TAPE RECORDING SPECIAL
HOW TO GET THE MOST OUT OF YOUR TAPE DECK
TAPE BUYING GUIDE
IN-WALL LOUDSPEAKERS
LAB TESTS: PIONEER CASSETTE DECK CARVER RECEIVER SHERWOOD CD PLAYER ...AND MORE
Come to where the flavor is.

Marlboro Red or Longhorn 100's — you get a lot to like.

SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.
There. In the oilcloth.
That 1½" diameter hole is actually the woofer in our full-range, bookshelf-sized AST-1 speakers.
Really. A clean 20,000Hz all the way down to a window-rattling 28Hz, without an oversized bass driver or big, clunky subwoofer to stash under a couch or behind a curtain.

Made possible by yet another Yamaha exclusive.

Active Servo Technology.
Our patented AST combines the superior imaging and point source characteristics of small-enclosure speakers with the superb bass response of large-enclosure speakers.
Giving you the largest possible sound in the smallest possible space.

Yamaha exclusive.
Active Servo Technology.
Our patented AST combines the superior imaging and point source characteristics of small-enclosure speakers with the superb bass response of large-enclosure speakers.
Giving you the largest possible sound in the smallest possible space.

Explained quite simply, we created a speaker, amplifier and processing cartridge system that provides negative impedance drive to help overcome inherent voice coil resistance, thereby mechanically damping the cone, so that even a slight vibration will excite the air in the enclosure, in essence creating an air-woofer, and...

On second thought, this is perhaps not the time or place for a full explanation.
The proper time and place is, however, as soon as you can get to your authorized Yamaha audio component dealer.
He'll give you a full explanation of the technology behind our remarkable new AST-1 full-range bookshelf speakers.
And if you're not sure you'll understand, you can always rely on two other remarkable pieces of technology: Your ears.

11¾" high. 7½" wide. 28Hz deep.
"They provide smooth, fast and incredibly well detailed sound."
“Polk’s RTA Tower Loudspeakers Combine Legendary Polk Performance with Contemporary Style.”

Big speaker performance with an efficient use of space.

RTA 11t
The RTA 11t is the finest conventional (non-SDA) speaker that Polk Audio manufacturers. Its extremely high power handling (250 watts) and high efficiency (90dB) provide remarkable dynamic range from both large and small amplifiers. The RTA 11t utilizes the same technologically advanced fluid-coupled subwoofer design found in Polk's flagship model. Dual 8" sub-bass radiators are coupled to two 6½" mid-bass drivers, resulting in a fast, powerful, deep, and ultra-accurate bass response, without the boomy, undetailed sound of large woofer systems.

RTA 8t
In a slightly smaller package, the RTA 8t offers the same driver complement as the larger, more expensive RTA 11t, and thus shares its benefits of superior imaging, musicality, and detail.

Both Polk RTA series loudspeakers achieve the extremely rare combination of good looks and state-of-the-art performance. The tall, elegantly slender, and deep "tower" design cabinets allow for substantial internal volume for high efficiency and powerful bass, while requiring less than one square foot of floor space. The small baffle surface area around each driver minimizes diffraction (sonic reflections), thereby insuring outstanding imaging and low coloration.

Positioning the 1" silver-coil dome tweeter between the two 6½" trilaminate polymer bass/midrange drivers achieves what is called "coincident radiation." This means that both the mid- and high-frequencies appear to radiate from the same place on the baffle resulting in perfect blending at the critical crossover point. (See illustration, below).

Polk RTA speakers have an uncanny ability to perfectly reproduce the human voice, pianos, guitars, and every other instrument whose faithful reproduction demands superlative midrange and high-frequency performance. Bass and percussion instruments are accurately reproduced with full visceral power and realism, without the heaviness, boominess, or lack of detail that plague lesser designs.

The discriminating listener who seeks state-of-the-art performance and design will find the quintessential combination of both in Polk's RTA series loudspeakers.

THE PRINCIPLES OF COINCIDENT RADIATION

The perceived source of sound of two identical drivers is centered in the area between them.

In the Polk RTA loudspeaker, the tweeter is positioned at the acoustic center of the drivers.

The benefit of coincident waveform propagation resulting in precise imaging, uniform vertical dispersion and startling midrange accuracy.

Where to buy Polk Speakers? For your nearest dealer, see page 128.
Finally, a CD player that reproduces all of the music, not just bits and bytes of it.

Adcom’s new GCD-575 Compact Disc Player has been worth waiting for. Now there’s a CD player with analog audio circuits as advanced as its digital stages. Featuring a no-compromise Class “A” audio section, the GCD-575 is the first affordable CD player that delivers the long anticipated technical benefits of digital sound. So visit your authorized Adcom dealer and listen to all of the music... not just bits and bytes of it.
SHOW NEWS

The 1989 International Winter Consumer Electronics Show in Las Vegas marked the beginning of a year-long celebration of the fiftieth anniversary of television broadcasts in the United States. Among the most dramatic displays at the show was an audio/video demonstration of high-definition television featuring Barco Electronics projection systems with Fosgate surround-sound equipment.

Nakamichi made news with the introduction of the Model 1000 digital audio tape (DAT) recording system. In addition to 48- and 32-kHz capability, the Model 1000 will permit recording at a sampling frequency of 44.1 kHz, which makes possible direct digital copying of compact discs. Price: about $10,000.

Sony demonstrated new integrated circuits for digital signal processing, which will be incorporated in a range of future Sony hi-fi products. At the leading edge of infrared technology, Koss introduced an improved version of its cordless headphones.

A surprising number of exciting new speakers were introduced in every price range by such manufacturers as Allison, Altec Lansing, Celestion, Focus, Pioneer, Polk, Sumo, and Yamaha. Especially notable were Sumo's new planar speakers ($3,000 a pair) and Pioneer's TZ series of speakers made in America to complement Pioneer's Elite line of electronics. Prices are $1,800 a pair for the TZ-7's and $4,000 a pair for the TZ-9's.

When the final figures are in, the consumer electronics industry's 1988 sales are expected to total $30 billion. Experts at Winter CES confidently predicted 5 percent growth for 1989.

FOR THE ROAD

Lexus, Toyota's new luxury division, will offer a factory-installed Nakamichi audio system as an option in its top-of-the-line, V8-powered LS 400 sedan, scheduled to go on sale this fall. A new biamped speaker system is employed in the Ford/JBL stereo system offered in 1989 Ford Thunderbirds and Mercury Cougars. An AM/FM cassette receiver is standard with the system, and a CD player is available as an option. Delco/Bose Gold Series sound systems—consisting of a receiver, a cassette deck or CD player, and four speakers—are standard in the 1989 Cadillac Sevilles, Eldorados, and DeVille/Fleetwoods. A console DAT player is optional.

MUSIC NOTES

Michael Jackson's full-length Moonwalker film, shown as a theatrical feature in Europe, Latin America, and Japan, has gone straight to home video in the U.S. Both the videocassette and the videodisc are encoded for Dolby Surround. RCA's Dirty Dancing soundtrack is the first album since Bruce Springsteen's Born in the U.S.A. to be certified by the Recording Industry Association of America for U.S. sales of ten million copies. RCA Red Seal has just released a live recording of the "Musicians for Armenia" concert given in London late last year by pianist Barry Douglas, flutist James Galway, violinist Cho-Liang Lin, cellist Matislav Roipchovich, and others. Proceeds go to the British Red Cross Armenian Earthquake Appeal. Mobile Oil and Tandy/Radio Shack will co-sponsor radio and TV coverage of the Van Cliburn Piano Competition in Fort Worth, May 27 through June 11.

MOVING MARKETS

European loudspeaker manufacturer Tannoy has re-entered the North American market with a line of eighteen speaker systems. Featuring the sixty-two-year-old company's dual-concentric driver technology, the speakers range in price from $300 to $10,000 a pair. Akai products have been pulled from the U.S. market by parent company Mitsubishi, which cited production shortages and the fall of the dollar against the yen. Mitsubishi will honor Akai warranties and supply replacement parts for seven years through its U.S. service centers. Akai products will continue to be sold in Japan and Europe.

RECORDABLE CD'S

The manufacturer of Triad tape cassettes, Taiyo Yuden of Japan, has demonstrated recordable blank CD's. The discs, which can be recorded only once, are scheduled for introduction later this year, but for professional use only. The company has stressed that it will not market recordable CD's to consumers in the U.S. until copyright issues are resolved. Taiyo Yuden products were formerly distributed in the U.S. by Harman America, but they will now be marketed directly by the manufacturer.

BIG DEALS

Britain's Thorn-EMI is buying the rights to some 250,000 song titles from the U.S. group SBK Entertainment World for $336 million. The catalog includes Over the Rainbow and the Pink Panther theme as well as songs by such artists as Marvin Gaye and Tracy Chapman.

CBS Records has bought a leading country-music publisher, Tree International, for more than $30 million. Tree's catalog of 35,000 songs includes Elvis Presley's Heartbreak Hotel, Roger Miller's King of the Road, and country favorites by Willie Nelson, Merle Haggard, and Buck Owens.
The Brains.
Carver's new CT-Seven Remote Control Preamplifier Tuner with Asymmetrical Charge Coupled FM Detection and Sonic Holography.

The Brawn.
Your choice of four high power advanced Magnetic Field amplifier designs.
Power and finesse. They've always been important factors in a serious listening system. Now there's a new way to achieve both without over powering your budget.

Our new CT-Seven preamplifier/tuner combines a Sonic Holography* preamplifier and Asymmetrical Charge-Coupled FM Detection tuner into one convenient component.

It makes beautiful music with our whole line of Magnetic Field Power amplifiers. Including the new M-4.0t with the same transfer function and power output as Bob Carver's $17,500-pr. ultra-esoteric Silver Seven monoblock amplifiers.

The CT-Seven as an audiophile preamplifier: Like Carver's fine separate preamplifiers, the CT-Seven is designed as a "straight wire with gain," capable of perfectly passing input signals without adding or subtracting any musical nuances.

It includes a meticulously engineered, ultra-low noise phono stage that flawlessly duplicates the theoretical RIAA equalization curve.

