries.

So, this chess player goes where you go. And, with more than 500 hours of battery life, you don't even need to buy an AC adaptor.

It's made in the United States (isn't that a change) by Fidelity Electronics. They are the largest and best known of the chess computer manufacturers. And, it's backed by their limited warranty.

## TRY NO BUTTON CHESS RISK FREE

If you like a challenge and your ego is strong enough to withstand losing to a computer, why not play just one game.

If you aren't 100% satisfied, even if you just lose too often, you can return this computer within 30 days in its original box for a courteous refund.

To order your Fidelity No Button Chess Computer risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$69 plus \$4 for P&H. Order No. 4306. CA res add 6% sales tax.

Whether you're a novice or a master, one of the 8 levels is sure to keep you humble. Chess taxes intelligence, not reflexes, which is why it's always been a game of Kings and Diplomats.



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(CONTINUED FROM PAGE 48) switching, and memory rewind), but no real elaborations. The recording level control, which has friction-clutched elements to adjust interchannel balance, is fitted with an outer ring on which you can preset the recording level. Fade-ins then are simply a question of advancing the main knob until it is stopped by the ring, which increases the force necessary to turn the knob. Indicative of the design approach is the powered cassette-compartment door: It closes automatically when you drop in a tape, but—unlike those in some “ultraconvenience” models—it can be closed by hand as well.

Conception and operation are, in a word, straightforward. Tape-type selection, for instance, is entirely automatic, responding to the encoding keyways built into cassette shells. You can't fine-tune for the particular tape at hand (or make successful recordings on old Type 2 or Type 4 cassettes without the keyways), but neither can forgetfulness cause grossly incorrect settings with current name-brand cassettes.

The tape brands that Diversified Science Laboratories used in testing the CT-A7X's record/play functions (based on recommendations from Pioneer that included some now withdrawn formulations) were Maxell XL-II as the Type 2 chrome-compatible ferricobalt, Maxell UDS-I as the Type 1 ferric, and TDK MA as the Type 4 metal. The slight sags in the Dolby-on curves with the Type 2 formulation suggest that a more sensitive tape (or an internal readjustment of recording sensitivity) could yield flatter midrange response, though at the expense of some exaggeration in the range between 5 and 10 kHz, where all the tapes displayed some rise.

Overall, however, the Type 2 record/play response is very good. Response with the Type 4 tape is even better, though similar in general shape. Best of all in flatness and, particularly, sensitivity matching are the curves with the Type 1 formulation. That tape also displays the flattest high-level (0-dB) trace, up to self-erasure at about 7 kHz, though this presumably is a case of two mi-

nor wrongs—a rolloff in the range where the response tends to peak—making an apparent right. In the 0-dB Type 2 curve, the rolloff is slightly greater than the rise (which is clearly visible in the Type 2 trace recorded at -10 dB), for a net response that slopes very slightly downward.

The ability to handle strong highs is certainly good for both the Type 1 and Type 2 tapes, however, and it's distinctly better than good with the Type 4 metal, whose 0-dB curve rises slightly in the emphasized range but, with Dolby C operating, remains within about 1 dB of flat right up to 20 kHz. Even without noise reduction, response holds up to just above 10 kHz, which is very respectable, even for a metal tape.

Playback response with the lab's BASF test tape rolls off a little toward the top end, apparently as a result of only a fair match between the tape azimuth and that of the deck, as evaluated on the basis of output stability at high frequencies. Overall playback response is very smooth—even in the deep bass. There is a slight output disparity be-

(CONTINUED ON PAGE 83)

#### A QUICK GUIDE TO TAPE TYPES

Our tape classifications, Types 1 through 4, are based on the International Electrotechnical Commission measurement standards.

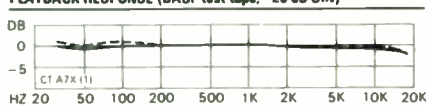
**TYPE 1** (IEC Type I) tapes are ferrics requiring “normal” bias and 120-microsecond playback equalization.

**TYPE 2** (IEC Type II) tapes are intended for use with 70-microsecond playback EQ and higher recording bias. The first formulations of this sort used chromium dioxide; today they also include chrome-compatible coatings such as the ferricobalts and a few metals.

**TYPE 3** (IEC Type III) tapes are dual-layered ferrichromes, implying the 70-microsecond (“chrome”) playback EQ. Approaches to their biasing and recording EQ vary somewhat from one deck manufacturer to another, when they are accommodated at all. Formulations of this type are no longer being made.

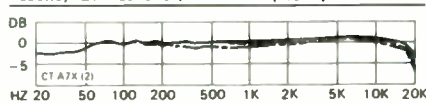
**TYPE 4** (IEC Type IV) tapes are the metal-particle, or “alloy,” tapes, requiring the highest bias of all and retaining the 70-microsecond EQ of Type 2.

#### PLAYBACK RESPONSE (BASF test tape; -20 dB DIN)



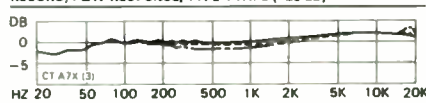
Left channel +0, -2 1/4 dB, 315 Hz to 18 kHz  
Right channel +1/4, -2 dB, 315 Hz to 18 kHz

#### RECORD/PLAY RESPONSE, TYPE 2 TAPE (-20 dB)



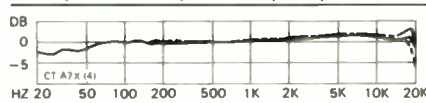
Left channel (no NR) +1, -2 1/2 dB, 20 Hz to 20 kHz  
Right channel:  
no NR +1 1/4, -3 dB, 20 Hz to 20 kHz  
Dolby B +1, -3 dB, 20 Hz to 18 kHz  
Dolby C +1/2, -3 dB, 20 Hz to 18.5 kHz

#### RECORD/PLAY RESPONSE, TYPE 4 TAPE (-20 dB)



Left channel (no NR) +1, -2 dB, 20 Hz to 20 kHz  
Right channel:  
no NR ±2 dB, 20 Hz to 20 kHz  
Dolby B ±2 dB, 20 Hz to 20 kHz  
Dolby C +3 1/2, -2 dB, 20 Hz to 20 kHz

#### RECORD/PLAY RESPONSE, TYPE 1 TAPE (-20 dB)



Left channel (no NR) +1, -3 dB, 20 Hz to 20 kHz  
Right channel:  
no NR +1 1/2, -2 1/2 dB, 20 Hz to 20 kHz  
Dolby B +1 1/2, -3 dB, 20 Hz to 19 kHz  
Dolby C +3 1/4, -2 1/2 dB, 20 Hz to 20 kHz



# The best CD Player is a matter of opinion. Many opinions.

LINE 1986 • \$2.00

probably give outstanding service for a long time.  
 • Finally, the Denon DCD-1500 tops my list. It's the player I recommend most highly. It has oversampling, dual D/A converters, remote controller, formidable specifications, full features, and Denon sound. The Denon engineers who created it should be honored in public.

Der CD-Spieler Denon DCD-1500  
**Feuer und Flamme**  
 ...Welt wollte Denon ... Palastrevolution.

**DENON DCD-1500**  
 typically £399

The current range of Denon players covers the ground from true budget to audiophile models. The DCD-1500 fits bang in the middle of the range as far as price is concerned and could best be described as being a full-feature domestic machine that is built with audiophile attention to detail.

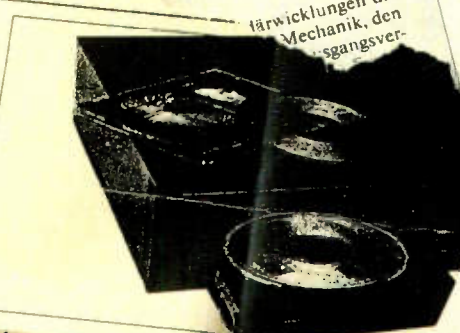
Rather like the second generation of Sony players, the Denon uses separate converters for the two stereo channels rather than time-sharing the one. It therefore escapes phase problems of the first approach. The player twice oversamples the signal and has two specially designed phase filters built into the back board instead of the chosen Burr-Brown.

The circuitry has its own power supply and digital correction once or twice the highest information layer. The equivalent level surface mark and fingerprint tests were cleared without problems.

**The Real Deal**  
 This Denon DCD-1500 is well designed throughout. Everywhere you look you'll see signs of careful engineering and evidence of the willingness to spend the extra time and money to do the job right. The Denon engineers who created the DCD-1500 have done a superb job.

In features, design, and sonics, the DCD-1500 is an outstanding player at any price, and a phenomenon at its list price. In my opinion, it's the best deal in today's CD player market.

Ken Pohlmann is a contributing editor to Digital Audio.



- Rich, atmospheric sounding player
- Construction
- Ease of use
- Sound quality
- Value for money

under remote control. The fascia has to pack in a lot of buttons but remains fairly easy to understand. The main Search and Skip controls are in a strip in the centre bottom of the player. The keypad is duplicated to the right side of the comprehensive display while the Repeat, memory call and clear functions are up with the Play, Pause and Stop controls on the top right. The display gives continuous readout of Track/Index numbers, time and a 0-20 track grid.

Hayden Labs Ltd  
 Hayden House  
 Chiltern Hill  
 Chalfont St Peter  
 Bucks SL9 9UG  
 ☎ (0753) 888447

Beispielsweise speist der Klotzige Netztrafo mit vier einzel-

Denon America, Inc., 27 Low Drive, Fairfield, NJ 07006  
 Denon Canada, Inc., 17 Denison Street, Markham, Ont. L3R 1B5 Canada  
 Reviews reprinted with permission. (Digital Audio 3/86 and 6/86; Audio 6/86).  
 Write to us for the complete texts.



# dio

**MASS TEST  
49 CASSETTES**

Rating: ★ ★ ★ ★ ★  
In several measurements, the DCD-1500 out-performed any other cassette player.  
**PHIRE**  
**ABLE**  
**DENON DCD-1500  
CD PLAYER**

**Denon DCD-1500**

Preis: um 1600 DM  
Garantie: 12 Monate  
Abmessungen:  
43,4 x 8,9 x 35 cm (BxHxT)  
Denon Electronics GmbH  
Halskestraße 32  
4030 Ratingen 1

**Pro und Kontra**  
++ Klang  
Ausstattung  
Verarbeitung  
+ Fernbedienung

**Preisbezogene Wertungen**  
Klang: sehr gut  
Fehlerkorrektur: gut bis sehr gut  
Ausstattung: sehr gut  
Verarbeitung: sehr gut

**HIFI VISION-Urteil**  
Preisbezogenes Gesamturteil:  
sehr gut  
Abgegebene Einstufung:  
Referenzklasse

The audio critics of the world hardly ever agree on anything. But when it comes to superlative CD players, Ken Pohlmann, Len Feldman, Masamitsu Fukuda, Ulrich Smyrek, David Prakel, Yoshiyuki Ishida, Artur Jung, and Hideo Kaneko recommend one model with amazing consistency: the Denon DCD-1500.

How did Denon achieve this exalted status? Not by offering useless buttons, switches and fluorescent displays. But by developing better digital circuitry, building to higher standards, and using better parts. Our proprietary Super Linear Converter is the only one that actually corrects D/A transfer distortion. Each circuit gets its own separate power supply. And our filters are computer-analyzed for linear phase. So you hear sound that rewards the most critical listening.

In a player as reasonably priced as the DCD-1500, these refinements are enough to make even a hard-boiled critic stand up and cheer. And now there's more cause for celebration: three new Denon CD Players. They're built on the same principles as the DCD-1500, and they're even more affordable.

So if you want to hear the best that the Compact Disc format has to offer, get yourself to a Denon dealer. And don't forget to tell him who sent you: Ken, Len, Masamitsu, Ulrich...

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nard Feldman

Audio 4/1986

# DENON

DESIGN INTEGRITY



**DCD-1500:** Dual Super Linear Converters; Oversampling Digital Filters; CALP Analog Filters; Programming; Remote Control.



**DCD-1300:** Super Linear Converter; Oversampling Digital Filters; Real-Time Phase Correction; Programming; Remote Control.



**DCD-700:** Super Linear Converter; Real-Time Phase Correction; Programming; Remote Control; Headphone Jack with Level Control.



**DCD-500:** Super Linear Converter; Real-Time Phase Correction; Programming; Emphasis Display; Headphone Jack.

Q/JUNE 1986

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offers: The u  
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DCD-1500's audio qua  
of some players

# Introducing The One Remote That Does The Work Of Four.



## The Control Central™ Remote.

Things are getting out of control. Separate remotes for your TV, VCR, stereo, CD or cable converter can be more control than you can handle.

But now you can replace up to four remotes with one. An infrared remote that works with most video equipment made today.

The Control Central™ infrared remote from General Electric.

To program Control Central, just flick the switch to "learn," place it head-to-head with the

existing remote and press matching buttons on each.

In minutes, Control Central can memorize the operating codes of up to four separate infrared remotes. It's that simple.

And it reprograms just as easily for new or added equipment.

You can get the convenience of this one remote for yourself, or give one as a gift.

Control Central. The one remote that keeps everything under control.

We Bring Good Things To Life.



"GE" is a registered trademark of General Electric Company.



(CONTINUED FROM PAGE 79)

tween the two channels in the deep bass, but channel matching is otherwise very good.

Understanding the metering is a little more difficult than usual, at least with the tapes chosen for the lab testing. Where two meter readings are shown in our data column, the first is for off-the-tape monitoring—the mode into which the deck automatically switches when you begin recording and the one necessary for listening to the recorded results. The second figure, following the slash, is what shows on the meters with the monitor switch set to read the source signal. As you see, the latter reading usually is higher. This probably reflects the sensitivity mismatch that causes the slump in midrange response with the Dolby circuits on; if the deck were readjusted for the sensitivities of the tapes actually in use (and, again, the disparity is least for the Type 1 ferric), the source and tape meter readings probably would match exactly.

Since they don't, the meaning of the meter readings is harder to interpret than usual because different headroom factors must be allowed for depending on the monitoring mode. And even then, the source/tape difference isn't entirely consistent, as you can see. This is due partly to the "quantized" nature of the meters, which respond only in discrete increments, and partly to some vagaries in the metering itself.

We don't want to make too much of these matters, however, because the metering ac-

tually is distinctly better than average in at least one key respect: It is calibrated in 1-dB increments all the way from -4 to +6 dB (with respect to the deck's own 0-dB mark) and in 2-dB increments out to -10 and +10 dB. This is exceptionally fine subdivision for a home deck and genuinely informative. The total scale reaches down to below -20 dB and up to +10. The range from +5 dB up indicates overload for Type 1 and Type 2 tapes, from +6 dB up for Type 4. These markings are a reasonable match to the lab data but—again—require interpretation, depending on whether source or tape is being read.

Erasure and channel separation both are excellent, and the remaining electrical figures are very much what you might expect of a deck in this price class. Mechanically, it is among the most impressive we've tested from Pioneer in recent years. The closed-loop drive delivers tape motion that is exceptional in both speed accuracy and freedom from flutter.

In short, the CT-A7X is a capable deck that, to a large extent, stays out of your way in recording or playing tapes. That is, it intrudes neither by preempting functions that many of us would rather manage for ourselves nor by imposing sonic aberrations. Paradoxically, those negatives add up to a positive experience in using the machine. If you've been turned off by the complexity of many cassette decks, try this one: It could bring back the fun of recording. ■

**MULTIPLEX FILTER (defeatable)**

-1/4 dB at 15 kHz, -34 3/4 dB at 19 kHz

**S/N RATIO (re DIN 0 dB; R/P; A-weighted)**

	Type 2 tape	Type 4 tape	Type 1 tape
no NR	56 dB	55 dB	53 1/2 dB
Dolby B	64 3/4 dB	64 dB	62 1/2 dB
Dolby C	71 3/4 dB	71 dB	68 3/4 dB

**INDICATOR READINGS FOR DIN 0 DB (315 Hz; see text)**

Type 2 tape	+3/ +6 dB (with 3.4% THD)
Type 4 tape	+3/ +6 dB (with 2.3% THD)
Type 1 tape	+3/ +4 dB (with 1.2% THD)

**INDICATOR READINGS FOR 3% DISTORTION (315 Hz; see text)**

Type 2 tape	+3/ +6 dB (for -1/4 dB DIN)
Type 4 tape	+4/ +8 dB (for +1 dB DIN)
Type 1 tape	+6/ +6 dB (for +2 1/4 dB DIN)

**DISTORTION (THD at -10 dB DIN; 50 Hz to 5 kHz)**

Type 2 tape	≤ 1.16%
Type 4 tape	≤ 0.54%
Type 1 tape	≤ 0.32%

**ERASURE (at 100 Hz)**

≥ 72 dB

**CHANNEL SEPARATION (at 315 Hz)**

62 dB

**INDICATOR "BALLISTICS"**

Response time	7.6 msec
Decay time	≈ 900 msec
Overshoot	0 dB

**SPEED ACCURACY (105 to 127 VAC)**

0.1% fast

**FLUTTER (ANSI weighted peak; R/P)**

± 0.05%

**SENSITIVITY (re DIN 0 dB; 315 Hz)**

100 mV

**INPUT OVERLOAD (at 1 kHz)**

> 10 volts

**INPUT IMPEDANCE**

130k ohms

**OUTPUT IMPEDANCE**

3.020 ohms

**MAXIMUM OUTPUT (from DIN 0 dB)**

1.06 volts

T E S T R E P O R T S

# Denon DCA-3175 Car Power Amplifier

**DIMENSIONS:** 8 1/2 BY 8 1/2 INCHES (BASE), 1 1/4 INCHES HIGH. **CONNECTIONS:** CHASSIS SCREW SOCKETS FOR BATTERY, SWITCHING, AND GROUND; CHASSIS PIN JACKS FOR SIGNAL INPUTS; BINDING POSTS FOR SPEAKER LEADS. **FUSES:** NONE CALLED FOR. **PRICE:** \$180. **WARRANTY:** "LIMITED," ONE YEAR PARTS AND LABOR. **MANUFACTURER:** NIPPON COLUMBIA CO., LTD., JAPAN; **U.S. DISTRIBUTOR:** DENON AMERICA, INC., 27 LAW DR., FAIRFIELD, N.J. 07006.

**D**ENON—OR RATHER, ITS PARENT, NIPPON Columbia—is a company of many parts, and over the years, we have seen its brand name on everything from inexpensive blank cassette tape to the most impressive of professional electronic gear. In contrast, Denon America has been remarkably consistent in the swath it has cut. High-performance consumer audio is its beginning and its end, and we should not have been

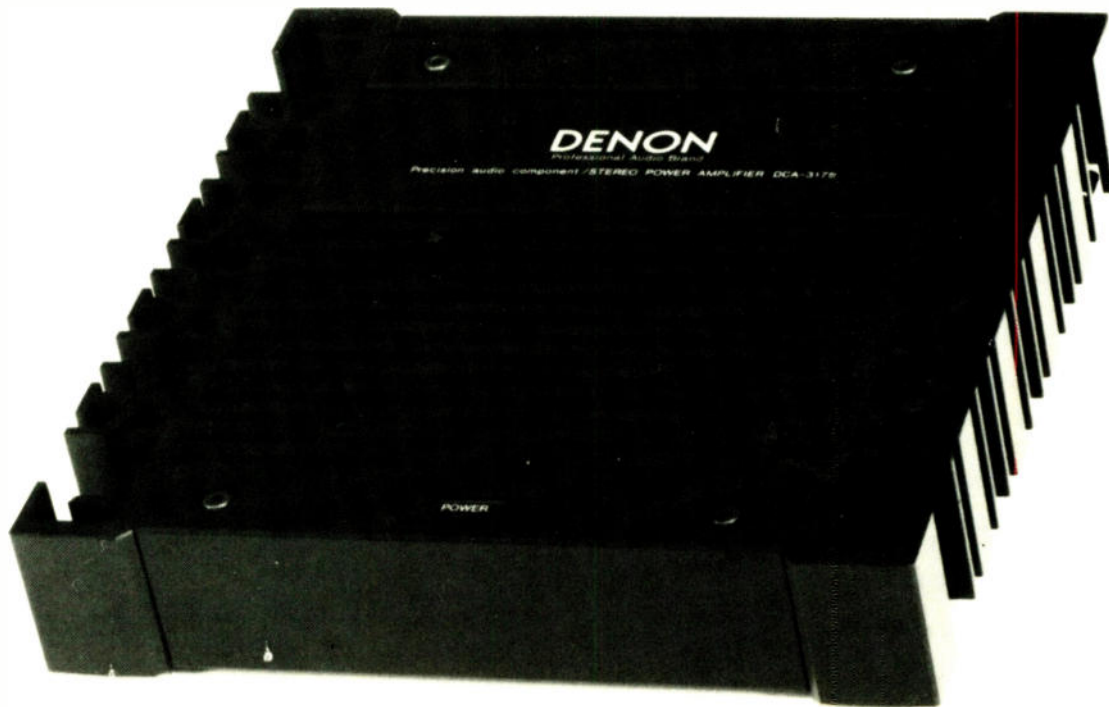
surprised to find that the DCA-3175 in some respects resembles home audio gear more than typical car stereo.

Right up front, for instance, it announces that it doesn't use negative feedback. In the context of most home electronics, that's like a furniture manufacturer not using screws: a foregone conclusion among fine craftspeople, perhaps, but outright heresy in mass production. The reason for avoiding feedback is to eliminate opportunities for the creation of certain rare and exotic forms of distortion (TIM, for example). But since feedback doesn't automatically produce distortion (in fact, its primary purpose is to cancel distortion), only the ultrafastidious go to the extreme of banishing it altogether.

Then there's the excellent finish of the

amp, which resembles that of proudly displayed home gear. There even is a pilot light. (In most installations, the amp will be installed under a seat, in a trunk, or otherwise out of harm's way, where the pilot light will not be visible.) The input jacks are color-coded and gold-plated—by no means a common touch in car stereo. The binding posts are not very hefty (wiring distances—and therefore wire gauge—in cars are small by comparison to home installations), but they come with both knurled grips and screwdriver slots to make them easy to tighten wherever (within reason) you decide to place the amp.

This is, like most reasonably high-power car amps, a bridged design—meaning that one side of the output in each channel is



driven positive while the other is driven to a complementary negative voltage. This creates twice the total voltage drop between the terminals (and therefore four times the power into any given load) that can be achieved with a fixed ground and one driven terminal and is the primary means of obtaining relatively high output power from the 12 volts of a car battery. As a result, Denon's "+" and "-" terminal markings don't mean "hot" and "ground" (both are hot) but are so marked and color coded to ensure that you connect the two speakers in phase with each other. Neither side can be grounded to the car chassis.

As is common in car stereo, which is unfettered by the Federal Trade Commission rules that govern home-audio power ratings, Denon gives two power specs for the DCA-3175. The first says the unit will produce a maximum of 40 watts per channel; the second, following FTC rating practice, says that it will deliver 28 watts per channel over the full audio bandwidth with 0.05 percent distortion. In Diversified Science Laboratories' bench tests, both figures proved to be essentially spot-on. Among other things, the disparity between ratings dramatizes the importance of knowing what sort of power spec you're looking at.

All measurements were made with the input-sensitivity switch at HIGH, which would be appropriate for much of the car-stereo equipment we test and comparable to line level in home gear. The low presumably is intended for use with DIN-spec equipment. Curiously, the S/N (signal-to-noise) ratio is slightly more favorable with the greater gain, which usually tends to amplify thermal noise as well as signal. Either way, the figure is quite generous. The lab did find some DC-to-DC converter by-products in the audio

output, but they were more than 65 dB below output at all test levels (0, 14½, and 16 dBW).

Harmonic distortion is very low at 0-dBW (1-watt) output, exceeding 0.01 percent only at the top of the frequency band and even then producing only the relatively benign second harmonic in any measurable quantity. At the rated output of 14½ dBW (28 watts), distortion at all test frequencies is close to 0.05 percent—also too low to be of any practical concern, though it contains significant quantities of the third harmonic.

Denon says that the avoidance of a car-chassis ground in the output minimizes the possibility of ignition-noise pickup in the sound. (There is provision for chassis-to-chassis grounding of the amp, which the somewhat skimpy owner's manual indicates is obligatory). But the lack of an output-to-chassis ground won't cure RF (radio frequency) interference in the head end or in the wiring leading from it to the amp. And one source of RF is the DCA-3175 itself, the lab discovered (it probably comes from the DC-to-DC converter). Our remaining tests didn't turn up any FM interference attributable to this, but that isn't to say that it might not make special shielding desirable in some installations.

But, to repeat, the standards of both audio and mechanical design are what appeal above all in the DCA-3175. The intricate extrusions at each side that act as heat sinks for the power transistors are intriguingly formed, not only as functional convection "chimneys" but as aesthetic *objets*. It's definitely a classy job, right down to the Allen screws that hold the top plate in place. That it sounds good—a lot better than you can appreciate in any moving vehicle of our acquaintance—goes almost without saying. ■

All data were measured with a 4-ohm load and, except as specified, the high sensitivity setting

**RATED POWER (4-ohm load)** 14 1/2 dBW (28 watts)/channel

**OUTPUT AT CLIPPING (at 1 kHz; both channels driven)**

**4-ohm load** 16 dBW (40 watts)/channel

**DYNAMIC POWER (4-ohm load)** 16 1/4 dBW

**DYNAMIC HEADROOM (re rated power; 4-ohm load)** +1 3/4 dB

**HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)**

**at 14 1/2 dBW (28 watts)** ≤ 0.055%

**at 0 dBW (1 watt)** ≤ 0.022%

**FREQUENCY RESPONSE**

+0, -1/4 dB, 19 Hz to 34.6 kHz

+0, -3 dB, < 10 Hz to 386 kHz

**S/N RATIO (re 0 dBW; A-weighted)**

**Sensitivity switch at high** 83 1/4 dB

**Sensitivity switch at low** 80 1/4 dB

**SENSITIVITY (re 0 dBW)**

**Sensitivity switch at high** 42 mV

**Sensitivity switch at low** 130 mV

**INPUT IMPEDANCE (either sensitivity)** 15k ohms

**DAMPING FACTOR (at 50 Hz; re 4 ohms)** 65

**CHANNEL SEPARATION (at 1 kHz)** 72 dB

#### REPORT POLICY

EQUIPMENT REPORTS ARE BASED ON LABORATORY MEASUREMENTS AND CONTROLLED LISTENING TESTS. UNLESS OTHERWISE NOTED, TEST DATA ARE PROVIDED BY DIVERSIFIED SCIENCE LABORATORIES. THE CHOICE OF EQUIPMENT TO BE TESTED RESTS WITH THE EDITORS OF HIGH FIDELITY. SAMPLES NORMALLY ARE SUPPLIED ON LOAN FROM THE MANUFACTURER. MANUFACTURERS ARE NOT PERMITTED TO READ REPORTS IN ADVANCE OF PUBLICATION, AND NO REPORT OR PORTION THEREOF MAY BE REPRODUCED FOR ANY PURPOSE OR IN ANY FORM WITHOUT WRITTEN PERMISSION OF THE PUBLISHER. ALL REPORTS SHOULD BE CONSTRUED AS APPLYING TO THE SPECIFIC SAMPLES TESTED. HIGH FIDELITY AND DIVERSIFIED SCIENCE LABORATORIES ASSUME NO RESPONSIBILITY FOR PRODUCT PERFORMANCE OR QUALITY.



Delco sound is so fine, it's bound to attract outside attention.

But Delco Music Systems perform even better inside GM cars. Because they're acoustically matched to your exact model.

We call it designed-in sound. It means you get the best possible speaker locations. And some of the most sophisticated systems a'round.

Like our cassette player with integral five-band graphic equalizer. And the compact disc we offer on select models. Both are true ear-dazzlers.

We also have enough features to satisfy the most ardent audiophile. Music search to find or repeat tunes. A CrO<sub>2</sub> switch to equalize chromium or metal tapes. And the kind of speaker systems that really crank it out. With six speakers in some cases.

So when you buy your new GM car, don't drive away without the sound designed for it. Insist on a Delco premium music system.

But when you pick up your new wheels, better take a vacation day. Because once you hear a Delco Music System, you may never leave your car.

## Delco Electronics

Subsidiary of GM Hughes Electronics



You'll love it too much to leave it.



# THE ARMY CALLS IT CARTOGRAPHY. HE CALLS IT THE START OF A CAREER.

For SP4 Mario Canedo, Army skill training in cartography is helping set his career path for life. At first, Mario didn't know what kind of career to take up. His father always asked him what he was going to do with his life, but Mario never really had any plans for his future. Then Army training helped him to focus on his abilities and interests.

Now he's an Army cartographer. He creates maps for the infantry and artillery which show the contours and characteristics of the terrain such as the hills, valleys, lakes and rivers.

Mario has now built up enough confidence and experience to make cartography a career if he chooses. Even his father is surprised at how much Mario has grown.

Army experience is helping Mario feel better about his future. And it can help you or someone you know to do the same.

The Army provides the opportunity to explore any of dozens of technical fields. To find out more, visit your local Army Recruiter, or call toll-free 1-800-USA-ARMY.

**ARMY.  
BE ALL YOU CAN BE.**





BY MICHAEL RIGGS

# PORTABLE PORTABLE PERFORMANCE

**WE FOLLOW UP OUR JULY BUYING GUIDE  
WITH COMPLETE LAB TESTS OF SEVEN  
PORTABLE COMPACT DISC PLAYERS.**



**I**N THE WORLD OF COMPACT DISC PLAYERS, THE ONLY thing more surprising than the rate at which prices have fallen is the speed with which manufacturers have shrunk the whole works down to Walkman-like dimensions. First came Sony with its D-5, followed swiftly by a raft of competitors. In July, we cataloged 13 models, and more were introduced at the most recent Consumer Electronics Show (see "New Products: Summer '86," September). By some estimates, portables now account for nearly half the CD players sold, so we thought it would be a good idea to see how they stack up. To that end, we brought together representative models from seven manufacturers for a thorough wring-out at Diversified Science Laboratories.

Although similar in basic concept, the players vary in the details of their design—sometimes rather dramatically. The Sony D-77, for example, includes an AM/stereo-FM radio in a package scarcely larger than the amazingly small, but radioless, D-7 (test report, April), while the Toshiba XR-P9 comes with a wireless remote control and an angled stand that doubles as an AC power adapter. This

greatly strengthens the Toshiba's appeal if you plan to use the player at home as well as on the go.

Another player particularly—if paradoxically—well suited to domestic use is the Hitachi, which is larger than the others (mainly because of its built-in battery compartment) and has its display panel and many of its controls on top rather than on the front. This makes the DA-P100 somewhat easier to operate on a tabletop than most other portables. At the same time, it is more susceptible than average to mistracking, which would tend to discourage over-the-shoulder or in-the-car disc playback. It is perhaps better thought of as a transportable, easily moved from place to place but best used on a stationary surface.

The most compact of these miniature machines (barely edging out the Pioneer) are the JVC, the Quasar, and especially the Sony, which draws on-the-go power from a snap-on battery pack rather than a carrying case. These players probably are about as small as is possible; certainly they could not be any less wide or deep. Yet all three boast fine performance and an extensive array of features, including audible search, repeat, and track-sequence pro-

Model	Frequency Response <sup>1</sup> 20 Hz to 20 kHz		Signal-to-Noise Ratio re 0 dB, A-weighted		Harmonic Distortion <sup>2</sup> 40 Hz to 20kHz		IM Distortion <sup>3</sup> 300 Hz to 20 kHz 0 to -30 dB	Channel Separation at 1 kHz
	without de-emphasis	with de-emphasis	without de-emphasis	with de-emphasis	at 0 dB	at -24 dB		
<b>Hitachi DA-P100</b>	+ $\leq 1/4$ , -2 1/2 dB	+ 1/2, -3 1/4 dB	89 dB	92 dB	$\leq 0.070\%$	$\leq 0.092\%$	$\leq 0.089\%$	81 1/2 dB
<b>JVC XL-R10K</b>	+ 1/4, -1 1/2 dB	+ 1/2, -1 1/2 dB	94 dB	97 1/2 dB	see text	$\leq 0.056\%$	$\leq 0.089\%$	94 1/4 dB
<b>Pioneer PD-C7</b>	+0, -2 1/2 dB	+0, -4 dB	91 dB	93 3/4 dB	$\leq 0.79\%$	$\leq 0.049\%$	$\leq 0.014\%$	89 dB
<b>Quasar CD-8936</b>	+ 1/2, -3/4 dB	$\pm 3/4$ dB	92 1/2 dB	98 dB	see text	$\leq 0.051\%$	$\leq 0.025\%$	93 1/2 dB
<b>Sanyo CP-10</b>	+ 1/4, -1 3/4 dB	+ $\leq 1/4$ , -1 3/4 dB	92 dB	97 1/4 dB	$\leq 0.012\%$	$\leq 0.055\%$	$\leq 0.010\%$	79 1/2 dB
<b>Sony D-77</b>	+0, -2 1/4 dB	+0, -3 3/4 dB	91 dB	94 1/2 dB	$\leq 0.126\%$	$\leq 0.051\%$	$\leq 0.015\%$	91 1/4 dB
<b>Toshiba XR-P9</b>	+ 1/2, -1 dB	+1 1/2, -1 1/2 dB	84 1/4 dB	87 3/4 dB	$\leq 0.126\%$	$\leq 0.226\%$	$\leq 0.040\%$	74 1/4 dB

<sup>1</sup>Response data is for the worse of the two channels at the line outputs.

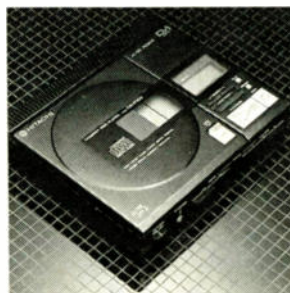
<sup>2</sup>Total harmonic distortion plus noise (THD+N) within the audible band

<sup>3</sup>Twin-tone intermodulation distortion, with test signals 70 Hz apart

gramming. (For a complete rundown of the features on all these players, see "Digits on the Move" in the July issue.) Indeed, of the models tested, only two (the Hitachi and the Pioneer) are not programmable, which is remarkable considering that even some full-size home players do not provide this capability.

The fact that programming is included in so many portables is indicative of the degree to which they are being used in the home: Few people are going to enter a track sequence while they're walking down the street or driving a car. So we wanted to see how the performance of a broad sampling of portables would compare to that of typical home units.

Although all the players we tested turned in quite respectable scores, none of them performed up to the level we've come to expect from high-quality homebound models. The disparity is most apparent in the frequency response and distortion figures. None of the players exhibited gross distortion under what we would consider normal operating conditions, but only the Sanyo delivered numbers as low as we're used to seeing from conventional units, and a couple of them—the JVC and the Qua-

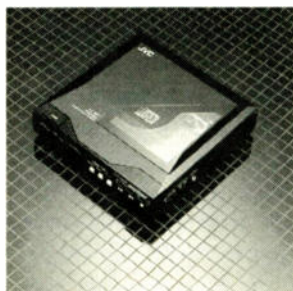


## HITACHI DA-P100

sar—produced large amounts of wideband distortion when fed strong 19- or 20-kHz test tones. This is a phenomenon we noted in some early home players, and though it isn't pretty, it's not really any cause for concern either. Signals containing that combination of level and frequency do not occur in music. At more realistic levels for such high frequencies (as reflected in the measurements at -24 dB), the distortion is acceptably low.

Frequency response also is less impressive on these portable players than on typical domestic machines. The best of the lot in this regard—the Quasar CD-8936—holds the error to  $\pm 3/4$  dB, which is very good indeed by ordinary standards. But quite a few home units come in at  $\pm 1/4$  dB or better, and most of the other portables we tested exhibited a substantially greater deviation than the Quasar. Still, these consist mainly of rolloffs at the extreme top of the audible range, where there is little musical information, so the loss seldom is of much (or any) audible consequence. The small rises shown by a few of the players in the vicinity of 10 kHz probably would be more noticeable on music.

The most likely source of these response anomalies is



## JVC XL-R10K

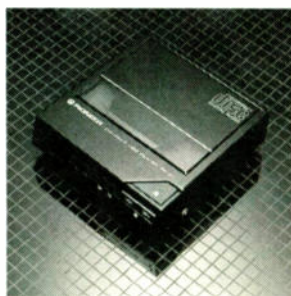


Channel Balance at 1 kHz	Tracking & Error-Correction			Maximum Output Level		Output Impedance		Dimensions <sup>5</sup> inches W by H by D	Price <sup>6</sup>
	gap	dot	fingerprint	line	headphone <sup>4</sup>	line	headphone		
0 dB	500 $\mu$ m	> 800 $\mu$ m	pass	1.72	1.35	1,050	11	7 1/2 x 1 1/4 x 6 1/2	\$370
$\pm$ 0 dB	400 $\mu$ m	$\geq$ 800 $\mu$ m	pass	1.91	1.27	450	70	5 x 1 1/4 x 5	\$280
0 dB	700 $\mu$ m	> 800 $\mu$ m	pass	1.80	0.72	450	57	5 x 1 3/4 x 5 1/4	\$350
$\pm$ < 1/4 dB	$\geq$ 900 $\mu$ m	$\geq$ 800 $\mu$ m	pass	1.84	1.27	445	68	5 x 1 1/4 x 5	\$240
0 dB	> 900 $\mu$ m	> 800 $\mu$ m	pass	1.61	1.08	980	55	5 x 1 3/4 x 7 1/2	\$230
$\pm$ < 1/4 dB	$\geq$ 900 $\mu$ m	$\geq$ 800 $\mu$ m	pass	1.50	1.07	450	33	5 x 1 1/2 x 5 1/4	\$370
0 dB	> 900 $\mu$ m	> 800 $\mu$ m	pass	0.84	0.68	910	22	5 x 1 1/2 x 6 1/4	\$295

<sup>4</sup>Into a standard 50-ohm load

<sup>5</sup>Battery pack is not included in measurements, except for the Hitachi, which has a built-in battery compartment.

<sup>6</sup>Accessories included vary from player to player (see "Digits on the Move," July, for details).



## PIONEER PD-C7

in the output filtering necessary to remove ultrasonic sampling artifacts from the signal. Impulse response measurements indicate that all these units use straight 16-bit, 44.1-kHz digital-to-analog conversion with steep-slope analog filters cutting in just above 20 kHz. Such filters are complex and can easily create response ripples if the component tolerances are not very tight. Another potential source of error is in the networks used to restore flat response to discs manufactured with noise-reducing treble pre-emphasis.

Although our data table and graphs show response only from the line outputs, DSL also measured the re-



## SANYO CP-10

sponse at the headphone jacks. In almost all cases, however, there is little difference between the two. The principal exception is the Hitachi, the only player tested that has a tone control. At all settings, this control caused a dip of 2 to 3 dB centered at about 1 kHz. Pushed all the way up, it boosted the output above 1 kHz by about 2 dB; all the way down, it introduced a rolloff of a few dB per octave above 1 kHz, yielding a response similar to that created by the high filters on the JVC and Quasar units. Such a rolloff can be highly desirable when listening to treble-rich recordings on headphones.



## QUASAR CD-8936

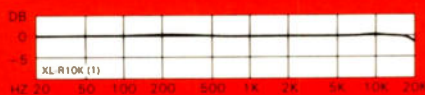
With few exceptions, the other tests proceeded uneventfully—a tribute to the remarkable engineering that has gone into these products. Channel balance and separation are so good on all of the players that you need not even take the numbers into consideration. The Toshiba generates somewhat lower output than the other players (you will have to turn your system's volume control up an extra 6 dB or so to get the same loudness you would from the other units), but this is of essentially no practical significance. However, on the few recordings possessing extremely wide dynamic range, you might notice the XR-

# FREQUENCY RESPONSE

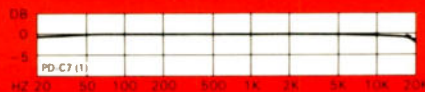
**HITACHI  
DA-P100**



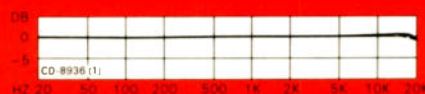
**JVC  
XL-R10K**



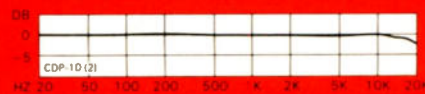
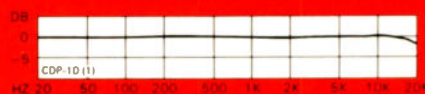
**PIONEER  
PD-C7**



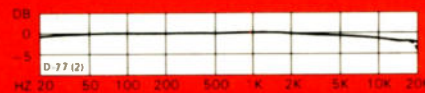
**QUASAR  
CD-8936**



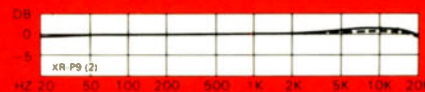
**SANYO  
CP-10**



**SONY  
D-77**



**TOSHIBA  
XR-P9**



— LEFT CHANNEL  
- - - - - RIGHT CHANNEL

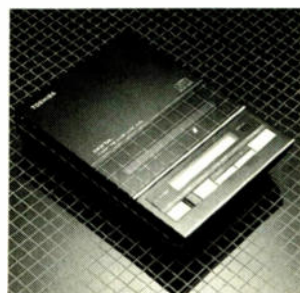
**WITHOUT DE-EMPHASIS**

**WITH DE-EMPHASIS**

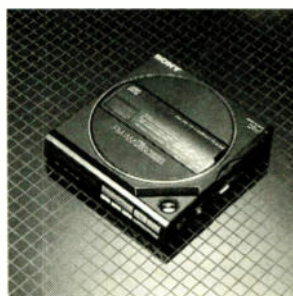
P9's slightly higher than average noise floor, although this would be the exception rather than the rule.

Another test that tripped up a few models was the one that checks a player's ability to correct and track through gaps in a disc's signal layer, such as might be created by a manufacturing defect. The Hitachi and JVC showed some distress here, as did the Pioneer to a lesser degree. However, none of them perform any worse in this respect than did many early home players, and on discs without serious defects, there should be no problem.

One surprise from the testing is that the player with arguably the best overall measured performance is also among the lowest-priced: the Sanyo CP-10. But it's a tight



**TOSHIBA  
XR-P9**



**SONY  
D-77**

race for that lead spot, and all of the other models can claim advantages in size, features, or ease of operation that you might find preemptive.

Comparisons within the group aside, the question for many people these days is whether to buy a portable or a full-size player. If you expect to do the great majority of your listening at home, chances are you will be happier with a standard tabletop unit—mainly because it will be easier to use, and perhaps also to some degree because of performance advantages. But our tests demonstrate that if mobility is a high priority, a portable can serve nicely both in the home and out: The sacrifices are astonishingly small relative to the benefits. ■



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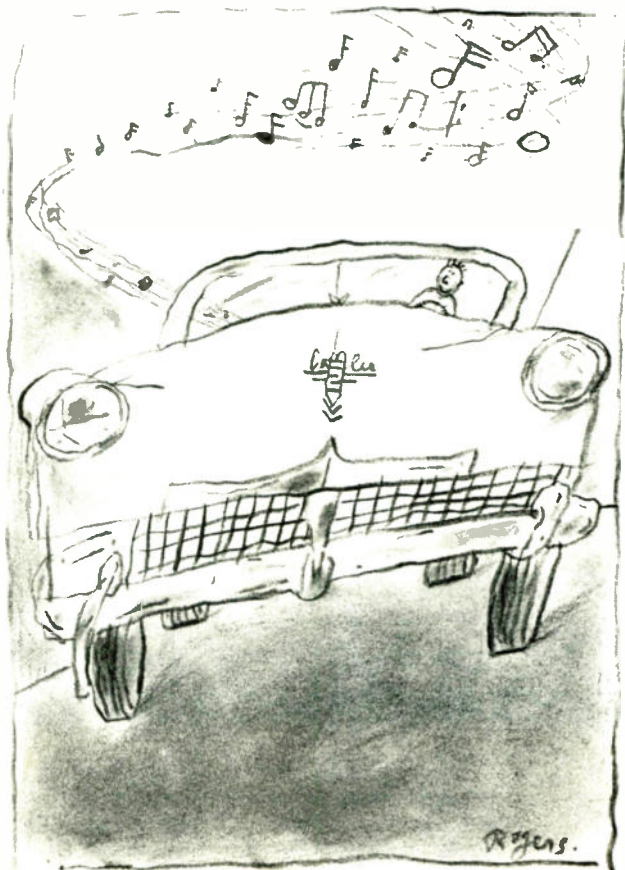
# CAR BY JAY C. TAYLOR STEREO '87

## THE LATEST IN MOBILE MUSIC GEAR INTRODUCED AT THE SUMMER CONSUMER ELECTRONICS SHOW

**I**F YOU'VE BEEN SHOPPING for an in-dash tuner/CD player, there's both good and bad news from the Summer Consumer Electronics Show. The bad news is that prices have not come down as they have for home players, and they probably won't. And with retail prices still above \$500, well above the average front-end price, the large volume that helped reduce home-player prices may never develop.

Nonetheless, there are new entries in the format. Denon's DCC-8900 (\$900) is one. At the upper end of the price scale for single-disc players, the 8900 earns its keep in metropolitan areas with a removable-chassis design. The same Super Linear digital-to-analog converter found in Denon home CD players is an integral part of its mobile unit. Alpine, citing "consistent sales" of its CD-only model 5900, is only the second company to offer both a player alone and a tuner/CD combination with the introduction of its 7900 (\$800). Conspicuous by its absence at the Summer CES was Alpine's prototype CD-changer, shown previously in Japan and at a recent Nashville dealer meeting.

When the Pioneer DEX-77 (\$800) makes its debut this fall, it will be the first tuner/CD player to incorporate a code security system. Instead of activating the usual alarm sirens, the DEX-77 is rendered inoperable when its power is interrupted. Without entry of the correct four-digit code to reactivate it, a "hot" DEX-77 is unplayable and, the logic goes, not



worth stealing. The only problem with this deterrent, which is also used in Philips and Carver front ends, is that it's going to take a while for the word to get out that there is no resale market for such misappropriated goods. Lock your car.

Technics, a relative newcomer to the auto-sound market but no stranger to CD players, wasted no time in introducing its CQD-P5 (\$700). A similar disc/tuner combination, the CQE-800 (\$700), will be available from Panasonic. Kenwood showed a nonfunctional prototype combo for late-

1986 introduction at an unspecified price. The lone player-only unit I found was the Sansui CDX-500 (\$500). Noticeably missing from all the latest players is the CD-sleeve concept originally introduced by Yamaha.

Along with high cost, another reason that in-dash CD players are slow to catch on is that motorists are satisfying their digital addiction by hooking a portable player to the car system. If you'd like to try this, there are a number of ways to go about it. CD inputs on the back of the receiver are the most common accommodation. They are currently provided on a number of new models by JVC, Sherwood, Jensen, and others. This design has two inherent problems: how to get to these usually inaccessible jacks and where to get power for

*Jay C. Taylor is car stereo products manager for Crutchfield.*





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the portable. A Jensen adapter, the J-1470 (\$20), provides a permanent spot to patch into the system as well as a power source that works for most, but not all, portable CD players. The Parasound CD-S1 (\$30) is designed to provide the same power and patch-in convenience for component systems with an outboard amplifier. Some front ends are being introduced with minijack inputs on the *front* of the receiver for easier access. Two Proton models, the 203 (\$319) and the 214 (\$349), have been retrofitted with this feature (and are identifiable by the suffix "CD"), which is also available on the new Technics QCR-7300 (\$360).

Finally, there's a clever \$25 device from Recoton, the CD-20, that simply loads into the receiver like a standard audio cassette and plugs into the portable CD player's output jack. Using technology developed by Larry Schotz of tuner fame (this guy's name is on everything these days!), the tape head of the in-dash deck transmits your favorite CD through to the rest of the system. I had assumed that this wouldn't be a very satisfactory arrangement, since it must be somewhat limited by the performance of the in-dash tape unit, but I was startled by the good results obtained from some modest tape sections. Caution: Although the packaging asserts that the CD-20 will work with any cassette car stereo, it is useless in some Pioneer and other companies' products that use a tape-slack canceling system requiring appropriately high tape tension before the deck is activated.

A prototype digital-format RDAT deck was shown in an in-dash configuration at a Sony press conference, but it was tethered by massive cables to an outboard processor the size of a suitcase. Although the entire affair can be reduced to manageable proportions, it is most likely that the final unit will not include a built-in tuner. Given the sluggish sales of CD-only players and an undoubtedly higher price, digital audio tape may not be a major factor in autosound until the end of the decade . . . if at all.

ONE OF THE BEST FEATURES OF THIS CES, STRICTLY IN TERMS OF car stereo, was the absence of some big-name manufacturers. While this might not sound like much of an attraction to you,

it allowed me the pleasure of poking around in the hotels reserved for smaller displays and high-end audio. I had the rare opportunity to fondle the merchandise and, more important, to listen.

And so it was with great pleasure that I stumbled across a proud name resurrected. Altec Lansing Voice of the Highway speakers not only boasted the latest in cone materials (woven carbon-fiber woofers and polyimide-dome mid-ranges and tweeters) but sounded excellent despite fierce competition from the also notable new Altec home speakers nearby. The new line includes two 6-by-9s, the three-way ALS-693 (\$250) and the two-way ALS-692 (\$200); the 6½-

inch two-way ALS-62 (\$150); and a 4-inch dual-cone model, the ALS-40 (\$110). All four models incorporate a Linear Double Damper, a spider arrangement that more precisely aligns the woofer cone, allowing for a narrower voice-coil gap and increased efficiency without sacrificing reliability.

Not to be outdone, Alpine featured two new speakers: the 6399 (\$330), a 6-by-9 three-way, and the 6269 (\$220), a 6½-inch two-way with similar technology. Both incorporated woven carbon-fiber woofers for low mass and high rigidity. Alpine also chose polyimide tweeters for their flat response, as well as a dual-spider system to improve woofer cone linearity at high levels.

If you haven't been content with a single Cerwin-Vega dual-voice-coil subwoofer pumping out the low notes, the company's die-cast monsters are now available in a single-voice-coil version as well. Why own a single 15-inch LE-15D (\$180) when you could step up to a pair of LE-15Ss (\$180 each)? Better yet, try an 18-incher, the LE-18S (\$345), which is available in both 4- and 8-ohm versions, but only in the single-voice-coil format. Where you might find a spot to mount even one of these behemoths is another question altogether. Other subwoofer models (6-by-9, and 8, 10, and 12 inches) are also available for those of you with rear decks slightly smaller than a football field.

Without cutting huge holes in your rear deck, you can still get to the bottom of things, musically speaking, with the new Alphasonik SC-10 subwoofer cabinet (\$200). Featuring a downfiring 10-inch woofer, the SC-10 is aimed at the van/





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





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# CAR STEREO '87

hatchback market, but it could do double duty in a home set-up. A carpeted enclosure and a carrying handle add to its semiportable appeal. Targeting an even more specialized application, the new Stillwater Designs CTF Super Sport (\$420) fits into the rear storage well of late-model Camaros and Firebirds. While not the first speaker to fit this spot, the CTF is the first full-range system to be invisible when installed and held in place by the hatch itself.