The CT-Seven as a complete sound control center: From the comfort of your listening chair you can choose from six sound sources including dual tape monitors, CD input and video/auxiliary inputs (suitable for video sound or DAT). Unlike most remote volume adjustments which use distortion-inducing electronics, the CT-Seven employs a motorized volume control for smooth control and smoother sound quality. Also included are useful 3-band tone controls, mono switch, loudness equalization and a studio-quality headphone amplifier.

The CT-Seven as your passport to musical reality: The CT's Sonic Holography® Generator is capable of redefining your perception of music by recreating the sound stage and 3-dimensional spatial characteristics of a live performance. According to some of America's top reviewers, Sonic Holography® "...seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers. The effect strains credibility."

And you can create it from any stereo record, tape CD or even FM broadcast. With your existing speakers. At the touch of a remote button.

The CT-Seven as a high performance quartz synthesized FM tuner: You've simply never heard FM until you've heard it through the Carver Asymmetrical Charge-Coupled FM Detector circuit. Multipath distortion, interference and distant station noise are dramatically reduced. Weak stations emerge into dramatic clarity. Yet stereo separation, space, depth, and ambience were not only retained, but seemingly enhanced by the lack of background noise.

Choose 8 FM and 8 AM presets by remote control. Scan the broadcast band automatically or manually. With the CT-Seven's ACCD circuit on, you'll discover "new" stations which were previously unlistenable.

The CT-Seven's power partners: Only Carver gives you four high power amplifier choices from 140 watts to 375 watts per channel. Each is perfectly matched to the CT-Seven. And each uses Carver's cool-running Magnetic Field Technology which dispenses with bulky power supplies and power-wasting external heat sinks... yet which is so rugged it's used in the world's largest touring professional sound systems.

Choose from the new "modestly-powered" M-0.5t (140 watts per channel RMS 20-20kHz both channels driven into 8 ohms with less than 0.1% THD), the M-1.0t (200 watts/ch. per channel RMS 20-20kHz both channels driven into 8 ohms with less than 0.15% THD), M-500t (250 watts per channel RMS 20-20kHz both channels driven into 8 ohms with less than 0.15% THD), or the new M-4.0t (375 watts per channel RMS 20-20kHz both channels driven into 8 ohms with less than 0.5% THD).

Hear brains and brains together at your Carver dealer: Switch the CT-Seven and the most expensive tuner in the room to hear Asymmetrical Charge-Coupled FM Detection work its magic. Put on your favorite CD, press the CT-Seven's Sonic Holography* remote button and feel the sound room "disappear." Turn up the volume to live performance levels and discover the impact of true dynamic headroom.

And then get ready for another pleasant experience when you discover what a super value the CT-Seven and Carver power amplifiers are.

For more information or the dealer nearest you, call 1-800-443-CAVR.
P.P. and "Peep Show"

In regard to Parke Puterbaugh's January review of "Peep Show" by Siouxsie and the Banshees—does Mr. Puterbaugh actually get paid for this? My poor thesaurus has a headache! I never realized how many adjectives one person could utilize in a single phrase.

ROGER SCHOLTEN
Chicago, IL

I have been a subscriber to STEREO REVIEW for over four years, reading every issue cover to cover. Parke Puterbaugh's review of "Peep Show" in the January issue is the best piece of writing you have published in that time. What I want to know is, where did Mr. Puterbaugh study rhetoric?

JAMES HALLEMMAN
Royal Oak, MI

Cassette Deck Features

Why is it that today's cassette decks don't have microphone inputs? Just a few years ago, if you bought a cassette deck you got two microphone jacks on the front panel just as sure as you got an on/off switch. Today they're as rare as windwings on cars. It seems the only decks that have mike inputs are either the off-brand ones or the very bottom-of-the-line models.

W. B. RHODES
San Francisco, CA

There are no two cassette decks in the world whose head azimuth alignment will match perfectly, and the quality of the sound varies considerably from deck to deck as a result. Unless you play a tape only on the deck that recorded it, you need to have a separately adjusted deck for every tape you borrow or buy.

Head azimuth is as important today as the focusing ability of camera lenses. It really is the focus of sound. And yet manufacturers make high-priced decks with all kinds of selling features except the most important one: user-adjustable azimuth. Only Nakamichi's Dragon has automatic azimuth adjustment, and only its CR-7A has convenient manual adjustment. It's about time all cassette-deck manufacturers paid attention to this issue.

ANTHONY HUDAVERDI
Santa Monica, CA

Looking for CD's

After reading Glen Bartholomew's comments in January "Letters," I realize that I am not alone in feeling frustrated when it comes to finding lesser-known music on CD. I've recently journeyed into the wonderful world of contemporary blues, reggae, and r--b. If you take a stroll through a typical record store looking for something in those categories, not only do you find a scant selection in LP form, but CD's are even more scarce.

It's all fine and well that the RIAA says CD's outsold LP's by 26.9 million copies in the first half of 1988, but how many millions of those CD's were by mainstream pop artists like Michael Jackson, U2, and George Michael? I often wonder what the RIAA's statistics would look like if they included British bands, alternative rock artists, and others.

DENISE ALEXANDER
Grover City, CA

In a letter to STEREO REVIEW that was published in January, I expressed some concern about my inability to get hold of rhythm-and-blues CD's in record stores. I also said that at just about every record store I've been to (not every one in the country), vinyl seems as popular as ever.

Your reply quoted RIAA statistics on relative sales of CD's and LP's, but you did not give a breakdown by music category. The 70.4 million CD's sold might just as well be polka music.

GLENC. BARThLOMEw
Brooklyn, NY

I would like to inform my fellow New Yorker Glen Bartholomew that if he has a problem finding r--b CD's, it's because he hasn't been looking hard enough. I've found a substantial number of r--b CD's, even some of recordings from the early Seventies.

STEVEN RAMOS
Bayside, NY

Unfortunately, neither the RIAA nor anyone else can provide a national breakdown of CD sales by category. Ms. Alexander is probably correct in assuming that the vast majority of CD's sold are of records by "mainstream pop artists." We quoted the RIAA statistics only in response to Mr. Bartholomew's suggestion that "vinyl seems as popular as ever," which is demonstrably false overall, even if some categories are better represented than others in CD sales.

Car Stereo Show-Offs

I am outraged at the Jensen ad on page 4 of the January issue ["Jensen Shatters," for car speakers]. How can they encourage this type of childish behavior? With sound that loud, the driver most certainly cannot be concentra-
The Ford JBL Audio System for Taurus

Crystal-clear highs. Deep resonant basses. Music the way it should sound. With every tone reproduced in rich, full detail. In the extraordinary system that set a whole new standard for automotive sound.

Developed in America by Ford, one of the largest car audio manufacturers in the world, and JBL, the leader in professional recording studio loudspeakers. Delivering the high performance you've been looking for.

140 watts of total system power for breathtakingly-pure sound. Ten speakers precisely positioned for optimum stereo imaging.

The optional Ford JBL Audio System is also available in Mercury Sable. Hear it for yourself. At your Ford or Lincoln-Mercury dealer.
The age of CD sound is here—and you have a practical new way to find the CDs you want. As your introduction to the CBS Compact Disc Club, you can choose any 8 CDs listed in this ad for $6.95. It's a chance to get a ninth selection for free—plus shipping and handling. You simply agree to buy 6 more CDs (at regular Club prices) in the coming three years—and may cancel your membership at any time after doing so.

How the Club works: About every four weeks (13 times a year) you'll receive the Classic Rock from the Fifties, Sixties and Seventies Selection of the Month ...plus new hits and leftovers from every field of music. In addition, up to six times a year, you may receive Special Selections, usually at a discount off regular Club prices, for a total of up to 19 buying opportunities.

If you wish to receive the Selection of the Month, you need do nothing—it will be shipped automatically. If you prefer on alternate selection, or none at all, fill in the response card always provided and mail it by the date specified. You will always have at least 10 days in which to make your decision. If you ever receive any Selection without having 10 days to decide, you may return it at our expense.

The CDs you order during your membership will be billed at regular Club prices, which currently are $12.98 to $15.98—plus shipping and handling. (Multiple-unit sets may be somewhat higher.) After completing your enrollment agreement you may cancel membership at any time; if you decide to continue as a member, you'll be eligible for our money-saving bonus plan. It lets you buy one CD at half price for each CD you buy at regular Club prices.

10-Day Free Trial: We'll send details of the Club operation with your introductory shipment. If you are not satisfied for any reason whatsoever, just return everything within 10 days and you will have no further obligation. So why not choose 8 CDs for $14.95 right now?

ADVANCE BONUS OFFER: As a special offer to new members, take one additional Compact Disc right now and pay only $6.95. It's a chance to get a ninth selection of a super low price! Please complete the coupon below and return it to us with your payment.

CBS COMPACT DISC CLUB B: Terre Haute, IN 47819

1989 CBS Records Inc.
trating on the road! Nor is there any mention of ear damage or of disturbing one's neighbors. If I can hear it outside of the vehicle, it is too loud! Besides, bass that loud is unnatural, a distortion. It is not high fidelity; it is merely absurd.

E. BUELL
Los Angeles, CA

CD Player Listening Tests

Ken C. Pohlmann's "Six Top CD Players: Can You Hear the Difference?" in December was interesting, but as a report of supposedly scientific research it was flawed.

Although Pohlmann and his listening panel used the widely accepted ABX comparator system, the listeners were aware at any given time which CD players they were comparing. Many would therefore argue that the test was not a bona fide double-blind one.

Moreover, even if one accepts the figures produced, Mr. Pohlmann's conclusions are questionable. He says, "With a fade-to-silence test tone, all listeners were able to hear significant differences. . . . With dynamically variable music . . . our statistics suggest . . . critical listeners can hear differences, but only some of the time and only under carefully controlled conditions." No argument so far, but then there is something of a leap in logic when he says that "Listeners who still feel compelled to voice equipment preferences apparently have the weight of double-blind listening tests to back them up."

Wow! It would have been more to the point had he said something like: "Therefore, under almost any practical, real-world circumstances, listeners would have no audio-related basis for preferring one of the tested CD players over another. That leaves such considerations as appearance, price, convenience features, durability, and ease of operation as rational criteria for selection or rejection."