INSTALLATION SPACE MAY OFTEN BE A PROBLEM, BUT FINDING AN amplifier to drive a car system to outrageously high levels is not. Alphasonik showed two new models, each of them part of a new Class-A MOS FET series that features reduced current consumption and improved thermal efficiency. With 150 watts per channel, the MA-2150 (\$500) might not realize the full potential of the aforementioned Cerwin-Vega, but it is bridgeable to 300 watts in the mono mode, and another could be added for maximum punch. Alphasonik will also enable you to be the first on your block to have 300 watts per channel with the MA-2300 (\$700). After all, you could always bridge it to 600 watts when and if the Cerwin-Vega folks decide that a 24-inch subwoofer is just what the autosound world wants.

Other monster amps on display included an unusual 120-watt mono unit from Alpine, the 3520 (\$280). A built-in network allows it to reproduce either the left or the right channel or the sum of both inputs. Fujitsu Ten's UM-142 (\$400) can deliver either 100 watts per channel in stereo or 40 watts to each of four channels.

Removable receivers, which are gaining wide acceptance from security-conscious consumers, added yet another Kenwood model to their number, the KRC-434 (\$479). Other new "extractables" include Targa's HT-3009 (\$300) and Blaupunkt's four new DIN models designed for use with an optional quick-release adapter. All four feature Blaupunkt's exclusive ARI traffic information circuitry. The new Houston model (\$700) can be controlled by an infrared remote, while the latest Tucson model (\$600) is Blaupunkt's first C-Quam stereo-AM receiver.

How to fill all that extra space in late-model domestic

dashes got some new answers as Fujitsu Ten displayed its new 1½-DIN QMX-3570 (\$449). Being a spectrum analyzer/amplifier combo, the 3570 offers not only high power but nine bands of green and amber dancing lights. If you prefer the normal 2-inch-high radio and would like to fill the space above with something other than an equalizer, the new ½-DIN amplifiers from Technics, the CYM-125 (\$100), and from Sansui, the SMX-300 (\$189), should be a perfect fit. Half-DIN equalizers and EQ/amplifiers too numerous to mention were everywhere at the CES, many with subwoofer outputs, adjustable crossover points, or spectrum analyzers. One feature of these units that makes for a nice demonstra-

tion is preset equalization curves—but does anybody really change the EQ when he switches from rock to jazz with a high-quality system?

The latest in in-dash cosmetics? New receivers from Technics, Sherwood, Panasonic, Fujitsu Ten, and others sport night illumination that is switchable from one color to another to match your car's interior, usually from amber to green (reminiscent of the color debate with video display terminals). A good compromise could be good old red LEDs, for that submerged submarine look.

And now for something completely different. Have you ever listened to television without bothering to watch? Proton is betting that some programs, such as morning magazines and

the evening news, lend themselves to listening almost as much as radio broadcasts. Proton further predicts that given the choice between only hearing a favorite soap or missing it altogether while stuck in traffic, most daytime-TV addicts will opt for the former (especially if they haven't already set up their VCRs for time-shift recording). Thus the P-203T car AM/FM/TV/cassette receiver (\$379) was born. The feature struck me as ridiculous at first, particularly because it adds to the retail price. On second thought, it was amusing to contemplate legions of gridlocked soap opera fans sobbing at the wheel over the latest tragedy. After still further consideration, I can't wait to try one. It might finally provide serious competition for the usual witless conversation and warmed-over rip-and-read wire service news that constitutes typical drive-time radio fare. Thanks, Proton. ■



# VIDEO'87

(CONTINUED FROM PAGE 99)

Akai's AA-V405 (\$550) is a typical example. It has three audio-video inputs (VCR 1, VCR 2, and TV/Disc) plus three audio-only inputs (phono, CD, and tuner), C-Quam stereo AM reception, and two audio tape-recording loops. There is a seven-band graphic equalizer and a surround-sound processor with four-way balance control. The built-in TV tuner has 16 station presets and provides MTS (but not SAP [separate audio program]) decoding of stereo broadcasts. All controls except the equalizer sliders are on the infrared remote.

Kenwood has introduced four A/V receivers. The top unit is the KVR-A90R (\$480), rated at 100 watts (20 dBW) per side and equipped with switching for videotape dubbing and a seven-band graphic equalizer. Pioneer, with two models, tops out at the VSX-5000 (\$570), which can deliver the same rating into each of two channels, or 70 watts (18½ dBW) apiece into four, for use with the built-in surround-sound processor.

Shure calls its Power Station (\$549) a video/hi-fi system expander, but it can also be considered a quasi-four-channel audio-video integrated amplifier. It contains connections and audio and video switching for three audio-video sources, a magnetic phono cartridge, and an audio tape deck, along with tone controls, a video sharpness control, and a stereo-synthesis circuit. There are four 30-watt (14¾-dBW) amplifier channels available; the rear ones are for signals obtained by the unit's built-in Dolby Surround decoder. This circuit also has concert- and spatial-surround modes. A supplied remote control adjusts volume and interchannel balance and selects the surround-circuit mode.

Yamaha's AVC-50 amplifier (\$449) includes video signal processing and is designed as the heart of a remotely controllable audio-video system. Teac's A-919AV integrated amp (price not yet available) switches (but doesn't process) video signals; the AV-550D (\$599) controller combines video enhancing, surround processing, and back-channel amplification in a single box.

Remote control is turning out to be an important ingredient in the recipe for convenience. Consumers are becoming accustomed to operating TVs, VCRs, and Compact Disc

players without leaving their chairs. If your existing gear doesn't have remote capability, you can add it with a box like Sony's ST-7TV (\$300), a separate audio-video tuner with MTS/SAP decoding that joins existing TVs with audio systems. Add-ons like this provide stereo audio and remote control of channel selection and volume for the entire setup; some also offer surround-sound decoding with power amplifiers for the rear speakers. Another combination that may simplify some arrangements is the addition by Sony, Akai, and others of a remotely controllable stereo preamp, power amp, and surround-sound decoder to a VCR, which then becomes the focal point of an audio-video system: Add a monitor and speakers and you're in business.

The remote transmitters for all those separate components may cause a major case of coffee-table clutter. GE announced the RRC-500, a new version of its universal remote unit that can memorize the output codes of as many as three other transmitters. The \$99 device is said to provide easier programming and operation than its predecessor. Philips, meanwhile, offers a special remote control on its top-line Magnavox, Sylvania, and Philco sets that already contains the operating codes for 29 different VCR models and 15 cable converters. (The rumored universal remote from Apple II designer Steve Wozniak's new company did not appear at the show.)

Keeping all those controls intelligible can be a problem, so RCA, Technics, Pioneer, and others have developed systems that display the current remote function on the TV screen.

If you're a dyed-in-the-wool component freak, DBX has a way to connect everything to everything with its DAV-600G audio-video switcher (\$399). This unit can switch a videodisc player and three VCRs or audio recorders with dubbing from one to another. In addition, it can accommodate four signal processors, including video enhancers, tape noise reducers, and a PCM encoder.

The SH-AV44 (\$320) from Technics is an audio-video switcher with a Dolby (and non-Dolby) surround processor and back-channel amp built in. Luxman's T-107 (\$660) combines a stereo (MTS) TV tuner with a video switcher. It is remotely controllable. ■





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# CLASSICAL

## 19TH ANNUAL IRCA INTERNATIONAL RECORD CRITICS AWARDS

CALL ME CRAZY. FOR 18 YEARS, IT was the unshirkable obligation of HIGH FIDELITY's classical music editor to rendezvous with the other members of the magazine's International Record Critics Awards (IRCA) jury somewhere in Europe, usually at one of the top summer festivals. He had to leave his office to fly to places like Montreux, Granada, Salzburg, and Aix-en-Provence for long days and longer nights of wining, dining, sight-seeing, concert-going, and other hardships, now and then a few rough sessions with his hard-nosed colleagues, all in order to sit at a table and award prizes and write about the experience afterward ("... there I stood in the Alpine meadow, transported to another world by the sound of cowbells drifting up from the herd below"). Then one of the jurors—I think it was Ingo Harden—got the idea that maybe it would be fun to have the meeting in America one summer. Before I could get *him* replaced, my own publisher, William Tynan, said, "Hey, Ted, it's HIGH FIDELITY's 35th anniversary. Don't you think it would be a good idea to have the IRCA meeting here this year?" I said, "Sure, Bill, there are even some members of the panel who would like to come to the States for a change," and silently kissed my annual expenses-paid trip to Europe goodbye.

But if the 19th annual IRCA proceedings began with a whimper (mine), they concluded with a bang, as two of the most prestigious music festivals in the country played host to the jurors and provided the backdrop for our recognition of the year's best recordings. The decision made last year to hold the meeting during the first week in July dictated this unusual bit of bi-hostal maneuvering. Forced to choose a site, I decided it would be best to avoid New York City prior to the Fourth of July, as plans had already been announced for the celebration to end all celebrations, Liberty Weekend. That left one very obvious and, as it turned out, very appropriate alternative: Tanglewood.

The first—and in many ways still the greatest—of America's big-orchestra summer music festivals, Tanglewood meant something special to the members of the

BY THEODORE W. LIBBEY, JR.

jury. To European ears, no other festival's name has quite the same ring. Moreover, the place is firmly associated with the memory of Serge Koussevitzky, and because the IRCA panel is also responsible for choosing the recipient of the Serge and Olga Koussevitzky International Record Award (KIRA), there was a built-in connection. Finally, HIGH FIDELITY magazine got its start just a few miles down the road from Tanglewood in Great Barrington, and the ties between the magazine and the Berkshires remain strong, not least because our publisher still commutes from North Egremont. (In fact, he knows those back roads so well that he rented a 12-passenger van for a week and became our chauffeur.)

We arranged through the Boston Symphony Orchestra to have the jury attend several dinners and concerts at Tanglewood, the dinners especially elegant affairs served at Seranak, the Koussevitzkys' lovely home on a rise overlooking the Stockbridge Bowl. Vera Gold, the orchestra's assistant press director, was our host on these occasions and the source of many kindnesses during our stay. She arranged for the orchestra to provide a picnic lunch for the jury and the press on the Fourth of July, at which music director Seiji Ozawa, artistic administrator Costa Pilavachi, and guest conductor Michael Tilson Thomas all put in appearances. She also saw that we made off with half a case of 1981 Sonoma County Cabernet Sauvignon specially bottled for the orchestra, two bottles of which came in very handy during the final, rather difficult afternoon of our deliberations.

Having enjoyed a brief stay there several years ago, I decided to reserve a conference room and make arrangements to lodge the jurors at the Red Lion Inn, in nearby Stock-

bridge, feeling that the colonial country-inn atmosphere and the staff's reputation for attending to every detail would go a long way toward making our meeting a successful one. I was not disappointed. Churchward Davis, the Red Lion's director of lodging, proved a hos-

teler and organizer par excellence, right down to seeing that each juror was greeted by a fruit basket and a bottle of wine with a miniature of his own national flag standing smartly alongside. When we first walked into the meeting room (that was to be our working quarters for the next three days, Alfred Hoffman proclaimed, "We could hold a peace conference here!," and since several of us had brought our little flags along, that's just what it looked like we were doing.

No detail was overlooked. HIGH FIDELITY Associate Editor Mildred Camacho, who for several months had served as travel agent for the jurors and made some of the most complex flight bookings ever recorded, went to the Berkshires a couple of days before the meeting to shake everything down. Contributing Technical Editor Robert Long, like Tynan a resident of the Berkshires, installed the sound system in our conference room and made sure everything was in perfect working order before any of us arrived.

WITH SUCH WONDERFUL CONDITIONS, IT was easy to have a pleasant and productive meeting. Well, *reasonably* pleasant. It wouldn't have been IRCA without the occasional small frustration or fit of pique. Because we had budgeted only three days for the actual discussion of the records and the formal voting, I had intentionally kept the field smaller than the last two years' nominations, both for the IRCA and Koussevitzky prizes. Still, there were logistical problems. José Luis Pérez de Arteaga did not submit his ballot on time, and his personal-choice recording (IRCA rules allow each juror to select one title as a personal choice, which is automatically included in the final slate) showed up at about the same time he did. At least the disc he selected—an *Ensayo* digital recording of three symphonies by the late-18th-century



Spanish composer Carlos Baguer, a contemporary of Beethoven, performed by the Orquesta de Cámara "Reina Sofía" under the direction of Gonçal Comellas—proved to be an exceptional find that we all enjoyed.

It was sad news from Sweden, however. Bengt Pleijel, who had successfully disguised the fact that he cannot travel by air because of inner-ear sensitivity, tried to book passage to New York on a Polish freighter offering mediocre accommodations and making stops all over the North Atlantic at a cost half again as much as that of the private stateroom on the *Queen Elizabeth II* that we had reserved for his return. Frustrated by the awkwardness of this arrangement, Pleijel finally withdrew from the meeting. But efficient as always, he sent us detailed assessments of each of the IRCA and KIRA records he had received, which I read to the other jurors as we discussed them. He also accomplished the very significant task of setting up our next year's meeting in Finland, about which more later.

As usual, some records never reached us. The green banana for 1986 goes to Harmonia Mundi, U.S.A., which provided us with exactly none of the six recordings we re-

quested from it, one of which won a prize anyway. Lest it seem that I have singled out that label, I will add that the parent company, Harmonia Mundi, France, likewise ignored a request from Alain Fantapié to send out to the European members of the jury review copies of two issues he had nominated, one of which was his personal choice. Deutsche Grammophon's European offices failed to send records to several jurors, though in New York, DG was among the first to respond to our request. The folks at CBS headquarters in New York were similarly supportive, but French CBS dragged its feet, prolonging a years-long war with the French critics. *Alors, c'est la guerre!*

We are used to dealing with recalcitrant labels and records that never show up. In most cases, we throw them out. But in a few cases, when those members of the panel who have heard the record voice strong support, we go out of our way to see that everybody gets to hear it. That's exactly what happened with the Harmonia Mundi recording of Francesco Cavalli's *Xerse*, featuring the Concerto Vocale under the direction of René Jacobs. At the eleventh hour, with half the panel at Tanglewood listening to a rehearsal,

Tynan and I drove over to the Berkshire Record Outlet on the other side of Lenox, grabbed *Xerse* off the shelf, and returned to the Red Lion, where the members of the jury who hadn't heard the record were being held hostage. That's when those two bottles of California Cabernet came to the rescue. After listening to an hour's worth of the opera, we realized why the jurors who had heard the whole thing had been so enthused. As a student of early music, I was immediately struck by the accuracy and expressiveness of the singing, the rightness of the tempos, the coherence of the whole conception. Some complaints were raised that the music itself lacks inventiveness and originality. I disagreed. And the recording is a technical gem, with a correct forward placement of the instruments, close miking of the voices, and a wonderfully vivid sense of image and sound stage. Clearly one of the year's best, the album was voted a prize in spite of our disappointment with Harmonia Mundi.

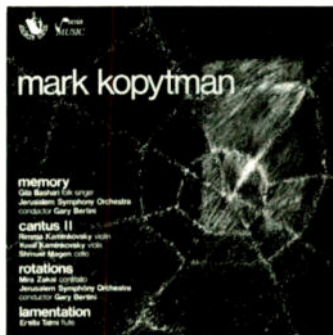
No such extraordinary measures were needed with the other two IRCA winners. The vitality and freshness of Nikolaus Harnoncourt's approach to Mozart's *Die Entführung aus dem Serail* made his recording of that

## SERGE AND OLGA KOUSSEVITZKY INTERNATIONAL RECORD AWARD

## JURY



**LUTOSLAWSKI: Symphony No. 3.** Los Angeles Philharmonic Orchestra, Salonen. CBS Masterworks IM 42203 (d).



**KOPYTMAN: Memory.** Bashari; Jerusalem Symphony Orchestra, Bertini. Jerusalem ATD 8506 (d). (Distributed by Harmonia Mundi U.S.A.)

*Alain Fantapié, France*  
*Eduard Greenfield, Great Britain*  
*Harry Halbreich, Belgium*  
*Ingo Harden, Germany*  
*Alfred Hoffman, Romania*  
*Theodore W. Libbey, Jr., United States*  
*Pierre Nichot, Switzerland*  
*José Luis Pérez de Arteaaga, Spain*  
*Bengt Pleijel, Sweden (absent)*

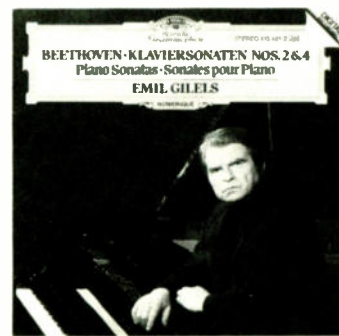
## 1986 IRCA PRIZE-WINNERS



**MOZART: Die Entführung aus dem Serail.** Kenny, Watson, Schreier, Gamlich, Salminen; Mozart-Orchester des Opernhauses Zürich, Harnoncourt. Teldec 8.35673 (d, 3).



**CAVALLI: Xerse.** Concerto Vocale, Instrumental Ensemble, Jacobs. Harmonia Mundi HMC 1175/78 (a, 4).



**BEETHOVEN: Sonatas for Piano, Nos. 2, 4.** Gilels. Deutsche Grammophon 415 481-2 (d).

## OTHER NOMINEES

### IRCA

#### Single discs

**BEETHOVEN: Piano Concertos Nos. 3, 4.** Perahia; Concertgebouw Orchestra, Haitink. CBS Masterworks IM 39814.

**DEBUSSY: Piano Works.** Kocsis. Philips 412 118-1.

**LISZT: Dante Symphony.** Rotterdam Symphony Orchestra, Conlon. RCA Erato NUM 75245.

**MAHLER: Symphony No. 1.** Frankfurt Symphony Orchestra, Inbal. Denon C37 7537.

**MARTIN: Piano Concertos Nos. 1, 2; Ballade.** Antonoli; Turin Philharmonic, Viotti. Claves D 8509.

**MOZART: Sonata for Two Pianos. SCHUBERT: Fantasia.** Lupu, Perahia. CBS Masterworks IM 39511.

**PROKOFIEV: Symphony No. 6.** Scottish National Orchestra, Järvi. Chandos ABRD 1122.

**SCARLATTI: Piano Sonatas.** Dumitrescu. Electrecord ST ECE 02721.

**SCRIABIN: Symphony No. 1.** Philadelphia Orchestra, Muti. Angel EMI DS 38260.

**SIBELIUS: Lemminkäinen Suite.** Gothenburg Symphony Orchestra, Järvi. Bis 294.

**SIBELIUS: Orchestral Songs.** Häggander, Hynninen; Gothenburg Symphony Orchestra, Panula. Bis 270.

#### Multidisc sets

**BACH: Cello Suites (6).** Schiff. Angel EMI 270077.

**BACH: Mass in B minor, S. 232.** English Baroque Soloists, Monteverdi Choir, Gardiner. Archiv 415 514-1.

**BERWALD: Symphonies (4).** Gothenburg Symphony Orchestra, Järvi. Deutsche Grammophon 415 502-1.

**COUPERIN: Works for Harpsichord.** Moroney. Harmonia Mundi 1184.

**HANDEL: Solomon.** English Baroque Soloists, Monteverdi Choir, Gardiner. Philips 412 612-1.

**MENDELSSOHN: Symphonies (5); Overtures (3); Scherzo from Octet, Op. 20.** London Symphony Orchestra, Abbado. Deutsche Grammophon 415 353-1.

**OFFENBACH: La belle Hélène.** Norman, Aler Bacquier, Lafon; Orchestre et Choeur du Capitole de Toulouse, Plasson. Angel EMI DS 3981.

**ROSSINI: Il viaggio a Reims.** Ricciarelli, Gasdia, Ramey; Chamber Orchestra of Europe, Prague Philharmonic Choir, Abbado. Deutsche Grammophon 415 498-1.

**TCHAIKOVSKY: Iolanta, Op. 69.** Vishnevskaya, Gedda, Krause; Orchestre de Paris, Rostropovich. RCA Erato NUM 75207.

**VERDI: Don Carlos.** Valentini-Terrani, Nucci, Raimondi, Ricciarelli, Domingo; Teatro alla Scala, Abbado. Deutsche Grammophon 415 316-1.

**MASSIMILIANO DAMERINI: Piano XX (works by 20 composers).** Damerini. Frequenz 3 DAN.

### KIRA

**BERIO: Sinfonia.** Orchestre National de France, Boulez. RCA Erato NUM 75198.

**COATES: Music on Open Strings.** Bavarian Radio Symphony Orchestra, Howarth. Pro Viva ISPV 128.

**DUMITRESCU: Aulodie Mioritica.** Grilla. Prin. Electrecord.

**GLASS: Satyagraha.** Glass Ensemble, members of the New York City Opera Orchestra and Choir, Keene. CBS Masterworks 13M 39672.

**GRIGORIU: Melodie Infinita.** Musica Redviva, Baci. Electrecord.

**HOLLER: Archus.** Ensemble Intercontemporain, Boulez. Erato NUM 71556.

**KETTING: The Light of the Sun.** Gomez; Dutch Radio Symphony Orchestra, Montgomery. Composer's Voice 8504.

**KIRCHNER: Bildnisse.** Hessian State Orches-

tra, Kohler. Wergo 60193.

**KNUSSEN: Where the Wild Things Are.** London Sinfonietta, Knussen. Arabesque 6535.

**MAXWELL DAVIES: Into the Labyrinth.** Scottish Chamber Orchestra, Maxwell Davies. Unicorn-Kanchana DKP 9038.

**MAXWELL DAVIES: Symphony No. 3.** BBC Symphony Orchestra, Downes. BBC REG1 560.

**REICH: The Desert Music.** Reich Ensemble, Brooklyn Philharmonic Orchestra and Chorus, Thomas. Nonesuch 79101-1.

**SCHNEBEL: Diapason.** South West German Radio Symphony Orchestra, Bour. Wergo 60108.

**VON BOSE: Die Nacht aus Blei.** South West German Radio Symphony Orchestra, Bamer. Wergo 60109.

## MUSICIANS CLUB OF NEW YORK

*The Musicians Club of New York, which administers the Koussevitzky Award of the American International Music Fund and provides the cash prize of \$3,000 jointly with HIGH FIDELITY, was founded in 1911 "to bring about a better understanding and closer fellowship among musicians and lovers of fine music." Comprising professional musicians and amateurs, its goals remain: to cultivate a more lively interest in music, to aid young musicians through sponsorship of concerts and competitions, and to focus attention on the American composer and performer. Its president is Bruce L. Kubert; past presidents have included Walter Damrosch, Norman Dello Joio, and—from 1961 to 1975—Olga Koussevitzky.*

opera for Teldec, featuring Peter Schreier, Yvonne Kenny, and Matti Salminen with the Chorus and Orchestra of the Zurich Opera, stand out from the rest of an exceptionally strong field. And it was impossible to deny Deutsche Grammophon an award for its superb recording of Emil Gilels playing Beethoven: The Russian's strikingly masculine, bold, and weighty accounts of the Piano Sonatas Op. 2, No. 2, and Op. 7 project these early works through the lens of the late sonatas, and the playing, marked by breathtaking command of articulation and dynamics, leaves no doubt of the mastery Gilels had achieved during the course of a distinguished career.

There was strong support for several other recordings well into the final voting; as the field narrowed, it became apparent to all that 1986 had been a stellar year for opera and for the piano. In the former category, Claudio Abbado's delightful account of Rossini's celebratory *Il viaggio a Reims* on Deutsche Grammophon stood high. An all-star cast, exquisite playing from the Chamber Orchestra of Europe, and a fine, live recording made it a favorite of many jurors. Another contender was Pathé Marconi's recording of Offenbach's *La belle Hélène* (released on Angel EMI), with Jessye Norman in the title role and the Orchestre du Capitole de Toulouse conducted by Michel Plasson. John Eliot Gardiner's remarkable interpretation of Handel's festive oratorio *Solomon* (a Philips set), featuring the English Baroque Soloists and the Monteverdi Choir, with Carolyn Watkinson, Anthony Rolfe Johnson, and Barbara Hendricks among the soloists, also made a strong impression.

When it came to pianists, there was really only one to stand alongside Gilels: Murray Perahia. Two of his efforts were in the running right to the end. One brought together his deftly played performances of Beethoven's Piano Concertos Nos. 3 and 4 (the first release in a projected cycle on CBS Masterworks), made all the more impressive by the magnificent accompaniments of the Concertgebouw Orchestra under Bernard Haitink. And with friend and colleague Radu Lupu, he could be heard in glowing accounts of Mozart's Sonata in D for Two Pianos, K. 448, and Schubert's *Fantasia* in F minor for Piano, Four Hands, D. 940. This latter release, also from CBS Masterworks, fell just one vote shy of an award.

Other entries of note in the final judging were EMI Electrola's beautifully recorded two-disc set of Bach's Suites for Unaccompanied Cello, impressively played by the gifted Austrian Heinrich Schiff, on Angel EMI; an extraordinary issue from Bis collecting the complete orchestral songs of Sibelius, featuring soloists Jorma Hynninen and Mari-Anne Häggander with the Gothenburg Symphony Orchestra conducted by Jorma Panula; and a much-needed traversal of Frank Martin's complete works for piano and orchestra (Concertos Nos. 1 and 2, plus the *Ballade*), in fine performances by Fran-



cois Antonioli and the Turin Philharmonic conducted by Marcello Viotti, on Claves.

BECAUSE OF THE STRONG FIELD, THE IRCA judging proved difficult, but it was a piece of cake compared with the deliberations over the KIRA. The situation was the same as that two years ago in Granada: A major work by a distinguished living composer could not be overlooked, yet the panel also felt a strong attraction to several very fine works by less-well-known figures. The solution was also the same as in Granada: The award was split. The work that could not be overlooked this year was Witold Lutoslawski's stunning Symphony No. 3, recorded for CBS Masterworks by the Los Angeles Philharmonic Orchestra with Esa-Pekka Salonen conducting. A brilliant, challenging composition, masterful in its structure and scoring, it won the solid backing of most members of the panel.

But the feeling that the Koussevitzky award should also be used to bring attention to unheralded talent was strong in several members, and we voted an equal share of the prize to the Soviet-born Israeli composer Mark Kopytman for his haunting, evocative score for soprano and orchestra, *Memory*. Harry Halbreich had, as usual, made the discovery and was Kopytman's champion from the beginning. Based on a Yemenite folk melody that is first sung, then pondered by the orchestra, then brought back in the vocal part at a wonderfully effective climax, *Memory* appealed to us on many levels. Much to our delight, Kopytman was able to come to New York to accept the award in person. He brought the good news that on the night of our final ceremony, Zubin Mehta was to lead the Israel Philharmonic in a performance of Lutoslawski's Third in Jerusalem. We applauded the coincidence, feeling that it would be a coup if the maestro were also to program Kopytman's fine work with one of his orchestras.

HAVING SUCCESSFULLY DISCHARGED ITS responsibilities, the jury returned to New York City for the formalities. The Musicians Club of New York greeted us with a cocktail party in the Central Park West apartment of Theodate Johnson, the club's indefatigable vice president. Our final day, July 7, began with an outdoor rehearsal and—because of a record temperature of 97 degrees—an indoor press luncheon at Lincoln Center marking the kickoff of the 20th annual Mostly Mozart Festival. We attended the evening's gala opening concert at Avery Fisher Hall and afterward made our way upstairs to the Helen Huntington Hull Room for supper and the final awards ceremony. Many of the movers and shakers on New York's classical recording scene joined us, among them Christine Reed, vice president of a&r at CBS Masterworks; Tony Caronia, vice president for East Coast operations of Angel; Otto Quinter, president of Qualiton Imports; Susan Elliott, manager of public affairs for RCA; and Nancy Zanini, vice president of

Philips. Zanini brought along an unexpected guest, the Danish recorder player Michala Petri, whose birthday it was. During the dinner, I slipped away from the head table for a moment and asked Floyd Meurrier of Restaurant Associates to produce a cake and candles, coached the serving staff for a performance of the appropriate tune, and nonchalantly returned to await the fun. On cue, out came the staff, with cake aloft and candles blazing, and to Petri's utter embarrassment, there ensued a lusty and supremely musical rendition of "Happy Birthday."

Reed accepted the Koussevitzky award on behalf of Lutoslawski; Kopytman then stepped up to receive his award from Halbreich. Harden made the presentation to Deutsche Grammophon for the Gilels recording, which André Schmitz, a cultural affairs officer at the New York consulate of the Federal Republic of Germany, accepted—DG's New York vice president having decided not to attend the ceremony. Joseph Pasternak, representing German News Compa-

ny, importers of Teldec in New York, received the award for Harnoncourt's *Entführung* from juror Pierre Michot, and Bill Kline, sales representative of Harmonia Mundi, U.S.A., took the plaque for *Xerse* following a presentation by Fantapié.

A few photographs later, the 1986 HIGH FIDELITY/International Record Critics Awards became history, and thoughts turned to next year's meeting. Pleijel had already informed us that we had the green light for a July meeting in Finland, in conjunction with the Helsinki and Savonlinna festivals. Tynan, who had come to know and like the jurors for all their quirkiness and who had won their admiration and respect in return, announced that he would go to Finland to join us next summer, and the jury voted to invite an Italian, Enzo Restagno of the *Stampa Sera* in Turin, into our midst on a provisional basis. In the back of everyone's mind, of course, was the thought of how pleasant it would be to hold the 1988 IRCA meeting in Venice. . . . ■

## NOMINATING COMMITTEE

### BELGIUM

Harry Halbreich, *Compact, Le Monde de la Musique*, Belgian Radio  
Serge Martin, *Diapason-Harmonie, Avant-Scène*, Belgian Radio  
Albert de Sutter, *Gazet van Antwerpen*

### BULGARIA

Dimitar Zenginov, *Bulgarska muzika*

### CANADA

Thomas Hathaway, *High Fidelity, Queen's Quarterly*  
Rick MacMillan, *Music, Music Scene*

### FINLAND

Jukka Isopuro, *Helsingin Sanomat, Hifi*

### FRANCE

Alain Fantapié, *Opéra International*

### GREAT BRITAIN

Edward Greenfield, *The Guardian, Gramophone*  
Robert Layton, *Gramophone*

### ITALY

Luigi Bellingardi, *Stereoplay, Suono, Nuova Rivista Musicale Italiana, Il Mondo della Musica*  
Mario de Luigi, *Musica e Dischi*

### JAPAN

Toshio Oka, *Stereo Sound*  
Kenji Tsumori, *Asahi Shimbun*

### THE NETHERLANDS

Jan de Kruijff, *Hifi Video Test*

### ROMANIA

Alfred Hoffman, *Muzica, România Literară*

### SPAIN

José Luis Pérez de Arteaga, *Reseña, El País*, Spanish Radio

### SWEDEN

Stig Jacobsson, *Hifi & Musik*  
Bengt Pleijel, *Musikrevy*

### SWITZERLAND

Fernando de Carli, *Cornere del Ticino, Azione*  
Mario Gerstein, *Tages-Anzeiger Zürich, Luzerner Neuste Nachrichten, Sound*  
André Humziker, *Le Courier, Video & Revue Son, Cooperation*  
Pierre Michot, *Journal de Genève, Gazette de Lausanne*  
Eric Pousaz, *24-Heures, Lausanne*

### UNITED STATES

R. D. Darrell, *High Fidelity*  
Michael Fleming, *St. Petersburg Times*  
Paul Hertelendy, *San Jose Mercury News*  
Theodore W. Libbey, Jr., *High Fidelity*  
Tim Smith, *Fort Lauderdale News, Sun-Sentinel*  
David Patrick Stearns, *USA Today*  
Heuwel Tircuit, *San Francisco Chronicle*  
James Wierzbicki, *St. Louis Post-Dispatch*  
Bill Zakariasen, *New York Daily News*

### WEST GERMANY

Ingo Harden, *Frankfurter Allgemeine Zeitung, Preis der deutschen Schallplattenkritik*  
Ekkehart Krober, *Der Musikmarkt*  
Hartmut Lück, *Preis der deutschen Schallplattenkritik, Radio Bremen*  
Stefan Mikorey, *Fono Forum*  
Ulrich Schreiber, *Stereoplay*  
Wolfgang Seifert, *Musikmarkt, Musikforschung, W. German Radio, N. German Radio, German Music Council*  
Gerhard Wienke, *Fono Forum, Preis der deutschen Schallplattenkritik, S. German Radio*

# THE CD SPREAD

## MINI-REVIEWS OF THE LATEST COMPACT DISCS

BY ROBERT E. BENSON, IRVING KOLODIN, PAUL MOOR, AND K. ROBERT SCHWARZ

### MOZART PIANO CONCERTOS NOS. 18, 19

MALCOLM BILSON, JOHN ELIOT GARDINER, AND the English Baroque Soloists have spent the last several years recording the first four installments in a projected traversal of the complete Mozart piano concertos. Their approach is rather different from the norm: Bilson plays a modern copy of Mozart's own fortepiano, and Gardiner's band performs on original instruments. Yet the present release—coupling two works from 1784, K. 456 and K. 459—demonstrates that their efforts, far from producing mere curiosities, have resulted in some of the most satisfying Mozart concerto performances available.

The fortepiano and the original orchestral instruments present definite advantages in these works. The fortepiano tone decays very quickly, resulting in an unprecedented clarity of texture. The lightness of articulation possible with original instruments complements the fortepiano's lucid sound and enables the instrumentalists to etch their lines with crystalline precision.

Neither Bilson nor Gardiner, however, takes a dogmatic view of original-instrument performance; their approach is flexible and expressive, and together they display a rare unity of vision. Bilson is a poetic performer who enlivens phrases with dramatic hesitations in tempo and broad shadings of dynamics. The virtuoso passages are technically assured but supremely musical; the embellishments are personal and stylish. Bilson plays during the tutti sections, as historical precedent demands, tastefully realizing the bass line in the manner of a continuo instrument.

Gardiner has always been a gentler leader than Christopher Hogwood, and his refined interpretive sense allows for surprising freedom in tempo and a varied dynamic range, all without sacrificing timbral quality. The result is more expressive, more lyrical Mozart than we are used to hearing from the original-instrument bands. Not only does this bode well for the remainder of this series, but it indicates a maturation of the entire school of "authentic" music-making. Playing time: 55:19. (Archiv 415 111-2.)

K.R.S.

### SCHUBERT "WINTERREISE": SCHREIER, RICHTER

THIS IS A SUPERB RESTATEMENT OF THE CYCLE, bringing together the ever-maturing tenor Peter Schreier and pianist Sviatoslav Richter. Their combined artistry and the sense of occasion conveyed by the performance (recorded live as part of the festive reopening of Dresden's Semper Opera House) add interest and effect to this account, which is different but no less satisfying than the Dietrich Fischer-Dieskau/Gerald Moore version of some years past. Two CDs, lively and compelling. Playing time: 116:32. (Philips 416 298-2.)

I.K.

### HOLST "PLANETS": LONDON PHILHARMONIC, SOLTÍ

AMONG THE RECENT ADDITIONS TO LONDON'S ADRM (Analog Digital Remastering) series is a performance of Holst's *The Planets*, Op. 32, recorded in 1979 by Sir Georg Solti with the London Philharmonic Orchestra and the Women of the London Philharmonic Choir, John Alldis director. This is not one of Solti's best performances, but a hasty, unmagical traversal of the cosmos, almost totally devoid of mysticism. The sound is typical of much of London's engineering from a half-dozen years ago: rather boxy and unresonant, with surprisingly little impact. In spite of the ADRM process, the SPARS coding on this release is AAD, meaning that it is an original analog recording that has had analog (instead of digital) remastering. Perhaps digital remastering would have improved the sonic quality of this release.

The CD catalog could use a really good *Planets*. Herbert von Karajan's Deutsche Grammophon performance is hard in sound and insensitive in interpretation; Sir Alexander Gibson's, with the Scottish National Orchestra, on Chandos, has fine sonics but undistinguished orchestral playing; Lorin Maazel's, with the French National Orchestra, on CBS, is a bit too Gallic. Andrew Davis's new Angel Toronto Symphony version is totally out of the running, leaving the field solely to André Previn's London Symphony Angel analog reissue, which is surprisingly good in all respects. Playing time: 48:10. (London 414 567-2.)

R.E.B.

### SCHOENBERG "TRANSFIGURED NIGHT"

ONE OF THE TREASURES FROM DEUTSCHE Grammophon's 1974 four-LP set of orchestral music of the Second Viennese School, featuring Herbert von Karajan and the Berlin Philharmonic, was this radiant, committed performance of Schoenberg's *Transfigured Night*, Op. 4. One of Karajan's most magical recordings, it possesses a unique combination of strength and power, contrasted with delicacy and tenderness. Now digitally remastered, it sounds better than ever, and the silence of the CD medium permits every exquisite nuance to be heard unspoiled by extraneous sounds. The coupling on this CD is another recording from the same set, of Schoenberg's *Variations for Orchestra*, Op. 31. This atonal work was written between 1926 and 1928, a quarter of a century after *Transfigured Night*, and is far removed from the romanticism of the earlier work. A better choice might have been to pair *Transfigured Night* with the symphonic poem *Pelleas and Melisande*, Op. 5, also recorded by Karajan and the Berliners. Then, the collector would have on one CD the major works (excepting *Gurrelieder*) of Schoenberg's early, post-Romantic period. Playing time: 52:14. (Deutsche Grammophon 415 326-2.)

R.E.B.

### HANDEL "ATALANTA": FARKAS, BARTFAI-BARTA

THE COMBINATION OF PREDOMINANTLY Hungarian-trained singers and a Cambridge- and Oxford-conditioned conductor (Nicholas McGegan, leading the Capella Savaria, on authentic instruments) that has recorded this version of *Atalanta* has more than just a mixture of differing viewpoints to contend with. There is, in addition, Handel's rather formal approach to operatic scene structure, which builds slowly from ceremonious introductions to climactic terminations of variety and fulfillment. The vocal aptitudes are arresting, especially those of József Gregor, who also made a notable contribution to Hungaroton's recent recording of Antonio Salieri's *Falstaff*. Playing time: 140:00. (Hungaroton HCD 12612/14. Distributed by Qualiton Imports.)

I.K.



 **BRUCKNER SEVENTH:  
BLOMSTEDT, CHAILLY**

IN THE BRUCKNER SOCIETY'S 1954 SCORE OF Bruckner's Seventh Symphony, Dr. Leopold Nowak describes the original manuscript (now in the Austrian National Library) as pretty much of a mess: "Both the notes and the written instructions . . . teem with additions by unknown hands. . . . In the first and last movements in particular, many passages have been pasted over, in the first movement by persons unknown." Moreover, there are "alterations by persons unknown to the tempo indications and time signatures." However, recent research involving other contemporary sources shows—surprise!—that this "is one of the rare occasions on which Bruckner's verbal instructions can and must be observed in defiance of the original manuscript, because [those instructions] are substantiated by letters."

That sounds categorical enough. Nevertheless, both Herbert Blomstedt, leading the Dresden State Orchestra, and Riccardo Chailly, at the helm of the Berlin Radio Symphony Orchestra, take a rather offhand attitude toward the Society's definitive score—particularly Chailly, who at several points breaks abruptly into either a faster or slower tempo, as if he feared that without more "variety" this glorious music might become boring. Blomstedt's idiosyncrasies, although sparser, come as all the greater a surprise, for customarily we know him as something of a purist.

During the composition of the Adagio, Bruckner received the news that his idol Richard Wagner had died, and a particular profundity of emotion permeates the entire symphony—the most mature of Bruckner's second creative period and his first ever to score an unqualified success. Both performances show off resounding recording, but the old-gold tone of the Dresdeners makes theirs especially rewarding to listen to. Playing time: 68:53. (London 414 290-2.)

P.M.

 **PAGANINI CAPRICES:  
PERLMAN**

ONE-HUNDRED SIXTY-SIX YEARS AFTER THEIR publication in 1820, the 24 Paganini Caprices, Op. 1, remain the touchstone by which a violinist is judged. In their day, the caprices expanded violin technique, introducing such devilish tricks as left-hand pizzicato and the flying *ricochet* bowing. The standard of virtuosity that Paganini established inspired the entire Romantic era, and the fine musical substance of the caprices evoked arrangements or variations by Schumann, Brahms, Liszt, and Rachmaninoff.

Today, in our age of mechanical virtuosity, the caprices have lost none of their spell. They remain unplayable to all but the few who can overcome the technical demands yet still imbue the notes with musical meaning. Itzhak Perlman is one of those elite few. In this 1972 analog recording, his miraculous technique meets every challenge effort-

lessly. Perlman goes beyond mere technique, adding an infinite number of dynamic, timbral, and rhythmic touches. His robust tone is captured in a warm and flattering (if a bit echo-ridden) manner, and his bold sweep and supreme confidence ennoble even the occasional trivial moments. Playing time: 72:25. (Angel EMI CDC 47171.)

K.R.S.

 **BIZET "CARMEN":  
CALLAS, GEDDA, PRÊTRE**

IN ADDITION TO BEING THE ONLY COMPLETE opera in French recorded by Maria Callas at the top of her form, this *Carmen* may well be the outstanding example of non-Italian literature created by this superb singer in conditions wholly to her benefit. Not only was the subject to her advantage, but in this recording made under the leadership of Georges Prêtre—who began his conducting career at the Opéra Comique in 1946 (as the work itself did about 75 years before)—she was brought together with probably the best Don José of her time, Nicolai Gedda.

The concept of producing a classic was thus at the heart of the matter even before the first sound was recorded. Callas brought an uncommon sensitivity to the drama, suggesting a character who finds herself magnetized by the unsettled attractions of the soldier, vis-à-vis the glamour of the toreador. Gedda, too, was in top form, and his facility in French is one of the major assets of the account. There was excellent singing from the likes of Andréa Guiot, a fine Micaela for all her lack of reputation here, and Robert Massard, who had every detail of Escamillo in his voice. And the supporting roles also were in good hands, right down to the vital Zuniga of Jacques Mars. The playing of the Paris Opéra Orchestra and Prêtre's perceptive conducting (undoubtedly influenced by the grand spaces of the Opéra) both proved perfectly well gauged to the Salle Wagram, where everything was in place to capture the fine recorded sound that is transparently evident on these three CDs. Playing time: 146:23. (Angel EMI CDC 47312.)

I.K.

 **RACHMANINOFF AND  
PROKOFIEV PIANO WORKS**

FOR THOSE AWARE OF THE FACT THAT AT TIMES in their careers as composer-pianists both Rachmaninoff and Prokofiev were much closer to American concert halls than to the places of their births in Russia, the American involvement in this recording of Rachmaninoff's *Rhapsody on a Theme of Paganini* and Prokofiev's Third Piano Concerto will not seem odd. Technically speaking, pianist Tedd Joselson distinguishes himself, but he keeps a rather low profile in his characterization of the music. On the other hand, there is a strong sense of nationality in the playing of the Philharmonia Hungarica (an orchestra of Hungarian emigrés based in Vienna) and in Zoltán Rozsnyai's direction. Playing time: 53:35. (Perpetua PR 70006. P.O. Box 9591, Marina del Rey, Calif. 90925.)

I.K.

 **STRAVINSKY "SACRE":  
PHILADELPHIA, MUTI**

RICCARDO MUTI'S ACCOUNT OF STRAVINSKY'S *Le Sacre du printemps* with the Philadelphia Orchestra, originally announced as one of the first Angel CD releases, finally is available. Neither the CD itself nor the accompanying notes indicate that this is an analog recording; even the appropriate SPARS code, ADD, is missing. The recording dates back to 1979; it is well-balanced, with only a few instances of spotlighting, and if the dry acoustic robs the famed Philadelphians of much of their richness, it also permits great clarity. Muti's performance is dramatic, vibrant, and beautifully played. But issuing a CD that contains only *Le Sacre* is inexcusable (although there are five other CDs of this work that also have no coupling). Muti's *Sacre* easily could have been coupled with his fine *Petrouchka* (Angel EMI CDC 47015) on one CD, which then would have represented exceptional value for the collector. If you are looking for sonic spectacle in a recording of *Le Sacre*, Antal Doráti's London CD with the Detroit Symphony is superior to the Muti. One final point: There are only two bands on this CD—would it not have made sense to index the different sections? Playing time: 32:44. (Angel EMI CDC 47102.)

R.E.B.

 **VERDI EXCERPTS:  
MILLO, LONDON PHILHARMONIC**

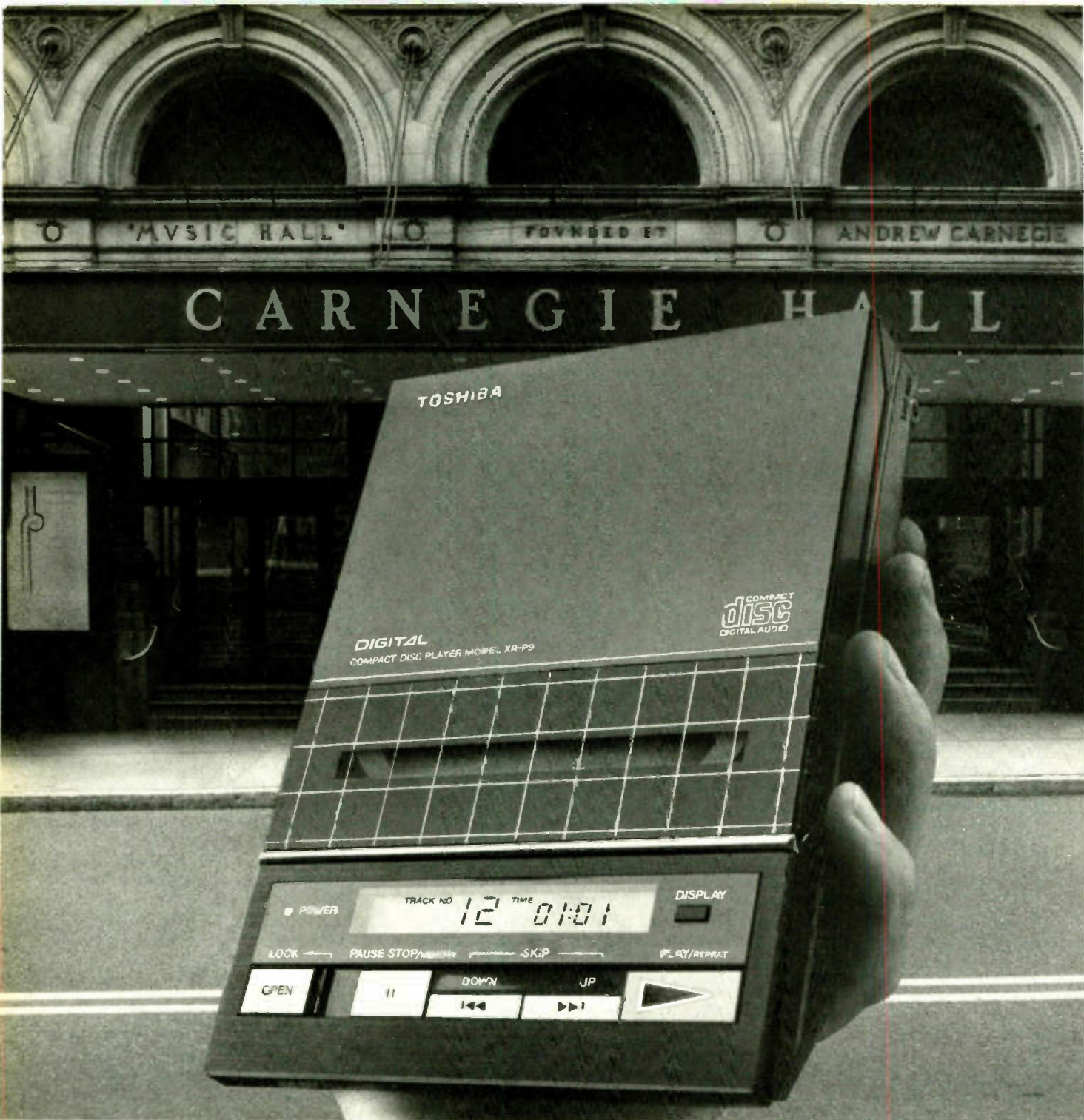
THE QUALITY OF THE SINGING ON THIS DISC—which contains more than an hour and ten minutes of Verdi such as has not been heard recently from a new voice—and the order of excellence with which it is reproduced make this an issue to be cherished for years to come. To be sure, Aprile Millo has been stirring comment in various replacement roles at the Met since 1985 and more recently as Elisabetta in *Don Carlo* there. But on some of those outings she has been the victim of uncertainties and inadequate rehearsals with ill-prepared conductors. Here, thanks to thorough preparation with Giuseppe Patané, she has set a rising standard for finesse. After hearing this sampling from *Ernani*, *Il Trovatore*, *Macbeth*, *Aida*, and other Verdi operas, one looks forward to what she will do in the works of other composers, such as Puccini and Mascagni. Playing time: 73:38. (Angel EMI CDC 3962-2.)

I.K.

 **WILLIAMS MOVIE MUSIC:  
BOSTON POPS**

JOHN WILLIAMS HAS HIS OWN FASHION OF evoking a sound from the Boston Pops, which is distinctly different from the late Arthur Fiedler's. Perhaps this has to do with Williams's interest in the visual, specifically cinematic, elements of much of the music he conducts, especially if it is music that he has composed, as is the case here. For all the selections' similarity in style, Williams brings a feeling of freshness to these excerpts from *Star Wars*, *Superman*, *The Empire Strikes Back*, and *Close Encounters of the Third Kind*. Playing time: 39:20. (Philips 412 884-2.)

I.K.



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# CLASSICAL

# COMPACT DISCS ON THE MARCH

*A preview of the new season's releases*

**T**HE COMPACT DISC CONTINUES TO GAIN IN POPULARITY WITH CLASSICAL MUSIC listeners, having pulled even with the LP in net sales at the time of this writing. And as this listing of more than 930 discs shows, the CD has finally surpassed the LP in the total number of expected new issues (for the LP outlook, see "Vinyl Survives," September). For those who have invested in the medium and those who are thinking of doing so, we present our annual compilation of releases planned by more than 60 companies for the forthcoming year. As always, every effort has been made to ensure the accuracy of the entries.

Please note the following use of abbreviations, alone or in combination. For performing forces: Ac (Academy), C (Chamber), Ch (Choir, Chorus), E (Ensemble), F (Festival), O (Orchestra), Op (Opera), P (Philharmonic), Qn (Quintet), Qr (Quartet), R (Radio), S (Symphony), and St (State), or their foreign-language equivalents. For production and packaging: Where known, the number of CDs in multidisc sets is given in parentheses at the end of a listing; other parenthetical symbols are d (digital), h (historical), l (live), m (mono), and r (domestic reissue). Initials and first names appear only as needed.