KLAUS HALM
East Point, GA

The listening tests on high-end CD players showed convincingly that differences in sound can be perceived, but the report suffered from the common failing of trying to read more into the responses than was valid. The test facility obviously worked well in revealing differences between players, but it was not adequate for making judgments on their relative quality. The "better" players may simply have been compensating for the characteristics of one model of speaker operating in a highly damped room.

Older readers will recall the practice of selecting a cartridge to offset the deficiencies of a speaker—a "bright" cartridge with a "dull" speaker, for example—and the same thing may have occurred, on a more subtle level, in these listening tests. If any quality evaluations were going to be reported, the comparisons should have been repeated with another brand of speaker and with some of the fiberglass baffling removed. Showing that A is not identical with B is different from showing which is better.

My guess is that an expanded listening regimen would have blurred the differences.

CHARLES W. SIMONS
South Dennis, MA
Ken Pohlmann replies: In answer to Mr. Halm, the test was indeed double blind. It attempted to ascertain whether a difference between two sources existed, knowledge of the source pairs is immaterial. Moreover, Mr. Halm is certainly free to disagree with my conclusions regarding the relevance of subjective responses. I merely followed the comments of those who actually participated in the test and tried to be neutral.

Mr. Simons is certainly correct in pointing out that all conclusions are valid only under testing conditions. Different loudspeakers, for example, may cause listeners to favor different players. Of course, the basic intent of the test, to show whether audible differences exist, is not affected by the choice of reproduction equipment, as long as it does not impede the ability to hear differences.

The Sony Shuffle

As a recent purchaser of a Sony CDP-C70 compact disc changer, I was taken aback to discover that it would repeat selections in the multidisc shuffle-play mode instead of removing them after an initial play. Sony's district service office assured me that the unit was defective, and I took it in for repair. It had been in the shop five days when I received the December STEREO REVIEW, which contains a letter from reader R. B. Ormsby stating that the repeats in the shuffle mode are normal.

I called Sony and the repair shop again, and both assured me that this was abnormal behavior. A recent service bulletin from Sony outlined repairs to correct the problem.

First Issues

I was twenty-two when I bought the first copy of your magazine in February 1958. It was indeed your first issue, then called HiFi and Music Review. From that day on, I have never missed an issue. Most of my life I have never subscribed to another magazine. That shows you the importance your publication has had to my life. It has guided me through thirty years of, first, a hobby with hi-fi, then a passion for music.

Fine music well reproduced in my home is as necessary to me as food and warmth. Thank you for the influence you have had on my life and for the issues that I am yet to enjoy.

For the sake of space, the time has come for me to part with my complete collection of STEREO REVIEW. I don't have the heart to trash it. Do you have any other alternatives?

Rex E. Bills
Portland, OR

STEREO REVIEW's own office sets are pretty space-consuming, too, and we really don't have room for another. If you would like to give Mr. Bills's collection a new home, please write to him at P.O. Box 25215, Portland, OR 97225.

Correction

On page 52 of the February issue we misidentified a picture of the Onkyo Grand Integra M-510 power amplifier as the M-508. The M-510 is rated for 300 watts per channel and lists for $4,500. We regret any confusion the error may have caused.

Just cruisin' with my Sherwood.

It's the same excitement I felt when I got my first set of wheels. Only this time it's not a new car.

It's a new Sherwood.
Awesome sounds. Power. Clarity.
Radical good looks.
Compared to my old car radio, the music really comes alive.
And the price didn't kill me, either.
So that's how it goes:
I turn on my Sherwood.
Then it returns the favor.
It could happen to you! The exceptionally clean and acoustically pure sound of Pyle Driver® car stereo speakers makes driving so enjoyable that time seems to fly by.

Now you can experience Pyle's superior sound reproduction in a powerful new series of high fidelity woofers. Pyle PRO woofers use only high quality components with abundant overload capabilities to give you a powerful combination of true musical quality and sheer sonic energy.

American-made Pyle Driver® PRO woofers meet and exceed the demand of today's digital technology with these state-of-the-art features: polymer laminate cones, double-layered PolyFoam surrounds, cross-laminate spiders, high temperature PolyThermal Kapton™ voice coils, vented pole pieces, massive motor structures, and heavy duty housings. Pyle PRO woofers have been designed by car stereo enthusiasts for car stereo enthusiasts.

For maximum power and performance, combine Pyle PRO woofers with Pyle Digital Demand amplifiers — then "Crank It Up" and let time fly by.
NEW PRODUCTS

**Nakamichi**

The Nakamichi CDP-2 ("2A" in the U.S. and Canada) compact disc player uses the company's multiregulated power supply with isolated-ground topology, quadruple-oversampling digital filters, and a three-pole, linear-phase analog output filter. Its "glitch-free" digital-to-analog converters are said to prevent noise generation during the conversion process. Features include one-touch programming, memory call, dual-speed cueing, repeat play, and a twenty-four-key wireless remote control. Price: $529. Nakamichi America, Dept. SR, 19701 S. Vermont Ave., Torrance, CA 90502.

**Parasound**

The Parasound P/FET-900 is a fully discrete-component preamplifier that uses sixty-six low-noise power transistors in Class A mode, field-effect transistors in the phono and line stages, and CMOS logic switching modules. Other features include a variable loudness control, tone defeat, selectable mono mode, and tone controls that hinge at 85 and 12,000 Hz instead of the more common 100 and 10,000 Hz. There are connections for two tape decks with dubbing in either direction independently of the selected program source. All jacks are gold-plated. Price: $395. Parasound Products, Dept. SR, 950 Battery St., San Francisco, CA 94111.

**Technics**

The Technics SL-P999 CD player uses 20-bit resolution and eight-times oversampling. It has four digital-to-analog converters, two for each channel, and uses Class AA circuitry to improve both linearity and fidelity. The error-correction system will interpolate missing data values even when there are up to eight consecutive dropouts. Features include Peak-Level Search, which finds and repeats a 6-second segment containing the highest output peak so the user can set precise recording levels; Edit Guide, which calculates which tracks on a CD will best fit on a standard tape length; random play; and shuttle search. There is an optical digital output, and a forty-three-function remote control is included. Price: $599.95. Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

**New England Audio Resource**

The AES-2 is a two-way speaker system from New England Audio Resource (NEAR) that is said to be waterproof and therefore suited for year-round outdoor use. The 8-inch woofer and 2-inch midrange/tweeter have aluminum cones and neoprene-rubber edge surrounds. The speaker cabinet has a die-cast aluminum frame and a fiberglass-laminated finish. Recommended amplifier power is 25 to 150 watts per channel. Dimensions are 20 inches high, 13 inches wide, and 12 inches deep at the bottom. Price: $580 a pair. New England Audio Resource, Dept. SR, 1450 Hanover Ave., Meridian, CT 06450.
NEW PRODUCTS

**Revox**

The Revox B200-S series includes (top to bottom in photo) the B226-S CD player, the B250-S integrated amplifier, the B260-S tuner, and the B215-S cassette deck. The CD player features 16-bit resolution, quadruple oversampling, a headphone amplifier, and digital outputs. The amplifier is rated to deliver 150 watts per channel into 4 ohms and has six inputs with independently adjustable levels, selectable output limiting for two pairs of speakers, and simultaneous preamp and power-amp outputs for use in multiroom installations. The tuner has sixty FM presets that can be divided into ten subgroups for scanning, selectable antenna inputs, and six filters in the IF circuitry to improve selectivity. The cassette deck can store bias settings for six different tape formulations and has Dolby B, Dolby C, and Dolby HX Pro. Prices: B226-S, $1,895; B250-S, $2,500; B260-S, $2,500; and B215-S, $2,800. Studer Revox America, Dept. SR, 1425 Elm Hill Pike, Nashville, TN 37210.

**Proton**

Built for Proton by Aphex Systems, the SD-1000 logic-steering surround-sound decoder is said to provide separation of at least 40 dB between any two adjacent channels, 58 dB between opposite channels. The Dolby-compatible decoder can be used with as few as three speakers or as many as six, plus a subwoofer. A Dialogue Scatter Reduction feature is said to reduce improper routing of sibilance with poorly recorded material. Three mode settings—Cinema, Music, and Stereo Bypass—tailor the decoding process to the source material. Frequency response is rated as 12 to 85,000 Hz ± 1 dB, signal-to-noise ratio as 80 dB, and dynamic range as 100.5 dB. Most controls are on the supplied remote unit only. Price: $999. Proton Corp., Dept. SR, 737 W. Artesia Blvd., Compton, CA 90220.

**NEC**

The CD-830DS compact disc player, part of NEC’s Renaissance line, features sixteen-times oversampling and two digital-to-analog converters for each channel. The dual converters are said to eliminate phase shift and reduce cross-talk. Other features include programming for up to twenty-four tracks, variable-length intro scan (1 to 60 seconds), and either track or phrase repeat. Besides the analog output, the CD-830DS has both optical and coaxial digital outputs. Price: $999. NEC Home Electronics, Dept. SR, 1255 Michael Dr., Wood Dale, IL 60191.

**Soundcraftsmen**

The Soundcraftsmen Pro-Power One power amplifier is rated to deliver 205 watts per channel into 8-ohm loads from 20 to 20,000 Hz with no more than 0.05 percent total harmonic distortion. Into 4 ohms, the rating is 300 watts per channel. It uses MOSFET amplification stages and no current limiting. Clipping indicators for each channel are triggered when waveform distortion is detected, but the amplifier will continue to operate even under low-impedance conditions. Price: $579. Soundcraftsmen, Dept. SR, 2200 S. Ritchey, Santa Ana, CA 92705.

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18 STEREO REVIEW MARCH 1989
To get the ultimate bass, you need the finest subwoofer: Velodyne. Our advanced High Gain Servo (HGS) technology creates deep bass with incredibly low distortion and high output.

Here's what the people who listen for a living say:

**It's a cliche these days to say that something is awesome, but it's certainly an apt term here . . .**

The ULD-15™ is just hitting stride at frequencies where standard speakers are beginning to run out of steam, which is just what you want a subwoofer to do.

The average distortion throughout the system's working range to above 100Hz stays below 1/2 percent until the output reaches about 95db SPL (sound pressure level), which is already better than most full-range speakers can manage. Even at 100 db SPL, the ULD-15 averages less than 1 percent total harmonic distortion (THD). This is an outstanding achievement.

Though the satellites we used aren't fairly described as sow's ears, the silk-purse sound we heard with the added ULD-15 was a revelation.**

**Impressive as the specifications and measurements for the Velodyne ULD-12™ are, they are overshadowed by its performance in a music system . . .**

We had expected to find a major improvement when using the ULD-12 with smaller speakers, ones whose lower limit was perhaps 45 to 60Hz. What we did not expect was the tremendous improvement it provided even with the largest, most bass-potent systems at our disposal, which went down to 30 or 35Hz without external help. Possibly the very low distortion of the Velodyne system was responsible for the improved bass we heard, or perhaps the fact that its output could be boosted above normal woofer levels, compensating for their natural rolloff at the lowest frequencies. Whatever the explanation, we are convinced that there are very few speakers whose low-bass performance could not be improved by adding a ULD-12 to the system.

It is an attractive, compact, intelligently designed product. And be warned—it can be habit forming!!

**If you want true bass—bass with power, depth, and clarity, you want a Velodyne. And that's the bottom line.**

Julian Hirsch
***Stereo Review**

Velodyne Acoustics, Inc.
1746 Junction Ave. San Jose, CA 95112

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UNLESS YOUR WOOFERS CAN
ACCELERATE TO 80 MPH,
STOP ON A DIME, AND GO
INTO REVERSE INSTANTLY,
YOU'RE DRIVING THE
WRONG SPEAKERS.

Most loudspeakers are not built to be driven. Push them too hard and they can overheat, fall out of alignment, or simply breakdown.

Altec Lansing’s ‘Voice of the Highway’ loudspeakers however, are built to withstand even the toughest driving conditions.

From the very first note, our woofer cones can flash forward at between 70 to 80 mph, stop and reverse, up to 5000 times a second.

Most woofers just can’t handle this kind of pressure. But because we mold our cones from a woven carbon fiber cloth, they can move like lightning without losing their shape. Producing music that sounds just the way it was meant to sound.

Rich, pure, and distortion free.

Standard features also include polyimide voice coils that resist distortion even at high operating temperatures; unique double dampers to maintain perfect alignment; and a Thermo-Isolated speaker frame that protects your speaker from wide temperature variations.

And unlike any other manufacturer, our speakers come with a five year warranty* when professionally installed.

For your nearest dealer and information, call 1-800-ALTEC 88.** Then select your favorite track, and come in for a test drive.

*See our 5 year limited warranty at your authorized Altec Lansing dealer. **In PA, call 717-296-HIFI; in Canada, call 416-496-0587, or write to 265 Hood Road, Markham, Ontario L3R 4N3.
NEW PRODUCTS

Scosche Industries

The Scosche PDS-1 Portable Disc Shuttle is a table-type tray that mounts a portable CD player under a car’s dashboard. The adjustable suspension system is said to prevent skipping or mistracking even with rough road conditions. The PDS-1 is constructed of automotive-grade injection-molded ABS plastic and die-cast aluminum. It uses a swivel mount, and a universal mount is included. Price: $29.95. Scosche Industries, Dept. SR, 5160 Gabbert Rd., Moorpark, CA 93021.

Circle 128 on reader service card

Philips

Philips’s first CD-video combi-player, the CDV488, can play conventional CDs, 3-inch CD’s, CD-V’s, double-sided 8- and 12-inch videodiscs, and the new 8-inch single-sided videodiscs. The player has a 16-bit, quadruplear-oversampling digital filter and dual 16-bit digital-to-analog converters. Features include favorite track selection, twenty-track/chapter programming, optical and electrical digital audio outputs, and CX noise reduction for analog recorded sound. There is a direct video output as well as an S-type output for use with a Super VHS-capable monitor. Included is a universal programmable remote control that can operate up to ten components. Price: $1,300. Philips Consumer Electronics, Dept. SR, One Philips Dr., P.O. Box 14810, Knoxville, TN 37914.

Circle 130 on reader service card

Tandberg

Tandberg’s Model 3031A FM tuner, shown here (bottom) with the 3036A power amplifier and 3038A preamplifier, can store up to sixteen stations in memory and has both manual and automatic tuning. Dual-gate MOSFET’s are used in the RF stages for good linearity, low noise, and wide dynamic range. Four tuned IF circuits are said to prevent mirror-image interference and other out-of-band distortion. The stereo 50-dB quieting sensitivity is rated as 20 μV, frequency response as 30 to 15,000 Hz ± 0.5 dB, adjacent-channel selectivity as 14 dB, and capture ratio as 0.9 dB. Price: $1,200. Tandberg of America, 122 Dupont St., Plainview, NY 11803.

Circle 131 on reader service card

Sharp

The JC-568 is Sharp’s top-of-the-line personal stereo. It has digital-synthesis tuning, five FM and five AM presets, Dolby B, and autoreverse. A three-band graphic equalizer is built in, and a pair of collapsible stereo headphones is included. Price: $139.95. Sharp Electronics Corp., Dept. SR, Sharp Plaza, Mahwah, NJ 07430-2135.

Circle 129 on reader service card
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We also extend our thanks to the professional studios, musicians and audio reviewers in North America and other countries around the world who now use Energy exclusively as their reference monitors.

Energy's brilliance of sound is matched only by the brilliance of the cabinets which contain it. Furniture so rich and so varied it challenges the master craftsman - custom matched hand laid hardwood veneers in lustrous oak, American black walnut, rich rosewood, natural teak, red high gloss mahogany and high gloss black grand piano.

When you choose your next speaker system, may we suggest you take the same care. Broaden your musical horizon with Energy 22 Reference Connoisseur. Also available at more modest prices the Energy 22 Pro Monitors and Energy ESM models.

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Pamela Ronstad/Harris: Trio • To Know Him Is To Love Him. etc. Warner Bros 148044
Chicago 19: • Don't Wanna Live Without You. Heart In Pieces. etc. Reprise 154404
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Jazz CD Sampler...67 minutes of jazz...15 classic performances by Ella, Armstrong, Basie, Getz, etc.
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Ora Electronics

The OFC Titanium cables from Ora, part of its Studio Spec line of accessories, feature a 99.996-percent oxygen-free copper core, a polyethene dielectric, an oxygen-free-copper braided shield, and Titanium-vinylco-shielded connectors with gold-plated contacts. Cables are tested for low capacitance to insure consistent performance. Dual-connector audio cables are available in 0.5- and 2-meter lengths. Single video cables and triple-connector audio/video cables are available in the same lengths. Prices range from $21.99 to $59.99. Ora Electronics, Dept. SR, 20120 Plummer St., P.O. Box 4029, Chatsworth, CA 91313. Circle 133 on reader service card

Altec Lansing

Altec Lansing has upgraded its Model 201 speaker, part of a general revamping of its speaker line. Now the Model 205, the speaker has been changed from a two-way to a three-way acoustic-suspension system. It has an 8-inch carbon-fiber-cone woofer, a 3½-inch compression midrange, and a 1-inch dome tweeter. Frequency response is rated as 50 to 20,000 Hz ± 3 dB and sensitivity as 91 dB. Impedance is given as 6 ohms. Dimensions are 22 x 12 x 9 inches. Price: $550 to $600 a pair. Altec Lansing, Dept. SR, Milford, PA 18337. Circle 134 on reader service card

Sonance

Sonance has introduced an upgraded version of its Model II two-way in-wall speaker system. It has the same 6-inch woofer, but the original tweeter, with a four-layer voice coil, has been replaced with a 1-inch ferrofluid-damped poly-carbonate-dome tweeter. Also new is a first-order electrical crossover that utilizes the tweeter's damping and adds a choke and capacitor combination to the signal path. The nominal crossover point is 3,000 Hz. Price: $245 a pair including mounting brackets. Sonance, Dept. SR, 32992 Calle Perfecto, San Juan Capistrano, CA 92675. Circle 136 on reader service card

Certron

Certron's Amalfi division has introduced three new Smartfile storage units, the Audio-28 (shown) for tape cassettes and the CD-40 and CD-20 for compact discs. The boxes are made of black plastic with clear-plastic hinged lids for viewing titles. They can be stored upright, placed inside drawers, or hung on walls. The model numbers indicate the respective storage capacity. Prices: Audio-28 and CD-20, $14.95; CD-40, $24.95. Certron Corp., Dept. SR, 1651 S. State College Blvd., Anaheim, CA 92806. Circle 135 on reader service card

Ensoniq/Bose

The Bose Acoustic Wave speaker technology has been applied to two models of the Ensoniq electronic piano. The AWP-3000 and the AWP-5000 (shown) both incorporate a 25-watt-per-channel equalized amplifier and speakers by Bose; inputs for a turntable, cassette deck, or CD player enable the pianos to double as stereo sound systems. The AWP-5000 also has a floppy-disk-based digital recorder that can store and play back up to ten four-part songs and a MIDI (musical instrument digital interface) circuit, which enables it to control compatible instruments or to interface with a personal computer. Prices: AWP-3000, $2,495 to $2,995; AWP-5000, $2,995 to $3,495. Ensoniq, Dept. SR, 155 Great Valley Pkwy., Malvern, PA 19355. Circle 137 on reader service card
Years ago, I was working my way through med school and bought my first system. The only place I splurged was on speakers. I bought a pair of KLIPSCH® HERESYs,* but to save money I got them in unfinished wood cabinets.

Now I'm a doctor and, frankly, making some bucks. So I recently went back to the same dealer and dropped a bundle for all new electronics and a different brand of speakers.

When I set up the new equipment, I wanted to hear the improvement, so I hooked up the old HERESYs next to the new speakers. I was quickly disappointed. The old HERESYs sounded a lot better than the new speakers. They just had more life and clarity. I felt like I had wasted my money on speakers.

My dealer was great about it. He let me exchange those speakers for a beautiful new pair of KLIPSCHORNs®. They have the biggest, most lifelike sound I've ever heard.

The old HERESYs? I'm not sure what to do with them but they're definitely not for sale. Neither are the KLIPSCHORNs.