## ABBEY (distributed by Harmonia Mundi, U.S.A.)

**Josquin Desprez:** *Missa pange lingua; Missa la-sol-fa-re-mi.* Tallis Scholars.

**Palestrina:** *Missa brevis. Primavera; Nasce la gioia mia.* Tallis Scholars.

*Christmas Carols.* Tallis Scholars.

## ACCENT (distributed by Audio Source)

**Beethoven:** **Mozart:** *Quintets for Piano and Winds.* Immerseel.

**Rossini:** *Petite messe solennelle.* Immerseel, Netherlands CCh.

## AMON RA (distributed by Qualiton Imports)

**Beethoven:** *Sextet; Octet.* Classical Winds.

**Beethoven:** *Violin Sonatas, Opp. 30, 47.* Holmes, Burnett.

**Josquin Desprez; de la Rue, P.:** *Sacred Works.* New London CCh.

**Mozart:** *Divertimento, K. 439b.* Classical Winds.

**Schubert:** *Piano Sonatas, D. 784, 894.* Shelley (fortepiano).

*English Music of the 18th Century.* London Baroque. Oboe Collection, Canter.

## ANGEL EMI

**Bach:** *Solo Cello Suites (6).* Schiff (d).

**Beethoven:** *Symphonies Nos. 1, 5.* Philadelphia O, Muti (d).

**Berlioz:** *Roméo et Juliette.* Norman, Aler, Estes; Philadelphia O, Muti (d).

**Bernstein:** *Candide Overture; Facsimile Ballet; Fancy Free; On the Town (Three Dance Episodes).* St. Louis SO, Slatkin.

**Gershwin:** *Songs.* Te Kanawa, McGlinn.

**Haydn:** *Nelson Mass; Paukenmesse.* Dresden SO, Marriner (d).

**Purcell:** *Ode to St. Cecilia's Day.* Taverner Consort, Parrott (d).

**Ravel:** *Orchestral Works.* Royal PO, Previn (d).

**Saint-Saëns:** *Symphony No. 3; Danse macabre; Le Rouet d'Omphale.* O National de France, Ozawa (d).

**Strauss, J.:** *Die Fledermaus.* Domingo, Popp, Baltsa, Brendel, Rydl, Lind, Seiffert; Munich RSO&Ch, Domingo.

**Tchaikovsky:** *The Nutcracker.* Royal PO, Previn (d).

**Verdi:** *Otello.* Domingo, Ricciarelli, Diaz; La Scala, Maazel (2, d).

*Vienne, City of My Dreams.* Domingo; English CO, Rudel.

Angel Records, 1750 N. Vine St., Hollywood, Calif. 90028.

## ARABESQUE

**Brahms:** *Piano Quartets.* Cantilena Piano Qr.

**Dvořák:** *Quintet for Double Bass and String Quartet.* Karr, Portland Qr.

**Dvořák:** *Slavonic Dances (orig. version for piano, four hands).* Balsam, Raps.

**Eigart:** *Introduction and Allegro; Serenade; Chanson de Nuit.* English CO, Menuhin.

**Friml:** *Chansonette.* Eastman-Dryden O, Hunsberger.

**Gilbert and Sullivan:** *H.M.S. Pinafore.* D'Oyly Carte, Sargent (h).

**Haydn:** *Nelson Mass.* Banchetto Musicale, Pearlman.

**Horbert:** *The American Girl.* Eastman-Dryden O, Hunsberger.

**Hummel:** *Piano Sonatas (complete).* Hobson.

*Christmas Eve.* Robert DeCormier Singers and E. DeCormier.

Arabesque Recordings, 1995 Broadway, New York, N.Y. 10023.

## ARGO

See London.

## ASV

(distributed by Harmonia Mundi, U.S.A.)

**Bottesini:** *Concerted Works.* Johnson, Martin; English CO, Garcia.

**Mozart; Bach; Vivaldi:** *Concerted Works.* CO of Europe, Schneider.

## AUDIO LAB

(distributed by Audio Source)

*The Dialogue.*

## AUDIO SOURCE

See Accent, Audio Lab, Calig, Lyrinx, René Gailly. Audio Source, 1185 Chess Dr., Foster City, Calif. 94404.

## BIS

(distributed by Qualiton Imports)

**Bach:** *The Complete Organ Works, Vol. 3.* Fagius.

**Händel:** *Dixit Dominus; Concerto grosso in G minor, Op. 6, No. 6.* Von Otter, Martinpelto; Stockholm Bach Ch, Drottningholm Baroque E, Öhrwall.

**Mussorgsky (arr. Funtek):** *Pictures at an Exhibition.*

**Mussorgsky (arr. Rimsky-Korsakov):** *Night on Bald Mountain.* **Mussorgsky (arr. Aho):** *Songs and Dances of Death.* Talvela\*; Finnish RSO, Segerstam, Järvi\*.

**Sibelius:** *Kullervo Symphony.* Mattila, Hynninen; Laulun Ystävät Male Ch, Gothenburg SO, Järvi.

**Sibelius:** *The Origin of Fire; Sandels; March of the Finnish Cavalry; Have You Courage?; War Song of Tyraeus; Academic March; Finlandia.* Laulun Ystävät Male Ch, Gothenburg SO, Järvi.

**Sibelius:** *Pohjola's Daughter; Rakastava; Tapiola; Impromptu.* Gothenburg SO, Järvi.

**Sibelius:** *Symphony No. 7; Kuolema; Night Ride and Sunrise.* Gothenburg SO, Järvi.

**Stenhammar:** *Serenade, Op. 31.* Gothenburg SO, Järvi.

**Telomann:** *The Complete Recorder Duos.* Pehrsson, Laurin.

*The Burlesque Trombone; Music by Rabe, Serocki, Bernstein, Chopin, Pöntinen, and Others.* Lindberg, Pöntinen.

*The Criminal Trombone; Works by Albinoni, Rossini, Vivaldi.* Lindberg, Pöntinen.

*Finnish Violin Concertos by Nordgren, Bergman, and Segerstam.* H. Segerstam; Finnish RSO, I. Segerstam.

*Flute and Harp; Music by Doppler, Badings, Naderman/Tulou, Mozlch, Aitken, Goodman.*

*The Magnificent Organ of St. Lambertus Church, Holland: Old Spanish and French Organ Music.* Oortmerssen.

*Mixed Lute Music.* Lindberg.

*Piano Music by Satie.* Pöntinen.

*The Russian Cello: Works by Stravinsky, Shostakovich, Schnittke.* Thedéen, Pöntinen.

*Swedish Radio Symphony Orchestra—50 Years: Recordings from 1928—1979.*

*The Virtuoso Haydn: Music by Fauré, Tournier, Dussek, Flagello, Salzedo, Prokofiev; Goodman.*

## BLUEBELL (distributed by German News)

**Alfvén:** *Symphony No. 4.* Swedish RSO, Westerborg.  
**Schubert; Raincock; Beethoven:** *Works for Flute and Piano.* Wiesler, Jacobson.  
**Tchaikovsky:** *Souvenir de Florence.* **Wolf:** *Italian Serenade.* Uppsala C. Soloists.  
*Jussi Björling: Excerpts from Rigoletto and Il Trovatore (live from the Stockholm Royal Opera).*  
*Birgit Nilsson: Live at the Concert Hall, Stockholm. The Palm Court Orchestra of the Stockholm Philharmonic: Music of Martini, Lanca, Marchetti, Høyken, and Others.*

## BRIDGE

**Cartor:** *The Vocal Works (1975-1981)—A Mirror on Which to Dwell; Syrinx; In Sleep, In Thunder; Three Frost Songs (1980 version) Speculum Musicae.*  
**Mechov:** *Nature's Breath; Spectres Parisiens\*.* Prism CO, ASKO F. of Amsterdam\*, Black, Eötvös\*.  
**Wuorinen:** *Blue Bamboula; Fantasia; The Long and the Short; Six Pieces.* Hudson, Ohlsson.  
*American Pianists Series, Vol. 1: Aleck Karis Plays Works by Chopin, Carter, and Schumann.*  
*American Pianists Series, Vol. 2: Lambert Orkis Plays Works by Crumb and Wernick.*  
*New Music with Guitar, Vol. 4: David Starobin Plays Works by Kurtág, Kolb, Norgård, Reynolds, and Machover.*  
*A Slave Sampler with Guitar.* Starobin.  
Bridge Records, G.P.O. Box 1864, New York, N.Y. 10116.

## CALIG (distributed by Audio Source)

**Rossini:** *Wind Quartets Nos. 1-5.* Members of the Resident Qr.  
**Schubert; Haydn:** *String Trios.* Vienna String Trio.  
**Schumann:** *String Quartets, Op. 41, Nos. 1, 3.* Joachim-Koeckert Qr.  
*Virtuoso Violin Duos of the 18th and 19th Centuries.* Munich Violin Duo.  
*Wind Music of 500 Years.* Bavarian Wind Music Soloists, Zapf.

## CALLIOPE (distributed by Qualiton Imports)

**Bach:** *Toccatas (1); Fantasia.* Isoir.  
**Beethoven:** *String Quartets Nos. 1, 2, 4.* Talich Qr.  
**Beethoven:** *String Quartets Nos. 3, 5, 6.* Talich Qr.  
**Beethoven:** *String Quartets Nos. 7, 8.* Talich Qr.  
**Beethoven:** *String Quartets Nos. 9, 12.* Talich Qr.  
**Beethoven:** *String Quartets Nos. 10, 15.* Talich Qr.  
**Beethoven:** *String Quartets Nos. 11, 13.* Talich Qr.  
**Beethoven:** *String Quartets Nos. 14, 16.* Talich Qr.  
**Borodin; Tchaikovsky:** *String Quartets.* Talich Qr.  
**Brahms:** *Clarinet Sonatas.* Dangain.  
**Brahms:** *Rhapsodies; Intermezzi.* Södergren.  
**Debussy:** *Préludes, Books I and II.* Paraskivesco.  
**Dvořák:** *String Quartets; Serenade for Strings.* Talich Qr.  
**Jonáček:** *String Quartets.* Talich Qr.  
**Mozart:** *Clarinet Quintet.* Talich Qr.  
**Mozart:** *Sonatas for Violin and Piano.* Messierour.  
**Scarlatti:** *Sonatas (14).* Gillieron.  
**Schubert; Schumann:** *Works for Cello.* Navarra.

## CAPRICCIO (distributed by Deles International)

**Bach, C.P.E.'s Edition Carl Philipp Emanuel Bach:** 12

CDs to be released singly, including the *Flute Concertos, Flute Sonatas, Oboe Concertos, Gamba Sonatas, String Symphonies, Berlin Symphonies, Keyboard Sonatas, and Organ Concertos* (d).

**Bach, J.S.'s Reconstructed Concertos, Vol. 2:** *Concertos for Oboe and Violin, Oboe d'amore, and Violin.* Glaetzer, Suske; New Bach Collegium Musicum Leipzig, Pommer (d).  
**Bach, J.S.'s Reconstructed Concertos, Vol. 3:** *Concertos for Three Violins, Oboe d'amore, and Violin.* Glaetzer, Suske; New Bach Collegium Musicum Leipzig, Pommer (d).  
**Brahms:** *Ein deutsches Requiem.* Häggander, Lorenz; Leipzig RSO&Ch, Kegel (d).  
**Mozart:** *Leder.* Shirai, Höll (d).  
**Schubert:** *Hymns and Palms.* Schreier; Berlin Singing Society, Knothe (d).  
**Schubert:** *Die schöne Müllerin.* Protschka, Deutsch (d).  
**Schubert:** *Schwanesong.* Protschka, Shetler (d).  
**Schumann:** *Symphony No. 2; Zwickau Symphony.* Stuttgart RSO, Marriner (d).  
**Schumann:** *Symphonies Nos. 3, 4.* Stuttgart RSO, Marriner (d).  
**Schütz:** *Symphonae Sacrae, Vol. 2.* Schreier; Capella Fidićina, Grüss (3, d).  
**Vivaldi:** *Oboe Concertos, Vol. 1.* Glaetzer; New Bach Collegium Musicum Leipzig, Pommer (d).  
*Brass Music of the English Masters.* Ludwig Güttler Brass E (d).  
*Classical Trumpet Concertos, Vol. 2.* Güttler (d).  
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*Guten Abend euch allen: Hermann Prey Sings Favorite Folk Songs* (d).  
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**Berlioz:** *Harold in Italy.* Quebec SO, Streatfield (d).  
**Franck:** *Symphony in D minor.* Vancouver SO, Akiyama (d).  
**Mozart:** *Serenades, K. 375, 388.* Toronto C Winds (d).  
**Rachmaninoff:** *Piano Concerto No. 1.* **Dohnányi:** *Variations on a Nursery Song.* **Lifolff:** *Scherzo.* Ozolins; Toronto SO, Bernardi (d).  
**Schubert:** *Symphony No. 8.* **Strauss, R.:** *Metamorphosen.* National Arts Centre O, Mammio (d).  
**Shostakovich:** *Violin Concerto No. 1.* Starvk; Toronto SO, Davis (d).  
**Tchaikovsky:** *Romeo and Juliet; Francesca da Rimini; Capriccio italien.* Vancouver SO, Barshai (d).  
**Vaughan Williams:** *Fantasia on a Theme by Thomas Tallis.* **Brott:** *Ritual.* **Elgart:** *Introduction and Allegro.* **Mercuro:** *Divertissement.* Orford Qr; CBC Vancouver O, Streatfield (d).  
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## CBS MASTERWORKS

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**Dvořák:** *Cello Concerto; Waldesruhe; Rondo, Op. 94.* Ma; Berlin P, Maazel.  
**Giordano:** *Fedora.* Marton, Carreras, Kincaid, Gregor; Hungarian R&TVSO&Ch, Patané (2).  
**Glass:** *Einstein on the Beach (highlights).* Philip Glass E.  
**Glass:** *Satyagraha (highlights).*  
**Mahler:** *Symphony No. 1.* Vienna P, Maazel.  
**Mahler:** *Symphony No. 3.* Baltsa; Vienna P, Maazel (2).  
**Mozart:** *Don Giovanni.* Raimondi, Berganza; Paris Op O, Maazel.  
**Mozart:** *Sonatas and Variations for Flute and Keyboard.* Rampal, Ritter.  
**Rodgers and Hammerstein:** *South Pacific.* Te Kanawa, Carreras, Vaughan, Patinkin; Ambrosiano Singers, London SO, Tunick.  
**Puccini:** *Arias.* Marton; Bavarian RSO, Patané.  
**Puccini:** *Turandot (highlights).* Marton, Carreras, Ricciarelli; Vienna StOpO, Maazel.  
**Tchaikovsky:** *The Nutcracker.* Royal PO, Thomas (2).  
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**Mozart: La betulia liberata.** Munteanu, Lazzarini,

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 na PO, Bernstein (d).  
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 ian Fantasy.* Berlin P, Karajan.  
**Mahler: Symphony No. 2; Lieder eines Jährnden Gesel-**  
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**Mahler: Symphony No. 7.** New York P, Bernstein (2,  
 d, l).  
**Mahler: Symphony No. 8.** Arvo, Spoorenberg,  
 Mathis, Hamari, Procter, Grobe, Fischer-Dies-  
 kau, Grass; various ch, Bavarian RSO, Kube-  
 lik.  
**Mahler: Symphony No. 9.** Concertgebouw O, Bern-  
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 Burchuladze; Berlin PO, Karajan (4, d).  
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 Perlman; Vienna PO, Levine (3, d).

**Mussorgsky:** *Pictures at an Exhibition* **Ravel:** *La Valse*; *Boléro* Berlin PO, Karajan (d).

**Paganini:** *Violin Concertos Nos. 1, 2* Accardo; London PO, Dutoit.

**Purcell:** *The Fairy Queen* Monteverdi Ch, English Baroque Soloists, Gardiner.

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**Strauss, J.:** *Die Fledermaus* Varady, Popp, Kollo, Prev, Weikl, Rebhoff; Bavarian StO, Kleiber.

**Strauss, R.:** *Arabesque auf Nasos* Tomowa-Sintow, Baltsa, Battle, Lakes, Prev; Vienna PO, Levine (3, d).

**Strauss, R.:** *Four Last Songs, Die heiligen drei Könige; Selections from Capriccio* Tomowa-Sintow; Berlin PO, Karajan (d).

**Stravinsky:** *Le Sacre du printemps* Apollo Berlin P, Karajan.

**Stravinsky:** *Three Movements from Petrouchka* **Webern:** *Variations* **Prokofiev:** *Piano Sonata No. 7* **Boulez:** *Piano Sonata No. 2* Pollini.

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**Tchaikovsky:** *Symphony No. 1, Waltz and Polonaise from Eugene Onegin* Berlin P, Karajan.

**Tchaikovsky:** *Symphony No. 2; 1812 Overture* Berlin P, Karajan.

**Tchaikovsky:** *Symphony No. 3; Capriccio italiano* Berlin P, Karajan.

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**Verdi:** *La Forza del destino* Plowright, Baltsa, Carreras, Bruson, Burchuladze; Philharmonia O, Sinopoli (3, d).

**Verdi:** *Macbeth* Cappuccilli, Verrett, Domingo, Ghiaurov; La Scala O&Ch, Abbado.

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**Verdi:** *Simon Boccanegra* Cappuccilli, Ghiaurov, Van Dam, Freni, Carreras; La Scala O&Ch, Abbado.

**Wagner:** *Preludes and Overtures: Siegfried Idyll* New York P, Sinopoli (d).

**Wagner:** *Tristan und Isolde* M. Price, Kollo, Fischer-Dieskau, Fassbaender, Moll; Dresden StO, Kleiber.

**Weber:** *Der Freischütz* Janowitz, Mathis, Schreier, Adam, Weikl; Dresden StO, Kleiber.

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*Agnes Baltsa Sings Greek Songs (d).*

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*Marachi Songs from Mexico* Aratza (d).

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## DYNAMIC (distributed by Quallton Imports)

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**Mozart:** *Trio, K. 498; Duets, K. 423, 424* Han, Pay, Gaurama.

**Wolf:** *Complete Music for String Quartet* Academica Qr.

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**Berlioz (arr. Liszt):** *Harold in Italy* Caussé, Duchable (d).

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**Charpentier:** *De profundis; Cecilia virgo et martyr* Musica Polyphonica, Devos (d).

**Chausson:** *Le Roi Arthus* Zylis-Gara, Quilico, Windbergh; O National de Paris, Jordan (3, d).

**Debussy:** *Khama; Jews; Le Martyre de Saint-Sebastien* Rotterdam PO, Conlon (d).

**Enesco:** *Symphony Concertante for Cello and Orchestra (premiere); Suite No. 3* Ormezewski; Monte Carlo PO, Foster (d).

**Falla:** *Nights in the Gardens of Spain* **Albóniz:** *Iberia* Argerich; O de Paris, Barenboim (d).

**Fauré:** *Pénélope* Norman, Vanzo, Taillon; Monte Carlo P, Dutoit (2, d).

**Frankt:** *Brattudes* Le Brun, Berbić, Jelles, Rendall; Ch of R France, O National de Paris, Jordan (d).

**Galuppi:** *The Fall of Adam (premiere)* Zampieri, Schmiege, Rigacci, Palacio; I Solisti Veneti, Scimone (2, d).

**Gossec:** *Requiem* Ghent Madrigal Ch, Musica Polyphonica, Devos (2, d).

**Handel:** *Israel in Egypt; The Ways of Zion Do Mourn* Monteverdi O&Ch, Gardiner.

**Handel:** *Tamerlano* Ragin, Robson, Argenta, Chance; English Baroque Soloists, Gardiner (3, d).

**LeClair:** *Seylla et Glaucus* Yakar, Brown, Crook, Meritt; Monteverdi Ch, English Baroque Soloists, Gardiner (d).

**Liszt:** *Christus* Valente, Lipovsek, Krause, Lindroos; Bratislava PCh, Rotterdam PO, Conlon (3, d).

**Liszt:** *Organ Works* Alain (d).

**Liszt:** *Les Preludes, Mephisto Waltz; Procession Nocturne* Rotterdam PO, Conlon (d).

**Magnard:** *Quartet (premiere)* Via Nova Qr (d).

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**Milhaud:** *Jacob's Ladder; La Cheminée du roi René* Tr of Paris, Soloists of R France (d).

**Penderecki:** *Cello Concerto (premiere)* Rostropovich; Philharmonia O, Penderecki (d).

**Prokofiev:** *Symphonies Nos. 1, 7* O National de France, Rostropovich (d).

**Prokofiev:** *Symphony No. 5* O National de France, Rostropovich (d).

**Prokofiev:** *War and Peace* Vishnevskaya, Miller, Petkov, Ghuiselev, Gedda, Paunova; Ch of R France, O National de France, Rostropovich (4, d).

**Ravel:** *Arias with Piano; Arias with String Quartet* Ameling, Jansen, Viotti Qr (d).

**Ravel:** *Daphnis et Chloé; Rhapsodie espagnole; Le Tombeau de Couperin* O de la Suisse Romande, Jordan (d).

**Ravel:** *L'Enfant et les sortilèges* Alliot-Lugaz, Raphael, Michael, Huttenlocher, Garcisanz, Sénéchal; O de la Suisse Romande, Jordan (d).

**Ravel:** *L'Heure espagnole; Don Quichotte à Dulcinée* Quilico; Nouvelle P, Jordan (d).

**Ravel:** *Piano Concertos (2); Tzigane; Shéhérazade* Amoyal, Duchable, Yakar; O de la Suisse Romande, Jordan (d).

**Rossini:** *Hermione (premiere)* Gasdia, Zimmermann, Palacio; Monte Carlo PO, Scimone (3, d).

**Rossini:** *L'Italiana in Algeri* Horne, Ramey, Battle; I Solisti Veneti, Prague CO, Scimone (3, d).

**Rousseli:** *Bacchus et Ariane; Suite in F* O de Paris, Dutoit (d).

**Rousseli:** *Symphonies Nos. 1, 3* O National de France, Dutoit (d).

**Rousseli:** *Symphonies Nos. 2, 4* O National de France, Dutoit (d).

**Saint-Saëns:** *Quartets Nos. 1, 2 (premiere)* Viotti Qr (d).

**Schubert:** *Sonata in B flat, Impromptus (2)* Pires (d).

**Schumann:** *Kreisleriana; Fantasia, Blumenstücke* Dalberto (d).

**Stravinsky:** *Symphony in Three Movements; Jeu de cartes* Rotterdam PO, Conlon (d).

**Tchaikovsky:** *Rococo Variations* **Dvořák:** *Cello Concerto* Rostropovich; Boston SO, Ozawa (d).

**Tchaikovsky:** *Souvenir de Florence; Serenade for Strings* Berne Camerata (d).

**Tchaikovsky:** *Symphony No. 6* Boston SO, Ozawa (d).

**Telemann:** *Taffelmusik* Amsterdam Baroque O, Koopman (d).

**Van Wassenaer; Pergolesi:** *Concerti grossi* Amsterdam Baroque O, Koopman (d).

**Vivaldi:** *Il Catone in Utica* Gasdia, Palacio, Zimmermann; I Solisti Veneti, Scimone (2, d).

**Vivaldi:** *Orlando furioso* Horne, De los Angeles; I Solisti Veneti, Scimone (3, d).

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**Bartók:** *Duos for Two Violins (44)* Gertler, Suk.