For your nearest KLIPSCH dealer, look in the Yellow Pages or call toll free, 1-800-223-3527.
Before you buy a CD changer, there are two things you should consider. Your home. And your car.

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Of course, there are still some places where you won't be able to enjoy Pioneer's 6-disc CD Changer system. But we're working on it.
Unbalanced Surround

Q I have recently incorporated a surround-sound amplifier into my system, and although I carefully followed the instructions in hooking it up, I am not getting satisfactory results. The front speakers seem to lack the volume they once had, and the rear speakers have much more "kick." Is there a way to set the system up so it will do what it's supposed to?

JAMES CAIN
Denver, CO

A The problem with using dissimilar speakers for front and rear signals is that they almost never match, and such imbalances result. In your case, I suspect that your front speakers are potentially as loud as they ever were but that your rear ones are more efficient, giving them more "kick" for a particular amplifier setting. Differences in frequency response may contribute to this effect as well.

Most surround amplifiers provide a means to balance the front and rear levels; however, and you should use such controls if they exist. The best way is to kill the rear channels and adjust the level so that the front speakers are producing a comfortable volume. Then gradually increase the level of the rear speakers until there is the desired amount of ambience. If the rear channels continue to be overprominent, it might be possible to tame them by means of an equalizer, if not, you might consider swapping the front and rear speakers.

FM Noise

Q My tenth-floor apartment is in the heart of Manhattan, surrounded by taller commercial buildings, and I have great difficulty obtaining clean signals from the two classical FM stations I enjoy listening to, particularly in stereo (the local rock stations seem to come in a bit better, but that doesn't help me). I have tried hooking my tuner up to the TV cable, but that produces even worse results, including the reception of a station at several spurious points on the dial. I have found that the removal of any antenna at all gives the best results; adding even a short length of 75-ohm cable, while it does increase signal strength, also increases the noise. Why is it so difficult to avoid these problems?

WILLIAM M. GREENSTADT
New York, NY

A I suspect you are a victim of a particularly nasty combination: an extremely sensitive tuner, multipath, and an overabundance of signal. The fact that stations pop up in several places on the dial suggests front-end overload, and this is confirmed by the fact that your tuner seems to work best with no antenna at all. You could simply accept the situation and remove the antenna permanently, although this might leave the tuning system vulnerable to signal disruptions caused by your own body as you move around the room. It would also make it virtually impossible for you to receive any distant stations, should you want to, without reconnecting your antenna.

Your best bet would be to use a highly directional antenna (or your cable feed) along with a small signal attenuator, which would give you a stable signal but prevent the input overload. Such attenuators are available at electronics parts stores or at Radio Shack.

Barking in Beethoven

Q To preserve some of my older recordings, I have been copying them onto cassettes. In one of them, I can clearly hear the sound of my dog barking during the quiet passages of a Beethoven sonata. This seems impossible, as I do not have a microphone, but the fact remains that the barking is on the tape. Can you give me an explanation?

ANDREW ZUCCARELLO
Boca Raton, FL

A You may not realize it, but you do have a pretty effective microphone feeding into your system. A vinyl record, particularly if it's not in firm contact with the turntable platter, can be very sensitive to airborne sounds, and its vibrations are easily picked up by a phono cartridge, which doesn't care whether the oscillations it detects are caused by the record groove or the physical movement of the record itself. Warped discs are particularly prone to this effect, as large parts of them are floating in air. Turntables that support the record only at a few points can cause problems of this sort as well.

The ideal situation is for the record to be supported in the playing area, but not at the raised edge or label area. Many number of accessory turntable mats are available with this configuration. If the phenomenon persists even with the right sort of mat, you might try using one of the clamps or weights designed to stabilize records. Make sure your dust cover is closed as well.

As a last resort, put your dog out while you're dubbing.

Switching Out Noise

Q I have an irreplaceable collection of mono LP's. Would it be feasible to construct some sort of device that could remove surface noise by detecting the out-of-phase material where much of the noise occurs?

DALTON AMES
West Linn, OR

A When you are just listening to such records, simply switch your amplifier to the mono mode. Surface noise tends to have a random phase pattern: Some of it is in phase with respect to the recorded signal, some 180 degrees out of phase, and the rest somewhere in between. Mixing the outputs of a stereo cartridge to mono will cancel the 180-degrees-out-of-phase noise entirely, and it will partially cancel the noise between 0 and 180 degrees out of phase. The music itself will not be affected, as mono signals have no out-of-phase components. By the same token, in-phase noise will still get through, but you may still achieve an overall noise reduction of about half.

If you want to record the results of this clean-up, however, it will probably be necessary to make a special cable for the purpose because the mono switch on most amplifiers and receivers is placed in the circuit after the tape-monitor loop. An ordinary stereo patch cable can be used: Simply strip a short length of both conductors and connect the two "hot" (center) leads together; this will convert the signal to mono and feed it to both inputs of your cassette deck. If you intend to do this often, joining these hot leads by means of a single-pole single-throw (SPST) switch will allow you to switch from mono to stereo at will.
The CD Player for the Changing Times

America's biggest name in audio presents a better way to enjoy the best in sound—the Realistic compact disc changer. You can load up to six discs in its magazine and enjoy hours of superb digital stereo. Or, program up to 32 selections from the discs to play in any sequence. Either way, you can pause, replay, program and search, using the wireless remote control.

The large LED display simplifies remote operation. Manual and automatic search make it easy to find selections.

This high-performance changer has a Tri-Spot laser pickup system for accurate tracking. Two-times oversampling provides superior sound. And Radio Shack stocks extra magazines so you can protect all of your CDs and have them loaded and ready for play.

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Pursuing DAT

by Ken C. Pohlmann

The space shuttle is back in orbit, George Bush is president, Vanna White has starred in a made-for-TV movie, and we still don't have DAT. Curiously, no one really knows why. There are all kinds of theories: that early technical troubles with the format caused manufacturers to pause, that disappointing domestic sales in Japan caused them to panic, that the dollar/yen situation just isn't conducive to a new-product introduction, that somehow Philips, godfather to the CD, has put the whammy on DAT.

The only Americans buying DAT equipment are recording professionals, who are delighted with a digital recorder costing considerably less than the $20,000-plus open-reel models, and individuals buying recorders through the gray market, forgoing the auspices and customer services of the manufacturers.

The majority of consumers are left with nothing. Sure, you can order your new Lincoln with a DAT player, but you can't get but a handful of prerecorded digital audio tapes to play on it. The DAT format languishes as other recording technologies draw closer to actuality. If DAT isn't marketed soon, it will become obsolete. Although that would save the consumer a lot of money, it seems to take the concept of planned obsolescence a little too seriously.

Recently, however, I was invited to Tokyo to witness the unveiling of the Nakamichi 1000. Called a "Digital Audio Recording System," it is, in fact, a DAT recorder, and Nakamichi claims it will be available in the U.S., in both professional and consumer versions, by the time you read this. Barring any other preemptive strike, it will be the first consumer DAT recorder officially sold in the U.S.

Nakamichi thus runs the considerable risk of acting as official jaybird, the Recording Industry Association of America has vowed to file suit against any manufacturer selling consumer DAT recorders in the U.S. It sees DAT as fulfilling a home recorder's wildest fantasy—the ability to make essentially perfect copies of copyrighted CD's. As if to tempt fate, the professional version of the Nakamichi 1000 can indeed record at 44.1 kHz, the CD sampling rate, through a direct digital input, and according to a Nakamichi spokesman, it can record data directly from a CD despite any copy-inhibit bits on the disc.

The Model 1000 also features a host of technological improvements over earlier DAT decks, such as four heads on its rotary drum, to permit read-after-write monitoring off the tape while recording, and dual-channel digital-to-analog conversion circuitry with 20-bit performance. It may be, in fact, the finest home tape recorder ever marketed.

In other words, this digital recorder is the record industry's worst nightmare. Or is it? With a price tag of $10,000, how many evil, CD-copying teenagers will buy one? On the other hand, Nakamichi clearly has corporate pride riding on this product. The Model 1000 designation has been used only once before, when Nakamichi introduced the world's first three-head cassette deck, a move that launched the cassette into the realm of high fidelity and launched Nakamichi itself.

Of course, the question remains, should you buy a DAT recorder? For the moment at least, the Nakamichi 1000 is the only model available in the U.S. through its manufacturer. Surely other models will appear, probably at correspondingly high prices. In other words, DAT will still not have fulfilled its promise of mass-market digital recording, and the justification of its purchase will remain as elusive as ever, eliciting more speculation than sales.

Which brings us to a final piece of speculation: Perhaps, intentionally or not, DAT will eventually serve the cause of digital recording, but mainly as a sacrificial technology. Perhaps DAT will serve as a trial balloon, testing the technical and legal aspects of digital recording in the American market, testing the waters for the real recording medium of the future, optical discs. Perhaps the record labels, recognizing their position of strength on the DAT issue, will choose DAT as the basis of negotiation for the fate of future recording media. If they're smart, they'll choose to deal with DAT instead of recordable optical discs. With DAT the record companies at least have the potential success of another prerecorded format, whereas with recordable optical discs the only new media will be blank.

One thing is sure. As always, the only constant in audio technology is change. Regardless of how audio pursues its own future, DAT will come, and go. We'll have to wait to find out how long it will stay around.
PRESENTS

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It has always been true that placement in
the listening room has a profound effect on
the sound of any loudspeaker, regardless of its
inherent qualities. Cambridge SoundWorks
has confronted this fact and created Ensemble," a
speaker system that can provide in your
home, the superb sound once reserved for the
best conventional speakers under laboratory
conditions. And because we market it directly,
Ensemble costs far less than previous all-out
designs. Perhaps best of all, it virtually disap-
ppears in your listening room.

The best sound comes in four
small packages.
Ensemble consists of four speaker units.
Two compact low-frequency speakers repro-
duce the deep bass, while two small satellite
units reproduce the rest of the music. Separat-
ing the low bass on both channels from the
rest of the range makes it possible to repro-
duce just the right energy in each part of the
musical spectrum without turning your lis-
tening room into a stereo showroom. With
clumsy conventional systems, you can either
strive for that balance by letting loudspeakers
dominate your room, or sacrifice it for less
conspicuous speaker placement.

Your listening room works with
Ensemble, not against it.
Room acoustics emphasize and de-
emphasize various parts of the musical

Unlike satellite systems which use a
single large subwoofer, Ensemble features
separate compact bass units for each
stereo channel. They fit more gracefully
into your living environment, and help
minimize the effects of the listening
room's standing waves.

Because low frequencies are non-directional, Ensemble's
bass units can be installed horizontally, vertically, facing
upwards, or facing downwards.
range, depending upon where the speaker
is placed in the room. If you put a conven-
tional speaker where the room can help the
low bass, it may hinder the upper ranges,
or vice-versa.

Ensemble, on the other hand, takes
advantage of your room's acoustics. You put
the low-frequency units where they provide
the best bass, whether or not that location is
good for the high frequencies (and it usually
And Make It Sound Like Music. A Most Unobtrusive Way.

gine Going Wrong With Ensemble.

isn't for any speaker). Then you put the satellites where they provide a well-defined stereo "stage."

The ear can't tell where bass sounds come from, which is why Ensemble's bass units can be tucked out of the way—on the floor, atop bookshelves, or under furniture. The satellites can be hung directly on the wall, or placed unobtrusively on windowsills or shelves (among other possibilities). The result is extraordinary. There are no bulky speaker boxes to dominate your living space, yet Ensemble reproduces the satisfying deep bass that no mini speakers can.

Not all the differences between Ensemble and other speaker systems are as obvious as our two subwoofers.

Unlike three-piece satellite systems that may appear similar, Ensemble's four-piece design doesn't cut any corners. We use premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustical performance. The low-frequency units use the classic acoustic suspension design, and are finished in gunmetal gray Nextel, a suede-like finish highly resistant to scratching. We even gold-plate all connectors to prevent corrosion. But perhaps an even bigger difference between Ensemble and other speakers is how we sell it...

The best showroom of all: your living room.

Choosing a loudspeaker after a brief listen at a dealer's showroom is like deciding on a car after one quick trip around the block. Therefore we make it possible to audition Ensemble right in your own home. In fact, Ensemble is sold only by Cambridge SoundWorks directly from the factory.

That only makes sense. You get to match Ensemble specifically to your listening room in a way no other system permits. You get to listen for hours without a salesman hovering nearby. And if after 30 days of all that you're not happy, you can return Ensemble for a full refund (we'll even reimburse the original UPS shipping charges in the continental U.S.).

You also get to save. At only $499—complete with all hardware, 100' of speaker cable, and free ongoing assistance— Ensemble costs hundreds of dollars less than it would in a retail store.

Call 1-800-AKA-HIFI*
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COMPONENT INTERDEPENDENCE

ALTHOUGH most audio components are "separate" in the sense that they are physically distinct, and their performance characteristics can usually be measured and described without reference to other components, any one of them by itself is useless. They are meant to operate as parts of a system and must be considered in that context.

From time to time I receive questions about possible incompatibilities between various components. Clearly, many people are aware of the possibility and concerned lest they degrade a system's performance, or even damage it in some way. Let me reassure you that, while performance may suffer in some cases, it is extremely unlikely that a correctly connected system will be damaged because of component incompatibility.

Some years ago, there was reason to be concerned with interconnection compatibility. For example, almost from the beginning most magnetic phono cartridges were designed to give their flattest response when terminated in a 47,000-ohm resistance, which remains a de facto standard today, but there were some exceptions, cartridges with recommended loads from 10,000 to 100,000 ohms. The penalty for a mismatch, at one extreme or the other, was (and still is) a loss or boost of high-frequency response. Fortunately, the audible result of a mismatch is rarely serious enough to render the system unlistenable.

The capacitance across a cartridge's termination resistance can also affect its frequency response. The rated ("flat") response is usually specified with a capacitance in the range of 100 to 500 picofarads, but this capacitance is beyond the ability of the average user to verify or control. A few preamplifiers provide switch-selectable phono capacitance and resistance values. Since the capacitance of the cables from the head of the tonearm to the amplifier input, as well as within the amplifier itself, is usually unknown, a user must rely on his hearing to decide whether the selected values are correct or to set the optimum values. If you try adjusting these parameters, you will hear for yourself how minor their effects are with most cartridges, making them a relatively unimportant consideration.

A few decades ago, the output rating of a magnetic cartridge was likely to fall between 2 and 20 millivolts. In those days phono-preamplifier overload limits were not specified, and using a high-output cartridge with some amplifiers was likely to produce overload distortion on program peaks. On the other hand, using a low-output cartridge with a preamp designed to handle high input levels could require setting the volume control at or near its maximum, with a corresponding increase in system hum and noise levels. This problem no longer exists. Today's high-quality moving-magnet cartridges, including models in every price range, generally have rated outputs of 3 to 5 millivolts and are compatible with all modern preamplifiers.

Within the amplifying system itself there are few possibilities of mismatching. One might be driving a power amplifier having a low input impedance (10,000 ohms, say) from a preamplifier with an output impedance of several thousand ohms. If the preamplifier output's coupling capacitance is too low, such a combination can roll off the very low frequencies. With most power amplifiers, however, which typically have input impedances in the range of 50,000 to 100,000 ohms, this is not a problem. And if the preamplifier has an output impedance of 600 ohms or less, as most good ones do, it can drive any power amplifier (even through long, shielded cables) without alteration of frequency response.

The interface between a separate tuner and a preamplifier is rarely critical. There have been a few tuners with high output impedances (on the order of 10,000 ohms), but even these can easily drive the 50,000- to 100,000-ohm high-level inputs of most preamplifiers; with the usual tuner output impedance of 1,000 ohms or less, there is no problem at all. So far as I know, a similar situation exists with all CD players as well as accessories that connect to a tape loop or between a preamplifier and a power amplifier.

The first interface where genuine incompatibility can occur is between the amplifier output and the loudspeaker. There are two distinct areas of concern: whether the available power output is adequate given the speaker's sensitivity and whether the amplifier's ability to drive very low load impedances or reactive loads matches the demands of the speaker's complex impedance characteristics. With most speakers

Tested This Month

Pioneer CT-S800 Cassette Deck
Wharfedale Diamond III Speaker
Sherwood CD-1160R Compact Disc Player
Carver Model 6250 AM/FM Receiver
AudioSource EQTen Equalizer/Analyzer
and most amplifiers, neither of these potential mismatches is likely to be a source of trouble, but there are some combinations that are prone to misbehavior.

In the first area—power output relative to sensitivity—there are no hard and fast rules. The imponderables of room size and acoustic treatment, speaker placement, and listening preferences (with respect to program type and volume level) can far outweigh the bare specifications of wattage and decibels. In general, a large listening room, carpeted and furnished with upholstered furniture, will require more power from any system for a given listening level than a small, sparsely furnished room. And reproducing chamber music or vocals at realistic levels, or any type of program at background levels, requires less power than “natural volume” reproduction of orchestral or rock music. So much should be obvious. The range of power requirements between these extremes, however, can be surprisingly large: A ratio of 100 to 1 or higher is perfectly possible.

Power requirements should be considered and discussed with the dealer or salesperson when you shop for a system. There is a considerable price difference between a 20-watt amplifier and a 500-watt amplifier, and while the larger one can be used in any system (with care!), the smaller one might prove hazardous to your speakers if it is systematically overdriven in an attempt to raise the volume beyond its capabilities.

Speaker sensitivity is a commonly published specification. It is an indication of the sound-pressure level (SPL), in decibels (dB), that will be produced at a 1-meter distance when the speaker is driven by a 2.83-volt signal (equivalent to 1 watt into an 8-ohm load). The sensitivity specification is useful when you are comparing speakers (although it has nothing to do with sound quality, size, or price) since it indicates their relative power requirements for a given sound level. Most home speakers have rated sensitivities between 86 and 90 dB. A few carry ratings as high as 96 dB or more, and fewer still are rated as low as 80 or 82 dB.

Once you have established a reference, a combination that gives suitable performance in your room—such as a 30-watt amplifier and a speaker with an 87-db sensitivity—it is easy to judge the effect of changing the speaker or the amplifier. A 3-db change in sensitivity (or volume level), which is barely audible, corresponds to doubling or halving the power. Changing the speaker in the example above to one rated 90 dB is equivalent to raising the amplifier power to 60 watts. Power is cheap enough these days that you should probably not plan to use less than a 30-watt amplifier if you have any serious plans for good music reproduction. Once you get to the 80- or 100-watt class, you will be equipped to drive any but the most exotic speaker systems at healthy sound levels.

Virtually any amplifier made today can drive speaker loads of 4 ohms or more without difficulty (impedances higher than rated do not pose any problems for the amplifier). The difficulty comes when the speaker impedance drops below some safe minimum—and every amplifier has its lower limit. Speaker impedance varies widely with frequency, and the actual impedance of a “4-ohm” speaker may reach as high as 20 to 30 ohms, and as low as 2 ohms or less, at various audio frequencies. Not all amplifiers will drive a 2-ohm load safely; an amplifier may simply shut down when certain programs are played too loud, or (if less well protected) it may blow its fuses or even the output transistors. While much has been made of this problem, it must be realized that it exists only with relatively few speakers in combination with relatively few amplifiers.

Summing up the compatibility situation, it is almost negligible between the electronic system components (tuner, CD player, tape deck, amplifier, preamplifier) or between the phono cartridge and the preamplifier. In most cases where such incompatibility exists, it results only in a slight alteration of frequency response or a slight increase in distortion, not necessarily to an audible degree. The most serious compatibility problems can occur between the amplifier and the speakers (and between the speakers and the listening room, which is a very involved subject in itself), and these are the only mismatches that can under worst-case conditions, damage the components involved. Under most conditions, however, even these mismatches will be manifested only by audible distortion with certain program material.
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We submit that you simply must experience this new music system to believe it. The Delco/Bose Gold Series is an available option in Sevilles, Eldorados, Fleetwoods and DeVilles at your Cadillac dealer.