**Bartók:** *Violin Concerto No. 2* Gertler; Czech P, Ancerl.

**Beethoven:** *Mass in C, Op. 86* Rodina Ch, Sofia StP, Iliev.

**Beethoven:** *Piano Concertos (5)* Dikov; Sofia PO, Iliev.

**Beethoven:** *Piano Sonatas Nos. 8, 21, 24* Ranki.

**Beethoven:** *Septet* Collegium Musicum Pragense.

**Brahms:** *Violin Concerto* Minchev; Bulgarian NSO, Stefanov.

**Bruch;** **Glazunov:** *Violin Concertos* Milanova; Bulgarian NSO, Stefanov.

**Dvořák:** *Violin Concerto, Romance* Suk; Czech P, Ancerl.

**Gershwin:** *Concerto in F; Rhapsody in Blue* Vodenicharov; Bulgarian R&TVSO, Allidi.

**Haydn:** *Concertos for Organ* Bucher; Polish CO, Teutsch.

**Haydn:** *Works for Chorus and Orchestra* Szekeres.



**Haydn; Mozart; Paganini:** *Chamber Works for Guitar and Strings*. Marcos, Minchev, Georgiev.  
**Janeček:** *Glagolitic Mass*. Czech PCh&O, Ancerl.  
**Kubelovský:** *Piano Concerto No. 3*. Prokofiev; *Piano Concerto No. 3*. Stepan; Prague SO, Klima.  
**Kurpinsky:** *Clarinet Concerto*. Klinowski; Polish CO.  
**Mozart:** *Piano Concertos, K. 456, 503*. Ts'ong; Polish CO, Maksymuk.  
**Mozart:** *Violin Concertos*. Nov. 1, 2. Badev; Iliev.  
**Mozart; Stamitz:** *Sinfonie concertante*. Minchev, Paskaley; Sofia Soloists CE, Tabakov.  
**Mussorgsky (orch. Rimsky-Korsakov):** *Boris Godunov*. Dimitrov, Gvuzelov, Koseva; Sofia NOpCh&O, Naydenov.  
**Mussorgsky (orch. Rimsky-Korsakov):** *Khovanshchina*. Dimitrov, Pavlov, Popov, Milcheva, Gvuzelov; Sofia NOpCh&O, Margaritov.  
**Paderewski:** *Piano Concerto, Op. 17*. Paleczny; Polish RSO, Maksymuk.  
**Pergolesi:** *Stabat Mater*. Genova, Bozhkova, Smvana; Kazandjiev.  
**Rachmaninoff:** *Vespers*. Svetoslav, Obretenov; Bulgarian A Capella Ch, Robev.  
**Rimsky-Korsakov:** *Vera Sheloga*. Evstataeva, Milcheva, Mineva, Bakardzhiev, Stanchev; Bulgarian NSO, Angelov.  
**Schubert:** *Mass in G*. Mozart; *Missa brevis, K. 194*. Mitropolitski.  
**Tchaikovsky; Mendelssohn:** *Violin Concertos*. Minchev; Sofia SIP, Manolov.  
**Verdi:** *Requiem*. Wiener, Milcheva, Bodourov, Gvuzelov; Marinov.  
**Vivaldi; Bach, J.C.; Haydn:** *Cello Concertos*. Popov; Tabakov.  
**Vivaldi; Bottesini; Dittersdorf:** *Double Bass Concertos*. Radukanov, Minchev; Sofia Soloists CE, Tabakov.  
*Classic Top 100, Vol. 3*. Philharmonia Bulgarica.  
*Classic Top 100, Vol. 4*. Philharmonia Bulgarica.  
*Classic Top 100, Vol. 5*. Tiley; Philharmonia Bulgarica.  
*Concertos and Trios for Bassoon by Fasch, Stamitz, Zichow, Vivaldi, Boismortier*. Hara, I'atrai Qr.  
*Eugen Indyk, Piano*  
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#### GSC

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*Paul Hindemith Anthology, Vol. 1*. Quartet for Strings No. 3, Op. 22 (1921), No. 4, Op. 32 (1923)\*. *Cannon Variations for Two Violins*. Los Angeles

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#### GUN MAR

**Greenberg:** *The Creation; Four Diversions; Six Jazz Epigrams, White Lilacs; Rhapsody, Collage*. Contemporary Music E.  
**Schubert:** *String Quartet in G*. Franz Schubert Qr. *Ran*. Blake, Piano; *Improvisations on Tunes of Ellington, Monk, Kenton, Kern, Joplin, Wonder, Russell, Mompon, and Blake* (d).  
*Robert Dick: The Other Flute (pieces by Dolphy, Varèse, Paganini, and Dick)*.  
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**Berlioz (arr. Liszt):** *Harold en Italie (for violin and piano)*. Pasquier, Heisser.  
**Boccherini:** *Works for Two Keyboards*. Christie, Rousset.  
**Byrd:** *Pavanes and Galliards*. Motoney (2).  
**Campra:** *Requiem*. La Chapelle Royale, Herreweghe.  
**Carissimi:** *Duos*. Jacobs, Molnari.  
**Charpentier:** *Suites from Circe and Andromède*. London Baroque, Medlam.  
**De Visée:** *Works for Guitar*. Andia (3).  
**Dutilleul:** *Quartet*. Rosamonde Qr.  
**Dutilleul:** *Symphony No. 1*. O National de Lyon, Baudo.  
**Handel:** *Ata, Galatea e Polifemo*. Kirkby, Thomas; London Baroque, Medlam.  
**Lully:** *Ata*. Les Arts Florissants, Christie (3).  
**Monteverdi:** *Selva morale (excerpts)*. Les Arts Florissants, Christie.  
**Monteverdi:** *Vespers to the Virgin*. La Chapelle Royale, Herreweghe.  
**Philips:** *Keyboard Works*. Buckley.  
**Ravel:** *Complete Orchestral Works, Vol. 1*. O National de Lyon, Baudo (2).  
**Scarlatti:** *Keyboard Sonatas*. Pavana (2).  
**Schumann:** *Lieder*. Moll.  
**Schütz:** *The Seven Last Words of Christ*. E. Clement Janequin.  
**Vivaldi:** *L'Incoronazione de Dario*. Ledroit, Elwes, Lesne, Visse, Mellon, Boulenard; E. Baroque de Nic e, Bezina (3).  
**Vivaldi:** *Stabat Mater*. Jacobs; E 415, Banchini.  
*Scottish Dances*. Broadside Band, Barlow.

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**Byrd:** *Masses; Assumption of the Virgin; Nativity; Three Motets*. Chanticleer, Boto.  
**Handel:** *Opera Arias*. Jacobs, Philharmonia Baroque O, McGegan.  
*As I Went to Walsingham. 17th Century English Broken Consort Music*. Odette, Nordstrom, Van Evera; Swann Alley.

#### HARMONIC (distributed by Deles International)

**Chopin:** *Piano Works*. Louisada.  
**Schubert:** *Piano Works*. Badura-Skoda.

#### HUNGAROTON (distributed by Qualiton Imports)

**Beethoven:** *Symphony No. 3*  
**Berlioz:** *Symphonie fantastique*.  
**Haydn, J.:** *La speciale*.  
**Haydn, J.:** *String Quartets, Opp. 54, 55*.  
**Haydn, J.:** *String Quartets, Op. 64*.  
**Haydn, J.:** *String Quartets, Opp. 71, 74*.  
**Haydn, M.:** *Missa Sancti Aloysii*.  
**Kodály:** *Háry János*.  
**Kodály:** *Spinning Room*.  
**Liszt:** *Don Sanche ou le Chateau d'Amour*.  
**Liszt:** *Late piano works*.  
**Liszt:** *Missa Choralis*.  
**Liszt:** *Piano Works*. Ranki.  
**Liszt:** *Psalms*.  
**Liszt:** *Symphonic Poems*.  
**Liszt:** *Weihnachtsbaum*.  
**Rossini:** *Moss*.  
**Strauss, R.:** *Four Last Songs*. Sass.  
*Arias from Verdi*. Sass.  
*The Complete Lute Music of Bakfark*. Benko (d).  
*Gregorian Chants from Hungary (Advent, Christmas, Pentecost)*.  
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*Liturgy of the Synagogue at Dohány utca*.  
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**Mozart:** *Clarinet Concerto\**; *Clarinet Quintet*. King; *Gabrieli Qr*, English CO\*, Tate\*.  
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**Dunings:** *Is There in Truth No Beauty?* Friedl; *Paradise Syndrome*. Royal PO, Bremner (Star Trek TV Scores, Vol. 1) (d).  
**Fielding:** *Spectre of the Gun*. **Kaplant:** *Enemy Within*.  
**Matloevsky:** *J. Mudd*. **Mullenderet:** *Conscience of the King*. Royal PO, Bremner (Star Trek TV Scores, Vol. 2) (d).  
**Smeaton:** *A Town Like Alice (TV score)*. Australian SO, Smeaton.

#### LAUREL RECORD (distributed by Consortium)

**Beethoven:** *Quartet in F, Op. 18, No. 1 (original version)\**; *Piano Trio in D, Op. 70, No. 1 ("Ghost")*; *Trio, Op. Posth.*. Pro Arc Qr\*, Western Arts Triof.  
**Bloch:** *Concerto for Violin and Orchestra\**; *4 Episodes for Chamber Orchestra*; *Three Nocturnes for Violin, Cello, and Piano\**. Leikowitz\*; London PO.

Freeman\*: Arizona COI; Western Arts Trio\*\*.

**Bloch:** *String Quartet No. 2; Prelude, Night, Two Pieces for String Quartet, Paysages: North, Alpestre, Tongataboo.* Pro Arte Qr.

**Bloch:** *String Quartets Nos. 3, 4; In the Mountain; Dusk, Rustic Dance.* Pro Arte Qr.

**Bloch:** *String Quartet No. 1\*; Sonatas for Violin and Piano, Nos. 1, 2f.* Pro Arte Qr\*; Kameit, Vallecillos†.

**Corigliano:** *Sonata for Violin and Piano.* **Flagello:** *Sonata for Violin and Piano; Declamation for Violin and Piano.* Fodor, Portney.

#### LONDON

**Bach, C.P.E.:** *Symphonies (6).* Ac of Ancient Music.

Hogwood (a).

**Bach, J.S.:** *Well-Tempered Clavier, Book II.* Schiff (2, d).

**Bach, J.S.:** *Organ Concertos.* Hurford.

**Beethoven:** *Piano Concertos (5); Choral Fantasy.* De Larrocha; Berlin RSO, Chailly (3, d).

**Beethoven:** *Piano Sonatas (middle period).* Ashkenazy (a).

**Beethoven:** *String Quartets, Opp. 127, 135.* Fitzwilliam Qr (d).

**Beethoven:** *Violin Sonatas Nos. 1, 2, 3.* Perlman, Ashkenazy (a).

**Bellini:** *Norma.* Caballé, Sutherland, Pavarotti, Ramey; Welsh National OpO, Bonyngé (3, d).

**Bellini:** *La Sonnambula.* Sutherland, Pavarotti, Bonyngé.

**Berg:** *Wozzeck.* Silja; Vienna P, Dohnányi.

**Berlioz:** *La Damnation de Faust.* Chicago SO, Solti.

**Berlioz:** *Les Nuits d'été.* **Frank;** **Chabrier;** **Bizet;** **Fauré;** **Debussy:** *Songs.* Souzay, Baldwin (d).

**Berlioz:** *Roméo et Juliette; Symphonie triomphale et funèbre.* Krause, Quivar, Cupido; Montreal SO, Dutoit (2, d).

**Bernstein (arr. Croes):** *West Side Story.* **Well (arr. Purser):** *Kleine Dreigroschenmusik.* Philip Jones E (d).

**Britten:** *Billy Budd.* Pears; Britten (a).

**Britten:** *Young Person's Guide to the Orchestra; Simple Symphony; Variations on a Theme of Frank Bridge.* English CO, Britten (a).

**Bruckner:** *Symphony No. 5.* Chicago SO, Solti (a).

**Bruckner:** *Symphony No. 6.* Chicago SO, Solti (a).

**Bruckner:** *Symphony No. 9.* Chicago SO, Solti (d).

**Chopin:** *Ballades; Scherzos.* Ashkenazy (a).

**Chopin:** *Sonatas; Fantasies.* Ashkenazy (a).

**Chopin:** *Songs.* Söderström, Ashkenazy (d).

**Chopin:** *Les Sylphides.* Bonyngé.

**Debussy:** *Préludes; Suite bergamasque.* Rogé (a).

**Donizetti:** *La Fille du régiment.* Sutherland, Pavarotti, Bonyngé (a).

**Dvořák:** *Serenades.* London PO, Hogwood (d).

**Dvořák:** *Symphony No. 9.* Cleveland O, Dohnányi (d).

**Frank:** *Quartet.* Fitzwilliam Qr (a).

**Gay:** *The Beggar's Opera.* Te Kanawa, Sutherland.

**Geminiani:** *Concerti grossi, Op. 3.* Ac of Ancient Music, Hogwood.

**Gershwin:** *An American in Paris; Cuban Overture; Rhapsody in Blue; Lullabye.* K. Labeque, M. Labeque; Cleveland O, Chailly (d).

**Gluck:** *Orfeo.* Lorengar, Horne; Solti (a).

**Greg;** **Schumann:** *Piano Concertos.* Bolet; Berlin RSO, Chailly (d).

**Handel:** *Messiah (arias).* Te Kanawa; Chicago SO, Solti (d).

**Handel:** *Rodelinda.* Sutherland, Ramey; Welsh National OpO, Bonyngé (d).

**Haydn:** *Missa St. Cecilia.* Ac of Ancient Music, Preston (a).

**Haydn:** *Symphonies Nos. 95, 104.* London PO, Solti (d).

**Haydn:** *Symphonies Nos. 96, 101.* London PO, Solti (d).

**Liszt:** *Eine Faust-symphonie.* Jerusalem; Chicago SO&Ch, Solti (2, d).

**Liszt:** *Les Préludes; Festklänge; Prometheus.* Solti (a).

**Liszt:** *Transcendental Etudes; Consolations.* Bolet (d).

**Massenet:** *Manon (ballet).* Royal OpO, Bonyngé (d).

**Mozart:** *Die Entführung aus dem Serail.* Grubetova, Battle, Winbergh, Zendik, Talvela, Quadlieg; Vienna P&StOpCh, Solti (2, d).

**Mozart:** *Piano Concertos Nos. 8, 9.* Ashkenazy; Philharmonia O (d).

**Mozart:** *Piano Concertos Nos. 18, 20.* Ashkenazy; Philharmonia O (d).

**Mozart:** *Piano Concertos Nos. 20, 27.* Curzon; English CO, Britten (A).

**Mozart:** *Piano Concertos Nos. 24, 26.* De Larrocha; CO of Europe, Solti (d).

**Mozart:** *Piano Works, K. 333, 457, 475, 545.* Schiff (a).

**Mozart:** *Symphonies, Vol. 1.* Ac of Ancient Music, Hogwood (a).

**Mozart:** *Symphonies, Vol. 2.* Ac of Ancient Music, Hogwood (a).

**Mozart;** **Beethoven:** *Quintets for Piano and Winds.* Lupu; ensemble (d).

**Mussorgsky;** **Rimsky-Korsakov:** *Orchestral Works.* Montreal SO, Dutoit (d).

**Offenbach:** *Tales of Hoffman.* Sutherland, Domingo (a).

**Poulenc:** *Piano Works.* Rogé (d).

**Prokofiev:** *Romeo and Juliet.* Cleveland O, Maazel (a).

**Prokofiev:** *Symphony No. 5; Dreams, Op. 6.* Concertgebouw O, Ashkenazy (d).

**Puccini:** *Tosca.* Te Kanawa, Aragall, Nucci; Nation-

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**Rachmaninoff:** *Piano Concerto No. 2.* **Addinsell:** *Warsaw Concerto.* Ortiz; Royal PO, Atzmon (d).

**Rachmaninoff:** *Piano Concerto No. 3.* Ashkenazy; Concertgebouw O, Haitink (d).

**Rachmaninoff:** *Works for Cello and Piano.* Harrell, Ashkenazy (d).

**Rimsky-Korsakov:** *Orchestral Works.* Philharmonia O, Ashkenazy (d).

**Rodrigue:** *Concierto de Aranjuez; Fantasia para un gentilhombre.* **Castolnuovo-Tedesco:** *Concerto No. 1.* Fernandez; English CO, Martinez (d).

**Rossini:** *William Tell.* Pavarotti, Freni, Milnes; Chailly (4).

**Schubert:** *Sonata in B flat; Wanderer Fantasy.* Ashkenazy (d).

**Schumann:** *Arabeske; Papillons; Symphonic Etudes.* Ashkenazy (d).

**Schumann:** *Carnaval; Fantasie.* Bolet (d).

**Scriabin:** *Piano Sonatas Nos. 1, 4, 6; Pieces, Op. 51.* Ashkenazy (d).

**Shestakovich:** *Cello Concerto No. 2.* **Bloch:** *Schelomo.* Harrell; Concertgebouw O, Haitink (d).

**Shestakovich:** *Piano Quintet; Seven Poems; Élége; Polka.* Söderström, Ashkenazy, Fitzwilliam Qr (d).

**Shestakovich:** *Symphony No. 14.* Concertgebouw O, Haitink.

**Strauss, R.: Don Quixote; Dance of the Seven Veils (Salome).** Harrell; Cleveland O, Ashkenazy (d).

**Strauss, R.: Elektra.** Nilsson; Solti (2, a).

**Strauss, R.: Der Rosenkavalier.** Crespín, Minton, Jungwirth, Donath; Vienna P, Solti (3, a).

**Stravinsky:** *Firebird; Fireworks; Scherzo fantastique.* Montreal SO, Dutoit (d).

**Stravinsky:** *L'Histoire du soldat; Renard.* London Sinfonietta, Chailly (d).

**Stravinsky:** *Rite of Spring; Four Norwegian Moods.* Cleveland O, Chailly (d).

**Stravinsky:** *Symphony No. 1; Scherzo fantastique.* Detroit SO, Doráti (d).

**Tchaikovsky:** *Eugene Onegin.* Kubiak, Weikl; Solti (2, a).

**Tchaikovsky:** *Orchestral Works.* Chicago SO, Solti (d).

**Tchaikovsky:** *Orchestral Works.* Montreal SO, Dutoit (d).

**Tchaikovsky:** *Piano Concerto No. 1.* **Dohnányi:** *Variations on a Nursery Tune.* Schiff; Chicago SO, Solti (d).

**Tippett:** *Concerto for String Orchestra.* Ac of St. Martin, Marriner (a).

**Verdi:** *Ada.* Chiara, Pavarotti, Dimitrova, Nucci, Burchuladze; La Scala O&Ch, Maazel (3, d).

**Verdi:** *Luisa Miller.* Pavarotti, Caballé, Milnes (2, a).

**Verdi:** *Nabucco.* Suliotis, Gobbi (2, a).

**Verdi:** *Il trovatore.* Sutherland, Pavarotti, Horne (2, a).

**Villa-Lobos:** *Etudes; Preludes.* **Ginastero:** *Sonata.* Fernandez (d).

**Vivaldi:** *Concertos, Op. 8.* Ac of Ancient Music, Hogwood (a).

**Wagner:** *Die Meistersinger.* Kollo, Weikl, Moll; Vienna P, Solti (4, a).

**Zemlinsky:** *Die Seungfrau; Psalm 13.* Berlin RSO, Chailly (d).

*Baroque Horn Concertos.* Tuckwell; Ac of St. Martin, Brown (d).

*Jorge Bolet Encores: Works by Chopin, Debussy, De Schözer, Godowski, Mendelssohn, and Moszkowski.* Kyung Wha Chung, Violin; Virtuoso Violin, Moll, piano (d).

*Philip Jones Ensemble: Grand Marches* (d).

*Mostly Mozart, Vol. 5: Mozart, Handel, Bach (arr. Busoni).* De Lariocha (d).

*Pavarotti in Concert* (a).

*Joan Sutherland (Silver Jubilee recording): Arias by Bellini: Donizetti; Meyerbeer; Rossini; Verdi.* Welsh National OpO, Bonyng (d).

*Kiri Te Kanawa: Christmas Songs.* English CO, Davis (d).

#### OISEAU-LYRE

**Bach:** *Cantatas Nos. 80, 147.* Bach E, Rifkin (d).

**Bach:** *Cantatas Nos. 106, 131.* Bach E, Rifkin (d).

**Beethoven:** *Symphony No. 3.* Ac of Ancient Music, Hogwood (d).

**Handel:** *Athalia.* Sutherland, Kirkby, Rolf-Johnson, Bowman, Thomas, A. Jones; Ac of Ancient Music, Hogwood (2, d).

**Mozart:** *Serenades, K. 375, 388.* Amadeus Winds (d).

**Mozart:** *Symphonies, K. 16a, 45a, 167.* Ac of Ancient Music, Hogwood (d).

*Music from Holy Week.* Schola Antiqua (d).

*Rafael Puyana, Harpsichord: Virtuoso Spanish Music* (d).

#### ARGO

**Handel:** *Organ Concertos, Op. 4.* Hurford; Amsterdam ChO, Rifkin (d).

**Hindemith:** *Sonatas for Organ Nos. 1, 2, 3.* **Kropfreiter:** *Toccata francese.* **Distler:** *Vier Spieltücke.* Hurford (d).

*Baroque Organ Works.* Hurford (d).

*Holy, Holy, Holy.* Kings College Ch (Cambridge); Cleobury (d).

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#### LYRRIX

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**Dvořák:** *Symphony No. 9.* O des Jeunes de la Méditerranée, Tabachnik (a).

**Vivaldi:** *Concertos for Flute (3); Sinfonia; Violin Concerto.* Mation; E Strumentale di Venezia (a).

#### MD + G

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**Goldberg:** *Concertos for Harpsichord.* Doeling; Sofia C Soloists; Tabakov.

**Haydn:** **Beethoven:** *Sextets for Winds.* Detmold Wind E.

**Rossini:** *Quartets for Winds (6).* Consortium Classicum.

**Schütz:** *Liebe und Klage.* Musicalische Compagny.

**Schütz:** *Weihnachtshistorie.* Musicalische Compagny.

**Smotana:** **Aronsky:** *Piano Trios.* Parnassus Piano Trio.

**Spohr:** *Burgmueller's Lieder.*

**Stachle:** **Dvořák:** *Piano Quartets.* Schilde, Heymann, Rieber, Bode.

**Witt:** *Kreutzer's Septets.* Charis E.

#### MOSS MUSIC GROUP

**Beethoven:** *Piano Concerto No. 1; Sonata, Op. 53.* Brendel; Stuttgart P, Boettcher.

**Beethoven:** *Piano Concerto No. 4; Sonata, Op. 13; Rondo, WoO 6.* Brendel; Vienna S, Wallberg.

**Beethoven:** *Piano Concerto No. 5; Sonata, Op. 57.* Brendel; Vienna S, Mehta.

**Bernstein:** *Symphonic Dances from West Side Story.* **Tchaikovsky:** *Romeo and Juliet.* Atlanta SO, Shaw.

**Brahms:** *String Quartets, Opp. 51, No. 1.* 67 Tokyo Qr (d).

**Brahms:** *Trio, Op. 8.* Kalichstein-Laredo-Robinson Trio (d).

**Brahms:** **Liszt:** *Paganini Variations/Etudes.* Simon (d).

**Gershwin:** *An American in Paris; Catfish Row; Prom-*

*nade; I Got Rhythm Variations.* Siegel, St. Louis SO, Slatkin.

**Handel:** *Water Music (suite); Music for the Royal Fireworks.* Minnesota O, Skrowaczewski.

**Handel (arr. Halvorsen):** *Passacaglia; Sarabande con variazioni.* **Handel (arr. Vermeer):** *Chaconne.* **Fuchs:** *Duets (12).* Patterson Duo (d).

**Haydn, M.:** *Symphonies, Vol. 2.* Bournemouth Sinfonietta, Farberman (d).

**Holst:** *The Planets.* St. Louis SO, Susskind.

**Mendelssohn:** *Symphonies Nos. 4, 5.* Baltimore SO, Comissiona.

**Mozart:** *Duo in G, K. 423.* **Kalliwodet:** *Duos, Op. 208, Nos. 1, 2.* Patterson Duo (d).

**Rachmaninoff:** *Piano Concerto No. 2; Rhapsody on a Theme of Paganini.* Simon; St. Louis SO, Slatkin.

**Rachmaninoff:** *Symphony No. 2.* St. Louis SO, Slatkin.

**Rimsky-Korsakov:** *Scheherazade.* **Mussorgsky:** *Khovanshchina (excerpts).* St. Louis SO, Slatkin.

**Rossini:** *Overtures.* Cincinnati SO, Schippers.

**Rossini:** *Stabat Mater.* May FCh, Cincinnati SO, Schippers.

**Strauss:** *Death and Transfiguration; Metamorphosen.* Cincinnati SO, Gielen (d).

**Stravinsky:** *Firebird (suite).* **Bartók:** *Concerto for Orchestra.* Minnesota O, Skrowaczewski.

**Tchaikovsky:** *Manfred.* Utah SO, Abravanel.

**Wagner:** *Preludes and overtures.* Minnesota O, Skrowaczewski.

*Baroque Splendor: Music of Corelli, Pachelbel, Vivaldi, Telemann, Marcello, Handel, and Bach.*

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The Moss Music Group, Inc., 48 W. 38th St., New York, N.Y. 10018.

#### MUSIC AND ARTS PROGRAMS OF AMERICA

**Beethoven:** *Piano Concerto No. 5; Sonata, Op. 111.* Badura-Skoda; North German RO, Knappertsbusch.

**Brahms:** *Piano Trios Nos. 1, 2.* Fischer-Schneiderhan-Mainardi Trio.

**Brockner:** *Symphony No. 7.* Vienna P, Knappertsbusch (1949)

**Brockner:** *Symphony No. 9.* Berlin P, Knappertsbusch (1950).

**Mozart:** *Symphony No. 40.* **Brahms:** *Symphony No. 2.* Berlin P, Walter (1950).

*Clara Haskil: Recital from Besançon (works of Mozart, Beethoven, Schubert, Schumann).*

*Igor Kipnis: A Treasury of Harpsichord Favorites.*

Music and Arts Programs of America, Inc., P.O. Box 771, Berkeley, Calif., 94701.

#### MUSICAL HERITAGE SOCIETY

**Brahms:** *Symphonies (4); Tragic Overture; Academic Festival Overture.* Chicago SO, Solti (4).

**Elgar:** *Overtures.* Scottish National O, Gibson.

**Handel:** *Fireworks Music; Water Music (suite); Amaryllis (suite).* Royal PO, Menuhin.

**Scarlatti, A.:** *Sinfonie di concerto grosso (6).* I Musici.

**Sibelius:** *Symphonies Nos. 1, 2; Finlandia; Romance.* Gothenburg SO, Järvi (2).

*Famous Adagios: Works by Barber, Grieg, Khachatryan, Mascagni, Rachmaninoff, Satie, Schmidt, and Sibelius.* Monte Carlo PO, Foster.

*Famous Waltzes by Weber, Ivanovici, Komzák.* Josef Strauss, Lanner, Ziehrer, Lehár, and Rosas. Vienna Volksoper O, Bauer-Theussl (2).

*Music Box Christmas.*

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**Beasert:** *Mountain Songs.* **Fisk (arr.):** *Works for Flute*

and Guitar. Fisk, Robison.

**Mozart:** *Le nozze di Figaro* (arr. for winds). Amadeus E.

**Telemann:** *Essercizi musici*. Aulos E (2).

**Paul Whiteman at Aeolian Hall Reenactment.** Peress, Hyman, Davis (2).

Musical Heritage Society, 1710 Hwy. 35, Ocean, N.J. 07712.