Delco Electronics
Subsidiary of GM Hughes Electronics
At first sight, the new Pioneer CT-S800 cassette deck seems simply to be a typical upscale machine. It combines such well-established high-performance features as three heads, dual capstans, Dolby B and Dolby C noise reduction, and Dolby HX Pro headroom extension with conveniences such as a three-mode tape counter, a fifteen-selection music-search facility, and dual-sensitivity record-level indicators. Below the surface, however, the CT-S800 incorporates a number of design features whose strongest appeal is to the knowledgeable, really serious audiophile: a direct-coupled playback head, multiple power supplies fed from a highly shielded power transformer, a copper-clad antiresonant chassis, and an antivibration cassette-shell mounting.

The obvious benefit of using separate record and playback heads is that the user can immediately compare the sound of the source with its recorded result. Like most three-head decks today, the CT-S800 has the record and playback head elements mounted in a common case. Unlike most such decks, however, the CT-S800 uses different head materials in the two sections. The playback head element is made of an amorphous magnetic core material with oxygen-free-copper coil windings to minimize noise and maximize linearity for low-level signals. The first-stage playback electronics are direct-coupled to eliminate the need for a coupling capacitor and thus a source of low-frequency phase shift. The record head, on the other hand, which must handle the high bias currents of metal-particle tape without overload, has a hardened permalloy core. Ferrite is used in the erase head, where even higher current levels are encountered.

Similar evidence of attention to engineering details is found in the tape transport. The overall design uses the proven dual-capstan, closed-loop principle, which minimizes the speed fluctuations we hear as wow-and-flutter. To prevent common rotational frequencies, which can actually augment wow-and-flutter, the CT-S800's two pairs of capstans and pinch-rollers have slightly different diameters. This has the additional beneficial effect of providing the proper amount of tension to the tape to hold it snugly against the heads.

Any initial tape slack is taken up when a cassette is loaded. At the same time, the tape type is automatically detected and appropriate factory-set bias and equalization parameters are switched in. The rear of the cassette-well door is equipped with a relatively new development, a spring-loaded plate that is designed to eliminate cassette-shell vibrations. Unlike some similar designs, however, in the CT-S800 this stabilizing mechanism does not obscure label visibility or interfere with the removal of the door for periodic head cleaning and demagnetizing. The deck's antivibration theme even extends to the use of a honeycomb chassis, copper-plated for better electrical conductivity, a massive cast power transformer (the same used in Pioneer's CD players), and enormous, turntable-like feet.

The four-digit electronic counter of the CT-S800 can be set to show elapsed time, remaining time, or counter revolutions; a button calibrates it for the tape length in use. The peak-holding record-level indicators have fifteen segments per channel and can be switched between scales calibrated from $-35$ to $+12$ dB or from $-4$ to $+16$ dB. The higher scale has $1$-db increments be-
The high-speed winding buttons of the CT-S800 can be programmed to skip up to fifteen selections in either direction, though we found the single-button return to 0000 a more important convenience feature. The usual pushbutton pair controls the selection of the Dolby noise-reduction system; since Dolby HX Pro does not require decoding, it is not switchable. A switch is provided, however, for the 19-kHz FM-multiplex filter, and in one of its positions the record-monitor switch automatically flips the output from source to tape when you change from record to playback mode, or vice versa.

There is a control that allows the user to optimize the record bias, but since no built-in tone generator is provided, this must be done by ear using low-level FM hiss as the test signal. The large record-level control is augmented by a smaller balance knob, and the customary timer-control switch is provided. A control is provided for adjusting the volume at the front-panel headphone jack, but there is unfortunately no way to adjust the output at the regular playback jacks.

The Pioneer CT-S800 measures 16% inches wide, 14% inches deep, and 5% inches high, and it weighs a little over 21 pounds. Price: $750. Pioneer Electronics (USA) Inc., Dept. SR, P.O. Box 1540, Long Beach, CA 90801.

**Lab Tests**

The playback frequency response of the CT-S800 was extremely flat. It varied by less than ±1 dB over the 31- to 18,000-Hz range of our IEC-standard (BASF) ferric and CrO2 test tapes.

The effect of the Dolby HX Pro headroom-extension circuitry in providing greater treble response at high levels can be seen in the 0-dB-level record-playback curves shown in the graph. With our center-line samples of TDK AD (ferric) and TDK SA (chrome-equivalent), the response at the 0-dB level did not drop to –3 dB until the frequency was above 10,000 Hz; the metal-particle TDK MA made it all the way to 20,000 Hz at this level. At the low-frequency end, response was down by only 3.6 dB at 20 Hz, which is very good indeed.

Our sample deck was a little underbiased for TDK MA, however, as can be seen in the graph: There was a rising response at 20,000 Hz.

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### LAB MEASUREMENTS

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**Features**

- Separate record and playback heads
- Dual-capstan closed-loop transport
- Four-digit, three-mode electronic tape counter
- Fifteen-segment-per-channel, switchable-scale peak-level indicators
- Dolby HX Pro headroom extension
- Dolby B and Dolby C noise reduction
- User-adjustable bias control
- Automatic tape/source switching
- Switchable FM-multiplex filter
- Headphone jack with level control
- External timer operation

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**Test Reports**

Stereo Review March 1989

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**Features and Specifications**

- STEREO REVIEW MARCH 1989
- Pioneer CT-S800 Cassette Deck
- Record-Playback Response
- Frequency: 20 Hz to 20,000 Hz
- NR off: Dolby B, 61.5, 70.5, 68.8
- Dolby C: 63.8, 77.1, 77.8

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**Electronics**

- Pioneer Electronics (USA) Inc., Dept. SR, P.O. Box 1540, Long Beach, CA 90801.
when Dolby C was switched in at the 0-dB level, and there was a rise in treble output without Dolby C at the -20-dB level. Unfortunately, as in most decks with adjustable bias, the bias control of the CT-S800 affects the bias only for ferric and CrO₂-type tapes, so it could not correct this.

The measured signal-to-noise ratios of the CT-S800 were excellent, as were its wow-and-flutter figures. Dolby tracking error was extremely low, within ±1 dB with Dolby B and ±2 dB with Dolby C, using TDK SA at -20, -30, and -40 dB. Record sensitivity was normal. Playback output, though within the normal range, was distinctly on the low side, which is a matter for concern only if your amplifier tends to hum when its volume control is advanced slightly beyond its normal setting.

Comments

We were extremely impressed with the Pioneer CT-S800 both mechanically and sonically. Its transport controls had an excellent feel and were exceptionally quiet in operation. While the numbers on its level indicators are much too small to be read from any distance, the color coding and expanded-scale option proved adequate compensation. We would have liked a playback level control and more complete bias and sensitivity adjustments, but these would have added substantially to the deck's cost.

In our listening tests the CT-S800 performed no less impressively. With both prerecorded tapes and those we recorded on it, the CT-S800 imparted none of the "grainy" or "edgy" quality that frequently results from higher than desirable wow-and-flutter. Sonic imaging was clear and distinct and was only the slightest bit narrower than in the original source. Frequency response was broad and uncolored—we could not hear the measured 3-dB loss at 20 Hz—and the Dolby circuits eliminated all but the faintest vestigial hiss in "silent" spots. In short, the Pioneer CT-S800 proved to be a deck one could live with very happily, and we can recommend it with enthusiasm.

Circle 140 on reader service card

WHARFEDALE DIAMOND III SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

The Wharfedale Diamond speaker was introduced in its original form several years ago. It was a true minispeaker, and when we tested it (April 1984) we reported that it had exceptionally fine sound quality for its size and price. Wharfedale, a British speaker manufacturer of long standing, later left the United States market and has only recently returned, bringing to this country the latest version of the little speaker, the Diamond III, which incorporates a number of improvements.

The Diamond III is a two-way system with a 4½-inch woofer in a rear-vented enclosure. The port is designed to be placed close to the rear wall; the proximity of the wall affects the tuning of the speaker and enhances its bass performance. The speaker's dimensions—9½ inches high, 7¼ inches wide, and 8 inches deep—and its weight of just under 7 pounds make it ideal for bookshelf mounting. The binding-post connectors extend ¾ inch from the rear, effectively determining the minimum distance from the wall (using banana plugs increases the minimum spacing to about 2 inches).

There is a crossover at 3,500 Hz to a 3½-inch polyamide-dome tweeter, which is damped by ferrofluid. According to the importer, it is a fifth-order crossover (30 dB per octave), although this seems rather extreme. The woofer cone is made of a mineral-filled homopolymer of polypropylene, which is said to keep sound coloration extremely low. The black cloth grille is easily removable.

Wharfedale provides few specifications for the Diamond III other than a nominal impedance rating of 8 ohms and a recommendation that it be used with amplifiers rated between 15 and 100 watts per channel. An active (powered) version of the speaker is also available. Called the Active Diamond Plus, it is said to be identical in size and acoustic properties to the Diamond III, but each speaker unit also contains a small, 20-watt power amplifier with an on-off switch and volume control. The Diamond III is available...
**TEST REPORTS**

In a choice of fifteen finishes (our test units were black). Price (per pair): Diamond III, $300; Active Diamond Plus, $350. Wharfedale, Dept. SR, P.O. Box 2146, Peekskill, NY 10566-2146.

**Lab Tests**

Our response measurements were taken with the speakers mounted on stands 26 inches high and a couple of feet from the wall. Our measurement techniques—including quasi-anechoic bass-response measurements made separately at the port and cone with close microphone spacing—made it impractical to use Wharfedale's suggested placement (although the company does not rule out locating the speakers at a distance from a wall). Listening tests, however, were done with the speakers placed on shelves and as close to the wall as possible (about 2 inches).

Spacing the bass measurements to the room-response curves produced a rather unusual composite curve, which agreed fairly well with an anechoic response curve supplied by Wharfedale (not run on the same speaker samples, however). The speaker's output reached maximum at 800 Hz, and it fell off at roughly 2 to 3 dB per octave at lower and higher frequencies. There was a rise below 100 Hz, to a maximum of 5 dB at 75 Hz, and another rising response above 10,000 Hz, to +6 dB at 20,000 Hz. Despite the shape of the response curve, its total variation was only ±4 dB from 50 to 20,000 Hz, a very respectable response from any speaker, and especially a low-priced minispeaker.

The Diamond III's minimum impedance was 6 ohms at 400 Hz, and its maximum was 25 ohms at 42 and 100 Hz. Overall, its 8-ohm rating is realistic. System sensitivity was moderate: a sound-pressure level (SPL) of 88 dB at 1 meter with a pink-noise input of 2.83 volts.