#### MUSICMASTERS

See Musical Heritage Society.

#### NEW ALBION RECORDS

**Current Era Ora: For Cornelius.** Oppens, Rzewski, Curran.

**Subotnick:** *The Key to Songs: Return*. California EAR Unit, Subotnick.

New Albion Records, 584 Castro St., No. 463, San Francisco, Calif. 94114.

#### NIMBUS

**Beethoven:** *Piano Sonatas (complete—first five volumes to be issued in 1986-87)*. Roberts (d).

**Beethoven:** *Piano Sonatas, Opp. 110, 111*. Guller (a).

**Butterworth:** *A Shropshire Lad; Two English Idylls; Banks of Green Willow; Purrys Lady Radnor Suite.*

**Bridges:** *Suite for Strings*. English String O. Boughton (d).

**Chopin:** *Scherzos*. Deyanova.

**Mendelssohn:** *Complete Piano Works*. Jones (5 CDs, to be issued separately) (d).

**Mendelssohn:** *Symphonies Nos. 4, 5*. Scottish CO. Laredo (d).

**Stravinsky:** *L'Histoire du soldat*. Lee; Scottish CO. Friend (d).

**A Brass Spectacular.** Wallace, Thompson (d).

**Roy Budd:** *Film Spectacular, Vol. 1 (music from Star Wars, Star Trek)*. London SO, Budd (d).

**Roy Budd:** *Film Spectacular, Vol. 2 (music from action/adventure films)*. London SO, Budd (d).

**Shura Cherkassky:** *Chopin Recital* (d).

**Shura Cherkassky in Recital:** *Works of Liszt, Stravinsky* (d).

**Shura Cherkassky in Recital:** *Works of Schumann, Chopin, Strauss-Godowsky, Schubert* (d).

**Shura Gehrman:** *Songs of Gounod, Fauré, Mussorgsky, Gehrman, Walker*.

*Nimbus Digital Sampler, 1986* (d).

Nimbus Records, 2112 Broadway, Suite 401, New York, N.Y. 10023.

#### NONESUCH

**Adams:** *The Chairman Dances—A Foxtrot for Orchestra; Common Tones in Simple Time; Two Fanfares*. San Francisco SO, De Waart (d).

**Albert:** *Into Eclipse; Flower of the Mountain\**. Gordon; Smithsonian Chamber Players, Kendall, Shelton; Y Chamber O, Schwarz\* (d).

**Bach:** *Harpischord Music*. Gibbons (d).

**Bach/Beethoven/Mozart:** *Piano Music*. Horszowski (d).

**Beethoven:** *Sonatas for Piano and Cello*. Bylsma, Bilson (fortepiano) (d).

**Brahms:** *Late Piano Music, including Opp. 76, 116, 119*. Goode (d).

**Larsen:** *Water Music 1984. Paulus Three Movements for Orchestra*. Minnesota O, Marriner (d).

**Reich:** *Early Works—Piano Phase; Clapping Music; It's Gonna Rain; Come Out*. Steve Reich and Musicians (d).

**Reich:** *Sextet; Six Marimbas; New York Counterpoint*. Steve Reich and Musicians (d).

**Schwantner:** *Distant Runes and Incantations; A Sud-*

*den Rainbow; Sparrows*. Shelton, Oppens; St. Louis SO, Slatkin (d).

**Anghelescu:** *Kirkby; The Consort of Musicke, Thomas, Rooley* (d).

**A Balanchine Album—Stravinsky:** *Agon, Hindemith: The Four Temperaments, Tchaikovsky: Serenade; Emeralds* (arr. Fauré). New York City Ballet O, Irving (2, d).

**Chopin Recital.** R. Laredo (d).

**A Renaissance Christmas.** Boston Camerata, Cohen (d).

**World Saxophone Quartet: Original Compositions.**

**World Saxophone Quartet Plays Duke Ellington** (d).

**Stratas Sings Well: Is It Him, or Is It Me?** Stratas; Y Chamber O, Schwarz (2, d).

**John Zorn: The Big Gundown—The Music of Ennio Morricone.**

Nonesuch, 75 Rockefeller Plaza, New York, N.Y. 10019.

#### NORTHEASTERN

**Brecht:** *Balkan Variations; French Suite. Footst Omar Khayyam Suite; Zweite Suite*. V. Eskin.

**Chadwick:** *Piano Quartet; String Quartets Nos. 1-5*. V. Eskin, Portland Qr (3).

**Footst:** *Chamber Works with Flute*. Smith, Boston C Music Society.

**Grainger:** *Handel in the Strand; Scandinavian Suite; other Chamber Works*. Smirnoff, Moerschel, Drury.

**Harbison:** *Mirabai Songs; Variations*. Felty, Satz, R. Harbison, Oppens; Collage New Music E.

**Ivost:** *The Celestial Country. Loeffler:* *Psalm 137*. John Oliver Ch, Christie.

**Krebs:** *Chorale Preludes and Fantasias*. Swanborn, Tinsley, Valentine.

**Palno:** *Chamber Works*. Silverstein, J. Eskin, V. Eskin.

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**Schubert:** *Ten Variations, D. 156; Sonata in E, D. 157; Klavierstücke, D. 604; Other Early Piano Works.* Hokanson.  
*D'Anna Fortunato: Harp Songs and Interludes (music of Britten, Ravel, Castelnuovo-Tedesco, Poulenc, Ginastera).* Fortunato, Miron, Smith, Fine, Grover.

Northeastern Records, P.O. Box 116, Boston, Mass. 02117.

## OISEAU-LYRE

See London.

## OWL RECORDING

*Computer Music from the Stanford University Center for Computer Research in Music and Acoustics: Works by Jaffe, Chafe, and Schottstaedt* (d).

Owl Recording, Inc., P.O. Box 4536, Boulder, Colo. 80306.

## PHILIPS

**Albiniz:** *Fantasies, Tarrega: Preludio in G; Sueno, Turina: Hommage; Fandanguillo; Raffagas.* P. Romero.  
**Bach:** *Six Partitas.* Stuermer (2, d).  
**Bach:** *Sonatas and Partitas for Solo Violin.* Kremer (2).  
**Beethoven:** *Diabelli Variations.* Arrau (d).  
**Beethoven:** *Piano Concerto No. 4; 32 Variations, WoO 80.* Arrau; Dresden StO, Davis (d).  
**Beethoven:** *Symphony No. 6; Consecration of the House Overture.* Ac of St. Martin, Marriner (d).  
**Berlioz:** *La Damnation de Faust.* Gedda, Bastin, Veasey, Van Allan, Night; London SO, Davis (2).  
**Berlioz:** *Harold in Italy; Les Troyens (prelude); Marche funèbre.* Imai; London SO, Davis.  
**Berlioz:** *Les Troyens.* Vickers, Veasey, Lindholm, Glossop, Begg, Sover; Royal Op O&Ch, Davis (4).  
**Chabrier; Dukas; Saint-Saëns; Glière:** *Horn Concertos.* Baumann; Gewandhaus O, Masur (d).  
**Gershwin:** *Songs.* Hendricks, Labeques.  
**Gluck:** *Iphigène en Taurede.* Montague, Aler, Allen, Massis; Monteverdi Ch, Lyon Op O, Gardiner (2, d).  
**Haydn:** *Nelson Mass.* Hendricks, Lipovcek, Araiza, Meven; Bavarian RSO, Davis (d).  
**Haydn:** *The Organ Concertos.* Koopman; Amsterdam Baroque O (2).  
**Haydn:** *Die Schöpfung.* Mathis, Baldin, Fischer-Dieskau, Denly; Ac of St. Martin, Marriner (2).  
**Liszt:** *The Hungarian Rhapsodies.* Dichter (2).  
**Lutoslawski:** *Cello Concerto; Concerto for Oboe and Harp.* Schill, U. Holliger, H. Holliger; Bavarian RSO, Lutoslawski (d).  
**Lutoslawski:** *Symphony No. 3; Les Espaces de sommeil.* Fischer-Dieskau; Berlin PO, Lutoslawski (d).  
**Mahler:** *Symphony No. 5.* Concertgebouw O, Haitink.  
**Massenet:** *Werther.* Carreras, Von Stade, Allen, Buchanan, Lloyd; Royal OpO, Davis (2).  
**Mendelssohn:** *Symphony No. 2.* Price, Burgess, Jerusalem; London PO&Ch, Chailly.  
**Mozart:** *Così fan tutte.* Caballé, Baker, Cotrubas, Gedda, Ganzarolli, Van Allan; Royal Op O, Davis (3).  
**Mozart:** *Symphonies Nos. 31, 35.* O of 18th Century, Brügggen (d).  
**Puccini:** *La Bohème.* Carreras, Ricciarelli, Putnam, Wixell, Lloyd; Royal Op O, Davis (2).  
**Respighi:** *Ancient Airs and Dances.* Philharmonia Hungarica, Doráti.  
**Schoenberg:** *Verklärte Nacht; String Trio, Op. 45;*

*Fantasy for Violin and Piano, Op. 47.* Schoenberg E, De Leeuw.

**Schubert:** *Winterreise.* Fischer-Dieskau, Brendel (d).  
**Sibelius:** *The Symphonies; Finlandia; Tapiola; Swan of Tuonela.* Boston SO, Davis (4).  
**Sousa:** *Stars and Stripes Forever.* Eastman Wind E, Fennell.  
**Spohr:** *Die letzten Dinge.* Shirai, Lipovcek, Prochka, Holle; Sudfunk Ch, Stuttgart RSO, Kühn (d).  
**Strauss, R.** *Lieder.* Norman, Parsons (d).  
**Stravinsky:** *The Rite of Spring; Petrouchka.* Concertgebouw O, Davis.  
**Verdi:** *Il corsaro.* Carreras, Norman, Caballé, Grant; New PO, Gardelli (2).  
**Vivaldi:** *Four Seasons; L'Amoroso.* Ayo; I Musici.  
**Wagner:** *Wesendonk Lieder.* **Berlioz:** *Les Nuits d'été.* Baltas; London SO, Tate (d).  
*Bernstein by Boston.* Boston Pops, Williams (d).  
*Zoltan Kocsis: Wagner Transcriptions.*  
 Philips Records, 810 Seventh Ave., New York, N.Y. 10019.

## PREAMBLE

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**Antheil:** *Sonata No. 4.* **Barber:** *Excursions.* **Copland:** *Our Town; Middy Thoughts; Proclamation.* **Gershwin:** *Three Preludes.* **Stevens:** *Three Inventions; Intrada.* **Waxman:** *Charm Bracelet.* Parkin (d).  
**Copland:** *Down a Country Lane; John Henry.* **Diamond:** *Album for the Young.* **Persichetti:** *Four Arabesques; Parades, Op. 57.* **Ramey:** *Memorial.* **Schickole:** *Epitaphs.* **Siegelmeister:** *American Kaleidoscope.* **Stevens:** *Improvisation; Toccata.* Parkin (d).  
**Foss:** *String Quartet in G.* **Trimbol:** *String Quartet No. 1.* **Binkerd:** *String Quartet No. 1.* **Thompson, R:** *String Quartet No. 2.* Preamble Qr (d).  
**Friedhofer:** *In Love and War.* **Herrmann:** *Kentuckyan; Day the Earth Stood Still.* **Newman:** *Down to the Sea in Ships.* **Waxman:** *Sunrise at Campobello.* National PO, Ambrosian Singers, F. Steiner (Classic American Film Scores).  
**Loeffler:** *Music for Four Stringed Instruments.* **Mason:** *Serenade for String Quartet, Op. 31.* **Moore:** *Quartet for Strings.* **Soworby:** *Serenade in G.* **Wagenaar:** *String Quartet No. 3.* Preamble Qr (d).  
**Thompson, R:** *String Quartet No. 1.* **Herrmann:** *Echoes.* Preamble Qr (d).  
**Siment:** *Kalem Silent Film Music.* Parkin (d).

## PREMIER

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**Arlent:** *Americanegro Suite; Songs from Stage and Screen.* Kaye, Howard (d).  
**Berlin:** *The Music Box Revues.* Soloists and O of the Premier Theater (d).  
**Gershwin:** *Patter Songs* (d).  
**Herbert:** *Babes in Toyland (complete).* Soloists, Ch&O of the Eastman School of Music (2, d).  
**Lane; Lerner:** *Huckleberry Finn (eight songs from unmade film production).* **Wells; Anderson:** *Raft on the River (five songs from unfinished stage play).* Soloists, chorus, and instrumental ensemble (d).  
*Classical Music by Hollywood Composers* (d).  
*Rags and Other Riches.* New York Jazz E (d).  
*Really Romberg: Unusual Theater and Popular Songs by Sigmund Romberg.* Soloists; O of the Premiere Theater E (d).  
*Symphonic Jazz: Works by American Composers.* Soloists; New York Jazz E (d).  
*Symphonic Sousa* (d).  
*Maryanne Teles, Soprano: Let My Song Fill Your Heart. A Remembrance of the American Concert Song.* Howard (d).  
*The Paul Whiteman Aolian Hall Concert: A Re-creation.* Soloists; New York Jazz E (2, d).

## PRO ARTE

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**Bach:** *Goldberg Variations; Italian Concerto.* P. Serkin (2, d).  
**Beethoven:** *Piano Concertos Nos. 3, 4.* Sherman; Czech PO, Neumann (d).  
**Beethoven:** *Piano Concerto No. 5.* Sherman; Czech PO, Neumann (d).  
**Beethoven:** *Piano Sonata No. 29 (Hammerklavier).* P. Serkin (on modern piano) (d).  
**Brahms:** *Piano Concerto No. 1.* P. Serkin; Atlanta SO, Shaw (d).  
**Brahms:** *Piano Concerto No. 2.* P. Serkin; Atlanta SO, Shaw (d).  
**Brahms:** *Violin Concerto; Academic Festival Overture.* Silverstein; Utah S (d).  
**Chopin:** *Nocturnes; Ballades; Fantasies (selections on modern piano).* P. Serkin (d).  
**Dvořák:** *Overtures.* Houston SO, Comissiona (d).  
**Dvořák:** *Slavonic Dances, Opp. 46, 72 (complete).* Houston SO, Comissiona (d).  
**Dvořák:** *Violin Concerto; Serenade for Strings; Serenade for Wind Instruments.* Utah SO, Silverstein (d).  
**Ellington:** *Works.* **Gershwin:** *Overture to Girl Crazy.* Rochester PO, Kunzel (d).  
**Gershwin:** *An American in Paris.* **Copland:** *Our Town (suite).* **Bornstein:** *On the Town (excerpts).* **Ives:** *Central Park in the Dark.* Utah SO, Silverstein (d).  
**Gershwin:** *Concerto in F (arr. Grofé); Three Preludes.* Sherman; O of St. Luke's, Schuller (d).  
**Grieg:** *String Quartet.* **Gershwin:** *Lullaby.* **Puccini:** *Chrysanthem.* Phil Arte Qr (d).  
**Liszt:** *Sonata in B minor; Don Giovanni Fantasy.* Sherman (d).  
**Mozart:** *Clarinet Quintet.* **Weber:** *Introduction, Theme and Variations.* Gigliotti, Phil Arte Qr (d).  
**Mozart:** *Eine kleine Nachtmusik.* **Haydn:** *Serenade.* **Schubert:** *Quartet in E flat.* Cleveland Qr (d).  
**Mozart:** *Sonatas, K. 570, 576; Rondos.* P. Serkin (d).  
**Mozart:** *Violin Concerto No. 5; Piano Concerto No. 19; Rondo in A.* P. Serkin, Silverstein; Rochester PO, Silverstein (d).  
**Schumann:** *Symphonies (4).* Houston SO, Comissiona (d).  
**Tchaikovsky:** *String Quartets (complete).* Cleveland Qr (2, d).  
**Tchaikovsky:** *Violin Concerto; Serenade for Strings; Andante cantabile.* Utah SO, Silverstein (d).  
**Tchaikovsky:** *Waltzes.* Houston SO, Comissiona (d).  
**Vivaldi:** *Bassoon Concertos (4).* Miller; St. Mary's C Players, Marriner (d).  
*Christmas Favorites on the Paramount Theater Organ* (d).  
*Marches on the Paramount Theater Organ* (d).  
*Music from Great Films on the Paramount Theater Organ* (d).  
*The Music of Richard Rogers: Lagoon, All Points West, Ghost Town, and selections from Carousel, Oklahoma, and The Sound of Music.* Rochester PO, Kunzel (d).  
*Orchestral Marches.* Houston S, Comissiona (d).  
*Sabre Dance; Orchestral Dances by Brahms, Grieg, and Others.* Houston SO, Comissiona (d).  
*Syncopated Clock and Other Favorites by Leroy Anderson.* Rochester Pops, Kunzel (d).  
*Violin Encores.* Silverstein (d).

## PROTONE

**Rachmaninoff:** *Complete Preludes for Piano.* Keene.  
 Protone Records, 970 Bel Air Rd., Los Angeles, Calif. 90077.

## QUALITON IMPORTS

See Amon Ra, Bis, Calliope, Claves, GRD, Cybella, Dynamic, Fidelio, Hungaroton, Saydisc, Thorofon.

Qualiton Imports, 39-28 Crescent St., Long Island City, N.Y. 11101.

**RCA**

See Erato, RCA Red Seal.

RCA Records, 1133 Avenue of the Americas, New York, N.Y. 10036.

**RCA RED SEAL****(distributed by RCA)**

- Bach:** *Sonatas and Partitas for Solo Violin*. Heifetz (2, m).
- Bartók:** *Concerto for Orchestra; Music for Strings, Percussion, and Celesta*. Chicago SO, Reiner.
- Beethoven:** *Sonatas for Violin and Piano*. Heifetz (3, m).
- Beethoven:** *Symphonies Nos. 1, 6*. Chicago SO, Reiner.
- Beethoven:** *Symphonies Nos. 4, 6*. NBC SO, Toscanini.
- Beethoven:** *Symphony No. 5, Leonore Overture No. 3*.
- Schubert:** *Symphony No. 8*. Boston SO, Munch.
- Beethoven:** *Symphony No. 7, Mozart: Symphony No. 11*. Chicago SO, Reiner.
- Beethoven:** *Symphony No. 9*. Chicago SO, Reiner.
- Borlioz:** *Requiem; Symphonie fantastique*. Boston SO, Munch.
- Brahms:** *Double Concerto, Mozart: Sinfonia concertante, Bach: Double Concerto*. Heifetz, Piatigorsky, Primrose, Friedman.
- Brahms:** *Piano Quintet, Op. 34*. Ax, Cleveland Qr.
- Brecht:** *Violin Concerto No. 1; Scottish Fantasy, Vieuxtemps: Violin Concerto No. 5*. Heifetz; London SO, Sargent.
- Chopin:** *The Concertos*. Rubinstein.
- Chopin:** *Impromptus; Short Selections*. Rubinstein.
- Chopin:** *The Mazurkas*. Rubinstein (2).
- Chopin:** *The Nocturnes*. Rubinstein (2).
- Chopin:** *Polonaises (7)*. Rubinstein.

- Chopin:** *Sonatas; Fantasy*. Rubinstein.
- Dvořák; Walton:** *Cello Concertos*. Piatigorsky; Boston SO, Munch.
- Dvořák:** *Symphony No. 9; Carnival Overture, Smetana: Bartered Bride Overture, Weinberger: Polka and Fugue from Schwanda*. Chicago SO, Reiner.
- Franck:** *Symphony in D minor, Chausson: Symphony in B flat*. Boston SO, Munch.
- Giordano:** *Andrea Chénier*. Scotto, Milnes; National P, John Alldis Ch, Levine (2).
- Khachaturian:** *Violin Concerto\*, Saint-Saëns: [Lavanaise\*]; Introduction and Rondo Capriccioso, Chausson: Poème*. Kogan\*, Oistrakh; Boston SO, Monteux\*, Munch.
- Mahler:** *Symphony No. 4, Strauss: Don Juan*. Della Casa; Chicago SO, Reiner.
- Mozart:** *Clarinet Concerto\*; Clarinet Quintet*. Goodman, Budapest Qr; Boston SO, Munch\*.
- Mozart:** *Symphony No. 36; Divertimento No. 17*. Chicago SO, Reiner.
- Mozart:** *Violin Concertos Nos. 4, 5; Rondo from Haffner Serenade, Bach: Chaconne in D minor*. Heifetz; London SO, Sargent.
- Prokofiev:** *Alexander Nevsky; Lieutenant Kijé, Glinka: Ruslan and Ludmilla Overture*. Elias; Chicago SO&Ch, Reiner.
- Ravel:** *Daphnis et Chloé; La Valse*. Boston SO, Munch.
- Ravel:** *Rhapsodie espagnol; Pavanne pour une infante défunte; Alborada del gracioso; Valses nobles et sentimentales, Debussy: Iberia*. Chicago SO, Reiner.
- Saint-Saëns:** *Symphony No. 3; Le Rouet d'Omphale, Poulenc: Concerto for Organ, Strings, and Timpani*. Boston SO, Munch (r).
- Sibelius; Glazunov; Prokofiev:** *Violin Concertos*. Heifetz (r).
- Strauss:** *Also sprach Zarathustra; Bourgeois Gentleman Suite; Rosenkavalier Waltzes*. Chicago SO, Reiner.
- Strauss:** *Elektra (scenes); Salome (Dance of the Seven Veils and final scene)*. Borkh; Chicago SO, Reiner.
- Stravinsky:** *Song of the Nightingale; Fairy's Kiss Divertimento, Novhanoss: Mysterious Mountain*. Chicago SO, Reiner.
- Tchaikovsky:** *Nutcracker (excerpts); 1812 Overture; Marche Slave*. Chicago SO, Reiner.
- Tchaikovsky:** *Romeo and Juliet, Prokofiev: Romeo and Juliet (suite)*. Boston SO, Munch.
- Tchaikovsky:** *Symphony No. 6; Suite No. 1 (March), Mussorgsky: Night on Bald Mountain, Kabalovskys: Galas Breignon Overture, Borodin: Polovski March*. Chicago SO, Reiner.
- Tchaikovsky; Mendelssohn:** *Violin Concertos*. Heifetz; Chicago SO, Reiner. Boston SO, Munch\*.
- Verdi:** *Falstaff*. Valdegno, Madasi, Guarrera, Carelli, Rossi; NBC SO, Robert Shaw Ch, Toscanini.
- Verdi:** *La forza del destino*. Price, Cossotto, Domingo, Milnes, Bacquier, Giaiotti; London SO, Levine.
- Weber:** *Clarinet Concertos Nos. 1, 2, Nielsen: Clarinet Concerto\**. Goodman; Chicago SO, Gould, Martinon\*.
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**(CONTINUED ON PAGE 127)**

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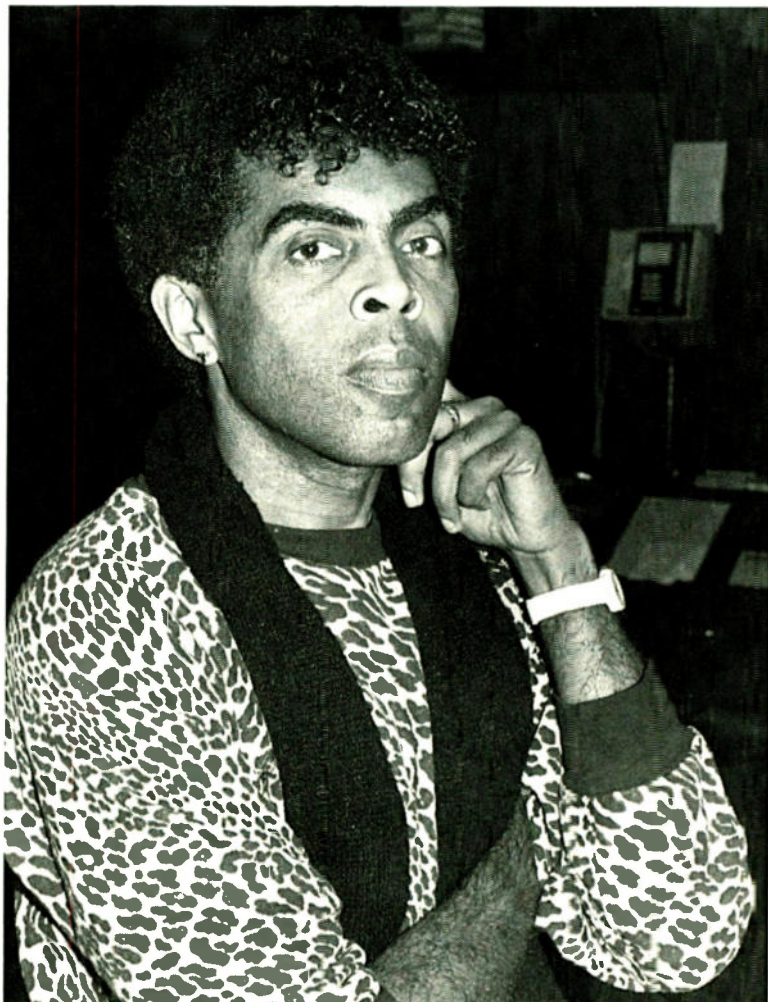
*Exhorting, cavorting, and reporting, Brazil's most popular artist wants to be your neighbor.*

BY PAMELA BLOOM

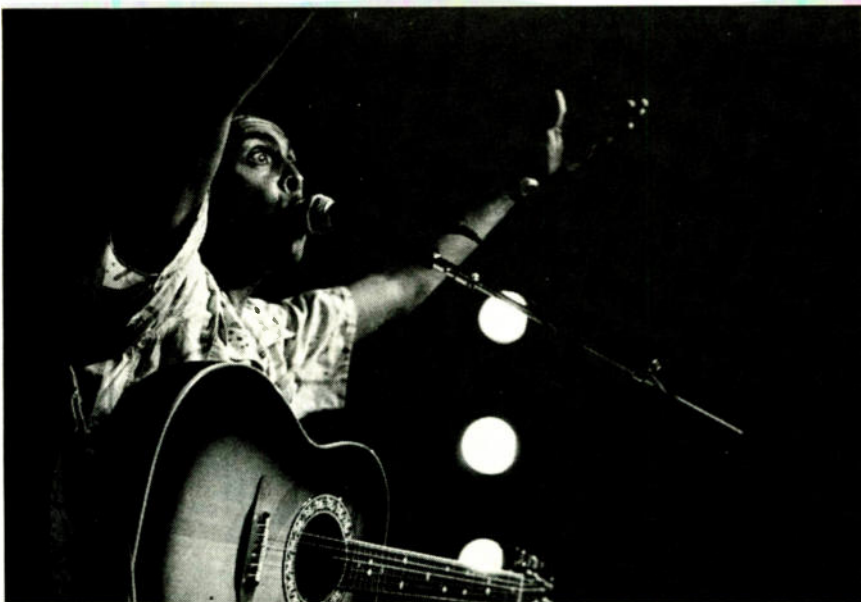
## Gilberto Gil, Fellow Man

MIDNIGHT IN BAHIA, Brazil: The cabdriver didn't want to bring me here, and then he didn't want to leave me. Descending, like Black Orpheus, down a tortuous set of stone steps flanked by shanties, I arrive at a religious service in a tiny apartment teeming with black faces, the congo drums already hot with the blessings of candomblé. Five women dressed in white hooped skirts and reams of necklaces start dancing a kind of two-step shuffle, bobbing their heads. Suddenly, one, then two, then all of them begin to quiver and holler; their arms jerk wildly, their eyes roll backward. The congregation, once subdued, chants and claps furiously, urging the dancers on with prayers of petition and praise, inviting the African gods in. As tension mounts and floorboards shake, the dilapidated room becomes a pulsating temple of faith.

A thousand miles away in a tent-like theater in Rio de Janeiro, Gilberto Gil—one of Bahia's most famous native sons—bounds on stage with a cheerful blast from his band. His flat-topped Afro ringed with a bright yellow headband, his body swathed in colorful gypsy rags (complete with



matching pink guitar), he looks like an African tribal king lost on Carnaby Street. But somehow he looks great, and backed by the tightest nine-piece band in Brazil, he also sounds great, charging fearlessly through reggae, rock 'n' roll, ju-ju, pop-funk, and electric samba. Alternately exhorting, cavorting, and reporting, Gil reminds me of a snake-oil salesman I saw in Bahia; but this Gil, famous for his bitter political diatribes, is exposing fraud, not selling it. When he segues into "Pessoa Nefasto" ("Evil Person"), a song supporting the recent direct democratic elections, a cheer explodes and fists are raised. As a master of call-and-response, Gil expects his fans to finish his phrases, and they always do; his Portuguese version of Bob Marley's "No Woman No Cry" gets everyone involved. But the show is not simply Gil's. Behind him, his percussionist, a wild, shirtless creature with flying dreadlocks, boomerangs between conga, cuica, triangle, and what-not. And then there is the brass section: three big white



"EVER SINCE I FIRST WENT ON STAGE, I NEVER MEANT TO BE 'MY' SELF; I MEANT 'OUR' SELVES."

guys with knobby knees who hip-hop down to the microphone for a fast riff, then scurry back on tiptoe. For the wind-up, Gil, half-serious, pulls out a water jug and sprinkles blessings on his audience. Then he takes a big, irreverent gulp for himself.

"I LIKE TO MAKE THINGS BURST AND SPROUT," Gil told me one day last April in his chic Ipanema office in Rio. "I've always been interested in that provocative character of life—the game that sometimes surprises you, enlightens you, bangs you on the head, or lifts you to a spiritual bliss." For years one of the most provocative artists in Brazil, Gil—bohemian, proselytizer, mystic poet, and punster—has modernized Brazilian culture not only by introducing rock 'n' roll and other international beats but also by exploring social issues once considered taboo. On-stage he's a breezy balance between *louco* and lucid, but in person he's simply sweet, utterly Brazilian, and always seemingly on the verge of bursting into song.

The roots of his art can be found in the state of Bahia in eastern Brazil, where Catholic and cult influences come together in a joyous celebration of song and dance. As the son of a doctor, Gil grew up decidedly middle-class, but most of the black population there had adapted uniquely to the dominant white society. "From the beginning of slavery," Gil explains, "the Baiano blacks mixed Catholic values with their own tribal rituals, so that everything became dancing and chanting and beating." He absorbed as well other colors from the region: the nasal cries of street singers, the *trios electrico* blaring from the backs of trucks, the *baião* rhythms of accordionist Luiz Gonzaga (a kind of tropical polka). By the time he was a teenager, however, Gil had also discovered American swing, Cuban mambos and rumbas, Mexican boleros, and Italian folk music. But it wasn't until he heard the first important bossa nova song, João Gilberto's "Chega de Saudade" ("Enough with Longing"), that he discovered the guitar and a new, soft way of singing. In contrast to the populist, rambunc-

tious samba, bossa was slow and sexy, cool and detached, a perfect aural vehicle for a rising class of young bourgeois hedonists.

"Listening to [Antonio Carlos] Jobim and the lyrics of Vinicius de Moraes," Gil recalls, "I was touched by the possibility of putting words onto feelings. The bossa nova was a new mood, romantic and lyrical, and the first song I wrote was about a neighborhood girl, whom I was platonically in love with." But that kind of writing was "very naive," Gil admits, for he also belonged to a generation that was growing up through politics. During the Sixties, the government tried to anchor its economy in a succession of military regimes. With his country torn by hunger and social repression, reality for Gil became a question of "verification," not idealization. One of his first recorded songs, "Procissão" ("Procession"), employed his native *baião* rhythm laced with religious chant to attack traditional mores.

"When I was a kid in my country village, there was nothing but two main streets, a thousand people, the church, and the priests. I used to love to watch the religious parades, with the women singing Ave Marias and the guys holding up the images of the saints, as the congregation wound its way through the streets back to the church. But later, at university, I read Marx and became concerned with the social struggle. So 'Procissão' was a criticism of the noxious influence that religion has, especially on simple people, who take care for God and the eternal life and ignore the essentials of providing nourishment—those people who transfer their real life energy into the imaginative life."

During his university years, Gil met Caetano Veloso, the white Baiano musician with whom he would make a friendship as legendary in Brazil as that of Heloise and Abelard. They "tuned" immediately, Gil recalls, "because we had similar existential life projects." The more intellectual Veloso pulled Gil along, introducing him to other revolutionary artists who "gently criticized" his work and gave him books to read. But Gil's

concerns were ultimately musical, and his search for an aural aesthetic that would represent an organic yet dynamic Brazilian culture led to a new movement that would change the face of *musicá popular brasileiro* (MPB). "Viscerally, unconsciously, I felt something had to be done. I had started to listen to the Beatles, the Rolling Stones, and Bob Dylan, and at the same time, I went to the countryside and felt the strength of primitive cultural values alive in the music there. I felt we had to mix everything."

If Western rock attracted Gil with its novelty, three of its most arresting personas—the Beatles, the Stones, and Dylan—also articulated three fragments of his personality: the darling, the devil, and the drifter. Tropicalism emerged as a wild synthesis of seemingly disparate parts, but its traditional Brazilian folk, bossa nova, and rock 'n' roll elements were logical pieces of Gil's past. The tropicalistas, who included singers Gal Costa and Maria Bethania (Veloso's sister), lyricist Torquato Neto, and composer Rogério Duprat, wielded electric guitars next to berimbau and subscribed to what Veloso has described as "neo-cultural cannibalism," a deliberate adaptation of Western musical elements to the needs of the moment. Gil's "Geléia Geral" ("A General Jelly"), with text by Neto, offended conservatives because it juxtaposed traditional and modern images. The song's ironic tone is accentuated by Duprat's orchestration, which mixes fragments of Western hits over Gil's basic folk tune.

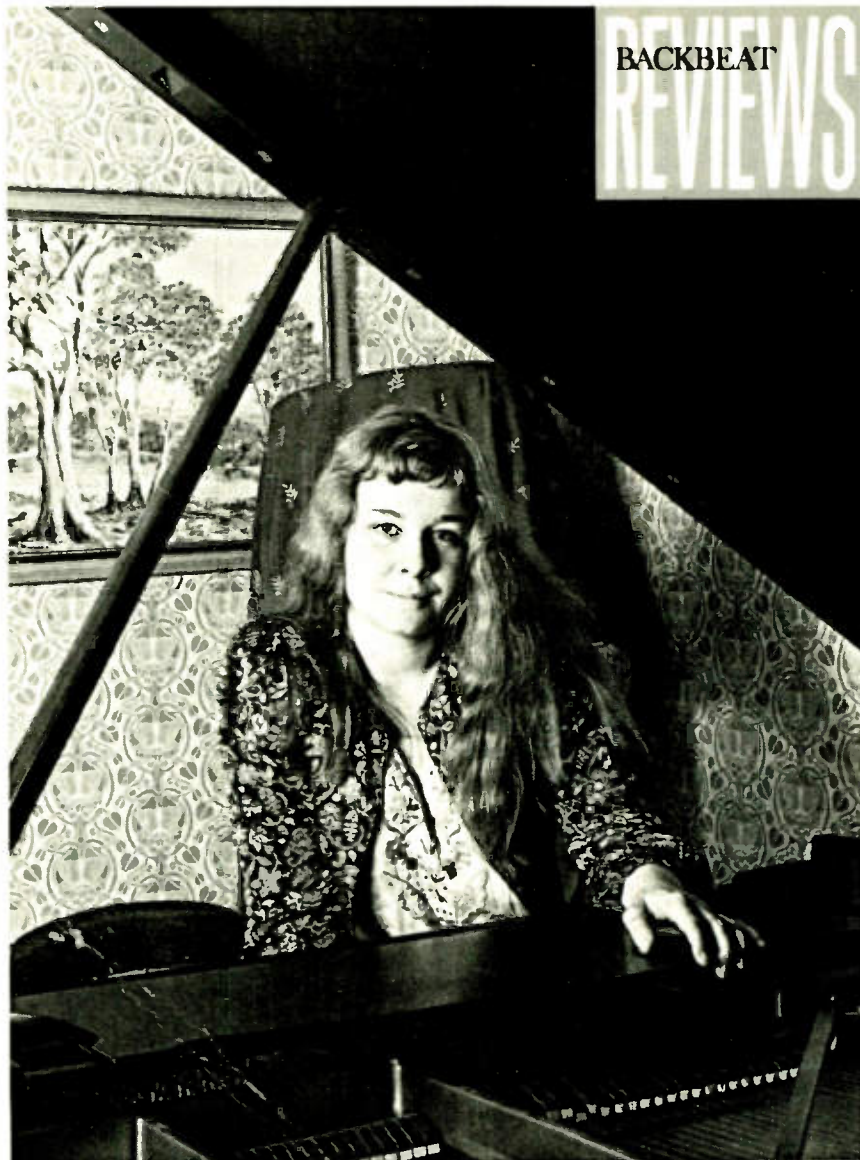
The bell-bottom pants, freewheeling lifestyles, and unsuppressed creativity of these artists made the military government paranoid; one day, Gil and Veloso were arrested without explanation. During three months of solitary confinement, Gil studied Eastern religions and, after reading about John and Yoko's bed-ins, took up macrobiotics and Zen meditation. When the government could uncover no left-wing activity on the part of the so-called dissidents, the two were simply "requested" to leave Brazil.

Exconced for three years in a quaint mews in Lappa Grove, London, the exiled Gil developed a passion for Traffic, Pink Floyd, and more Beatles and Stones—all the British rock bands. "I was so excited I bought an electric guitar and taught myself how to play, just as I had with the acoustic guitar years before." The albums Gil recorded after he and Veloso quietly returned to Brazil display not only an ever increasing mastery of poetic and musical form but also a knack for being primal, contemporary, and futuristic all at the same time. *Expresso 2222* (1972) rediscovered the origins of MPB, synthesized the influence of Anglo jazz-rock, and consolidated his conception of the world according to Oriental philosophy; in the contemplative "Oriente," he nearly turns his guitar into a sitar. *Refavela* (1977), replete with African rhythms inspired by a trip to the Nigerian Music Festival, paid homage to his black origins. The cheerful









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# RINGING DOWN THE YEARS

**SANDY DENNY:**

**Who Knows Where the Time Goes?**

⊙ Trevor Lucas and Joe Boyd, prods. Hannibal HNBX 5301 (4). (Distributed by Carthage, Box 667, Rocky Hill, N.J. 08553.)

SANDY DENNY HAD SOME SUCCESS AS BOTH A songwriter and a singer before her accidental death in 1978 but barely the recognition she deserved. As a songwriter, she's best known for "Who Knows Where the Time Goes?," popularized in the late Sixties by Judy Collins. With a graceful melody and lyrics touching on love's mystical and faintly sad undercurrent, the song captured the spirit of that time in a timeless fashion. It felt like a singer's standard and soon became one. But Denny made her greatest contribu-

tion to popular music as an interpreter of traditional songs and contemporary lyrics by other writers. So it's appropriate that the boxed compilation *Who Knows Where the Time Goes?* should include her own version of the title track alongside songs by Bob Dylan, Richard Fariña, and Richard Thompson.

In the mid-Sixties, Denny was a regular on the tiny English pub circuit, and for a short time she sang and recorded with the Strawbs (whose leader, David Cousins, has since memorialized her in "Ringing Down the Years," which he now performs with the newly reformed group). In 1968, she was recruited by Fairport Convention, a fledgling band of rock 'n' rollers looking for a definably English sound. Denny brought her ex-



pressive soprano and a repertoire that included traditional ballads; with Fairport she created a sound that fused elements of the San Francisco psychedelic underground with the tunes and supernatural stories of English common history. This hybrid literally revolutionized the folk world and also influenced pop, as folk songs by rock artists began to reach the singles charts. Bands imitating Fairport Convention appeared all over England and eventually the U.S. Denny's soulful, nearly theatrical vocal style—a rare combination of the ethereal and the earthy, bridging traditional femininity and the feminist future—inspired an unending stream of pop-struck women. When Denny left Fairport, first to form her own folk-rock group, Fotheringav, and later to pursue solo projects (often with musicians from various Fairport incarnations), she relied more on her own material. But through all her work, there was a continuum reaching back to the folk balladry that first inspired her.

*Who Knows Where the Time Goes?*, drawing from demos, outtakes, live performances, and unreleased studio recordings as well as material from various group and solo albums, all spanning the years from 1967 through 1977, attempts to show Denny's breadth of voice and imagination, and it mostly succeeds. There are performances of vigor and originality—"The Quiet Joys of Brotherhood," for example, a Fariña lyric

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performed with Fairport—and others of simple delicacy, like her own "The Music Weaver," performed solo. Traditional cuts are the album's standouts, "Gypsy Davey," with Fotheringav, and "Tam Lin," from Fairport's *Large and Lief*, are especially evocative and as exciting today as when they were first recorded. But undistinguished versions of well-known tunes like "Walking the Floor Over You" and "Knockin' on Heaven's Door" waste space that would have been

better used for more traditionals or Denny originals, either of which would have been more representative of her unique style.

With 43 cuts on four LPs, *Who Knows Where the Time Goes?* is a loving tribute that serves as both a retrospective for Denny's fans and an introduction for new listeners. From a historical perspective, the inclusion of nearly an album side of Seventies pop tunes may have been considered worthwhile, particularly in light of the project's major flaw: a lack of detailed biographical liner notes that might otherwise have linked together Denny's disparate works. But these songs limit latter-day Denny to being just another pretty female voice. Ultimately, the compilation reveals that Sandy Denny, a singer of exceptional talent, never did get to make her definitive statement.

Leslie Berman

## ANDY M. STEWART/PHIL CUNNINGHAM/ MANUS LUNNY:

### Fire in the Glen.

Phil Cunningham, Andy M. Stewart, and Manus Lunny prods. Shanachie 79062. Ⓛ (Dalebrook Park, Ho-Ho-Kus, N.J. 07423.)

CELTIC FOLK MUSIC RARELY GETS AS SOMBER as it does in the songs of Scotsman Andy M. Stewart. In the ballads he has written for his on-again, off-again traditional band, Silly Wizard, and for his first solo album, *By the Hush* [see March 1984 review], average citizens lose their land to unscrupulous land-

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lords, newlyweds sail away on a honeymoon boat that crashes on the rocks in Dublin Bay, and Irishmen escape their homeland's brutal potato famine and flee to America, only to be drafted into the Union Army and lose a leg in a Civil War battle. Not the kind of songs one hears heartily sung in pubs throughout the U.K., but that consideration doesn't seem to affect Stewart much. Even the cover painting of *Five in the Glen*, a graphic visualization of the title song, is in line with this philosophy: Against a dreary Scottish Highlands landscape, a couple flee their burning cottage while holding their nude child, victims of a landlord who has scorched their farm to speed up an eviction. Nasty stuff indeed.

In late 1983, when Silly Wizard decided to take a sabbatical to pursue "outside projects" and some such, the band left behind four often brilliant albums of Scottish folk that fuse Stewart's stern, brooding brogue with instrumentation both traditional (accordion, fiddle) and not so traditional (synthesizer). *Five in the Glen*, which reunites Stewart with the band's other principal member, accordionist/keyboardist Phil Cunningham, is the closest thing to a Silly Wizard studio album since the breakup, right down to its mix of ballads, jigs, and reels. One listen to its standout track, "The Gold Claddagh Ring," shows the two haven't lost their touch. The music is stirring and rugged, framed by Manus Lunny's acoustic guitar and bazouki and Cunningham's electric keyboards. Stewart uses the symbolism of the title ring—a ring given to lovers showing a heart encircled by a pair of hands—to tell the tale of a man who gives one to the object of his affections; in turn, the uninterested woman takes it and puts it in her jewelry box "with all the rest." "Why is it that women are smarter than men?" the narrator wonders, and as if to stress the contemporary sentiments, Cunningham swoops in with a trumpeting synthesizer solo.

"The Gold Claddagh Ring" may be the only track to leap off the turntable here, but that's not surprising: After all, the watchword on *Five in the Glen* is "downbeat." The title track and "I Mourn for the Highlands," a song about displaced families (shades of gentrification), may be "protest songs," but they're resigned and ultimately fatalistic, like much Celtic folk music; even the closing, hymnlike "Ferry Me Over," about the elation of returning home after a long voyage, sounds pretty sad. In this context, Cunningham and Lunny's two reel melodies are well executed but almost incidental, and Lunny's "Níl Sí in Grá" ("She's Not in Love"), sung in Gaelic, is an airy ballad that sounds uncomfortably close to the bland, commercialized folk rock of Clannad. Compared with Stewart's "The Gold Claddagh Ring" or his antiwar "Young Jimmy in Flanders," it can't help but come off as slight.

As much as I admire the music of the Pogues—young men just slightly older than Stewart playing traditional music with a rock

'n' roll fervor—Pogues lead singer Shane MacGowan's coarse vocals can't match the beauty and wisdom of Stewart's. Yet the Pogues get the attention of the hip rock critics, land gigs at the big-name rock clubs, and have a major-label contract, while Stewart, Cunningham, and Lunny come to America only to play coffeehouses and see their albums released on indies like Shanachie. You'd probably be resigned, too.

David Browne

#### RICKY SKAGGS:

##### Family and Friends.

● Ricky Skaggs, prod. Rounder CD 0151. ◻ ◻

##### RICKY SKAGGS:

##### Live in London.

● Ricky Skaggs, prod. Epic EK 40103. ◻ ◻

RICKY SKAGGS DID NOT ARRIVE AT THE TOP OF the heap by accident. His country roots—growing up in a Kentucky "holler" and learning mandolin from his father at the age of five—nourish a devotion to tradition that Nashville couldn't shake. He started young, playing with the Stanley Brothers as a teenager and then with the Country Gentlemen. When bluegrass wouldn't sell, he played with Linda Ronstadt, Lowell George, and Emmylou Harris, but they moved in his direction, not vice versa.

*Family and Friends*, recorded in 1981, represents the best of all that's traditional in bluegrass. No one plays it better than Skaggs, and the family setting adds a homey touch that comes off as quite genuine in flavor. No frills are needed: Skaggs probably represents the pinnacle of technical performance on a whole wall of bluegrass instruments.

*Live in London* illustrates how Skaggs overcame the tension between his love of traditional music and the demands of modern life in show biz, country style: He just blew the audience away. A drummer and some electric instruments are gotten into the act, but it's all homegrown and perfect—almost too perfect. And this flawless hour comes complete with a fiddler (North Carolina's Bobby Hicks, also appearing on *Family and Friends*) who would have felt right at home in the British Isles 200 years ago. Music this clean can survive all sorts of swings in the market.

Speaking of keeping it clean, Ricky really does. While he hasn't (yet) had the impact of a Hank Williams, he'll never wind up drunk in Tootsie's or wiped out in the back seat of a Cadillac. A big label went out on a limb with this unreconstructed country boy, and he made good.

The secret ingredient is sheer talent. There could hardly be a surer, faster set of fingers or a purer country croon. But Skaggs is so smooth that we have to rely on Elvis Costello to provide the ragged edge, in a quick cameo during the encore on *Live in London*. With Ricky Skaggs, Success Story, that edge will always have to come from someone else, someone a bit more familiar with failure: failed love, failed anything that

supplies such a constant sense of realism to country music.

Christopher Munton

## JAZZ

#### BILL FRISELL AND VERNON REID:

##### Smash and Scatteration.

● David Breskin, prod. Rykodisc RCD 10006 (distributed by Rounder). ◻ Minor Music MM 005 (distributed by Polygram Special Imports).

AT ITS BEST, THE MUSIC ON THIS COMPACT DISC is like a brilliant conversation: witty, colorful, and full of surprises. It's clever but unpretentious, and it repeatedly falls into what Wallace Stevens called "sudden rightnesses," moments when individual lines come together with unexpected felicity.

Bill Frisell and Vernon Reid play acoustic and electric guitars and double on a variety of instruments. Frisell on Roland 300 guitar synthesizer and Electro-Harmonix, Reid on Roland and Korg synthesizers, banjo, and DX drums. (Reid renames these drums according to the sound of the composition. They are "techno-tribal" on "Dark Skin," "doom-oriented" on "Black Light," and, my favorite, "revisionist DX drums" on "Landscapes in Alternative History.") The pair can handle rock licks, and on "Dark Skin" they move with something of the swagger of Weather Report. But they do other things as well, offering hip versions of country music, of a clever kind of funk, and even, on "Last Nights of Paris," of a particularly tinselly-sounding nightclub music.

Written by Reid, "Last Nights" begins with him calling out, "Ready, Mr. Bill?" Reid then states the almost foolishly perky melody on banjo over Frisell's accompaniment on guitar; they exchange roles in the middle, bring the volume way down, play some goofy interchanges, and end on two surprising chords. "Landscapes in Alternative History" starts with a snappy, preset drum track, over which Frisell and Reid produce a succession of shimmering electronic sounds that introduce Frisell's electric guitar solo. Frisell plays the weepy line of "Amarillo, Barbados" (Merle Haggard would like the melody), and Reid's banjo predominates on "Size 10½ Sneaks," which reminds me of *Deliverance*, despite the definitely urban comments of Frisell's electric guitar.

Most of the tracks are overdubbed. The exceptions are Frisell's and Reid's solo pieces, on which each manages to create, through electronics, the sound of a myriad of instruments. But neither solo is successful: It's as if Frisell and Reid, absorbed in the possibilities that their gadgets offer, forgot that music has to have rhythm and shape as well as texture. There are no such lapses in the duets, which are bright and lively.

Originally recorded on analog tape and remastered digitally, this CD sounds exceptionally clear and accurate. Stereo separation, however, is exaggerated, resulting in an artificial sound that could only be produced in the studio.

Michael Ullman





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# Advertising Index

Army	86	Nakamichi USA Corp.	18, 19
Audio Technica U.S. Inc.	10	Nationwide Electronics	26
B & W	95	NEC Home Electronics (USA) Inc.	Cover III
Carver Corp.	46, 47	New York Wholesale Warehouse	122
Columbia House	9	Nonesuch Records	116
DAK Industries, Inc.	49-78	Opera World	22
DBX	91	Denon America, Inc.	80, 81
Design Acoustics	12	Pioneer Electronics of America	Cover II, I
Discwasher, Inc.	8	Planet Video	127
Delco	85	Polk Audio, Inc.	2, 3, 4, 5, 121
Ford Audio Products	43	Proton Corp.	34
General Electric	82	RCA	27
Illinois Audio	123	Sansui Electronics Corp.	Cover IIII
Independent Insurance	11	Sony Corp. of America	32, 33
International Hi Fi	122	Sony Corp. of America	16, 17
International Jensen, Inc.	23, 25	TDK Electronics Corp.	37
J&R Music World	93	Technics	14, 15
Koss	44	Tennessee Sound	114
Kyocera International, Inc.	13	Toshiba America, Inc.	26
LaBelle Camera & Stereo	101	Vandersteen Audio	26
Luskins Inc.	128	Wisconsin Discount	96
Maxell Corp.	30, 31	Yamaha	20, 21

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