Bass-distortion measurements were made with a constant input of 3.5 volts, corresponding to a 90-db midrange SPL. A small woofer cannot deliver high output levels without distortion, but the Diamond III's driver maintained a typical distortion level of about 2.5 percent from 100 to 50 Hz (its effective low limit). Below 50 Hz the output was not particularly useful, and the distortion rose rapidly to 10 percent at 40 Hz. The effective crossover between the port and cone radiation was at about 100 Hz, but the distortion at the port was always large. The port's principal function appears to be to control the loading and the system impedance rather than to augment the bass output. This is also implied by Wharfedale's suggestion to vary the spacing from the back wall if needed to correct the system's frequency balance, since the proximity of the wall can have a considerable effect on the tuning of the system resonances.

Pulse power measurements hardly seemed worthwhile, since this is obviously not a speaker that should be driven to high acoustic output levels. Nevertheless, at 100 Hz the woofer "bottomed" nosily at a very respectable 72 watts into its 25-ohm impedance. At higher frequencies, the system's impedance of about 8 ohms made it impossible to overdrive it with a Carver Mono-Block amplifier, which clipped at 960 watts at 1,000 Hz and 860 watts at 10,000 Hz, with no evidence of serious distortion in the speaker's acoustic output.

The horizontal dispersion of the system reflected the operation of the woofer well into the mid-treble region. A "beaming" effect began well below the 3,500-Hz crossover frequency, resulting in output differences of up to 4 dB in the range from 1,000 to 2,000 Hz between the axial response and a measurement 45 degrees off-axis. The two curves merged at about 3,000 Hz, and they diverged again at higher frequencies (above 12,000 Hz) because of tweeter directivity.

The group delay of the system (a measure of its phase linearity) was exceptionally constant. From about 500 to 30,000 Hz, the overall variation was less than 0.4 millisecond, and over most of that range it was less than 0.2 millisecond. Even in the woofer range, from 200 to 4,000 Hz, the delay variation was well under 1 millisecond.

**Comments**

The Wharfedale Diamond III, while only slightly larger than most inexpensive minispeakers, did not sound like one. It had none of the tinny quality, thin bass, or piercing upper-midrange that characterizes the typical miniature speaker. On the other hand, it did not sound like most larger speakers, even the usual bookshelf type. Rather, it fell between the two extremes, although generally favoring the larger speakers rather than the smaller ones.

The Diamond III's sound did not convey many clues to its size. Mixed with a group of larger speakers, it was surprisingly difficult to pick it out from the others merely by listening. One might think from the response curve that it would have a somewhat hard or nasal sound, corresponding to its emphasized 800-Hz output, but that was not the case, probably because of the small amplitude of that emphasis (only a few decibels above the output through most of the audible range). The subjective frequency balance was excellent, and except when playing music with considerable low-bass content, it gave no hint of the size of its woofer. The highs were not at all prominent, but they were certainly there (possibly the midrange dominance accounts for the lack of treble emphasis).

The sound was really quite smooth, and always listenable. We never heard an unpleasant sound from these speakers (although trying to play them loud would surely produce that result). The Diamond III is not for rock fans, nor for anyone who likes to hear his reproduced music "life size." It was not meant for that purpose, and it cannot be pushed too far with impunity. Perhaps its name is the best clue to its true nature—a high-quality diamond is not necessarily large.

The Wharfedale Diamond III is a fine small speaker, scaled for use in small rooms and especially on bookshelves (unlike most "bookshelf" speakers, which require oversized and reinforced shelves to support them). Even though it might not appeal to the advanced audiophile as a primary speaker, its sound is musical and should offend no one. We think it would make an excellent auxiliary speaker in a surround-sound system, too.

Circle 141 on reader service card
Plain Vanilla

Not only do we design and build it, we know how to put it together...simple as plain vanilla.

CIRCLE NO. 68 ON READER SERVICE CARD
SHERWOOD CD-1160R
COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

SHERWOOD'S CD-1160R is an inexpensive, front-loading CD player. It can be programmed to play up to sixteen tracks in any order, and it provides a random-play feature, repeat of one or all tracks, and auto space, which inserts a 3-second silent interval between tracks as they are played for taping purposes.

Most of the operating controls are pushbuttons across the bottom of the panel, below the display window. Among them are a TIME button, which changes the display from the current track number and its elapsed time to the remaining time on that track or on the disc, and a PROG/REV button, used to program playback in any desired track order and to review the stored sequence.

The track-skipping and search modes share the same buttons for forward and reverse directions. A momentary touch skips to the next or preceding track, and holding a button in produces a fast scan with audible sound. Once you become accustomed to this system, still not common in full-size home CD players, it is much easier to use than the typical configuration with separate pairs of controls for the two actions.

The front-panel display uses orange fluorescent numbers and letters that are exceptionally visible from directly in front of the player. When the display is viewed from an off-axis position, however, the pattern of the unlit segments becomes visible and impairs legibility. When the player is first turned on, the word DISC appears. After a disc is loaded, its total playing time and number of tracks are displayed. Words appear, as appropriate, to show the status of the various operating modes (PROGRAM, SPACE, REPEAT, RANDOM) as well as the conventional symbols for play and pause.

The rear apron of the CD-1160R contains, in addition to the audio output jacks, a special Digilink connector enabling the player to be operated by the remote control for a compatible Sherwood amplifier or receiver. A special cable is supplied to connect the player with the control component.

The manufacturer's specifications for the CD-1160R indicate that it uses a double-oversampling (88.2-kHz) digital-to-analog converter with a digital filter. The rated frequency response is 20 to 20,000 Hz ± 0.5 dB, the signal-to-noise ratio more than 93 dB, and the total harmonic distortion less than 0.003 percent. The player measures 17 1/4 inches wide, 10 3/8 inches deep, and 2 3/4 inches high. It weighs 8 pounds, 2 ounces. Price: $249. Sherwood, Dept. SR, 13845 Artesia Blvd., Cerritos, CA 90701.

Lab Tests
The frequency response of the Sherwood CD-1160R was flat with-
Deceptive Engineering

Obvious but very deceptive...
You'll probably notice our 50-watt RX-533 offers obvious features such as Digital AM/FM cassette/radio with Dolby® B & C noise reduction, 24 preset stations, preset scan, tape program search, separate bass & treble tone controls, etc., and of course, it's removable!

But you'll probably overlook the not-so-visible but specially engineered features such as FM optimizer II circuitry designed for superior FM reception and built-in Automatic Radio Monitor for filling the void with music while you are fiddling with your tape. Special cassette features such as "Auto Azimuth Correction System" rotates the tape head 180 degrees whenever tape direction changes to keep perfect azimuth alignment, Keyoff Pinch Roller Release minimizes wear and tear of tape pinch roller and DC servo motor accurately controls tape movement thus minimizing wow and flutter.

Plus pre-amp outputs and CD/AUX input capability designed for flexible system expansion, two-tone illuminated control panel guarantees easy viewing and identification and replaceable Lithium back-up battery helps protect and store information in the microprocessor.

Though not in plain view, these state-of-the-art engineering innovations are obviously what you have come to expect from a company with over 11 years of manufacturing experience. Cousic...a sound investment.

Cousic
4260 Charter Street
Vernon, CA 90058-2596
(213) 582-2832
Striving for quality since 1971

CUSTOMER SATISFACTION —
1988 Stereophile magazine reader survey —
• 91% of Magnepan® owners said they would buy Magnepanars if they had it to do over again.
• More Stereophile readers owned Magnepanars than any other speaker brand.

DEALER SATISFACTION —
1989 Inside Track survey conducted with dealers, Magnepan was rated:
#1 in Distribution Policies
#2 in Prompt Resolution of Problems
#2 in Quality of Sales Reps

Thank you —
the feeling is mutual!!

Test Reports

in ±0.2 dB from 5 to 20,000 Hz and within ±0.1 dB over most of that range. Channel separation was about 85 dB at the low and middle frequencies, narrowing to 65 to 70 dB at 20,000 Hz. The interchannel phase shift increased linearly from zero at the low and middle frequencies to 42 degrees at 20,000 Hz.

The 1,000-Hz distortion (THD + noise) was almost independent of signal amplitude, measuring 0.008 percent in one channel and 0.006 percent in the other. At low levels the D/A converter showed the typical sort of linearity errors, with the output being higher than the correct value by 2 dB at −70 dB, 4 dB at −80 dB, and 9 dB at both −90 and −100 dB. The A-weighted S/N was about 90.5 dB. The playback frequency error (a function of the accuracy of the quartz-crystal oscillator in the player) was a negligible +0.0186 percent.

Comments

The Sherwood CD-1160R, one of the least expensive component CD players on the market, has a full complement of operating features, and in our tests it delivered the kind of electrical performance and listening quality expected of the digital medium. To be sure, it did not equal the performance of many more expensive players, but its principal failing was in the low-level linearity of its D/A converters, a characteristic it shares with many other CD players, including some that sell for much more. Although this nonlinearity can be measured, it is normally not audible except under special listening conditions.

In fact, the only major clue to the cost-cutting design of the CD-1160R was the mechanical noise it made when opening or closing its disc drawer. Unlike the silent, silky smooth operation of most costlier players, the Sherwood’s drawer movements were accompanied by audible scraping and “clunking” sounds. Nevertheless, the chassis was built solidly enough to withstand fairly hard impacts on its top and sides before the player mistracked, and there were no other problems that we could discern throughout our use and listening tests. Overall, the CD-1160R is an excellent value.

FEATURES

• Three-beam laser tracking
• Double-oversampling (88.2-kHz) D/A converter with digital filtering
• Front-loading, motor-driven disc drawer
• Repeat of single track or entire disc
• Auto Space to insert 3-second interval between tracks
• Random play
• Programmable to play up to sixteen tracks in any order

LABORATORY MEASUREMENTS

Maximum output level: 1.85 volts
Total harmonic distortion at 1,000 Hz: 0.006% referred to 0, −10, or −20 dB
Signal-to-noise ratio (A-weighted): 90.5 dB
Channel separation: 85 dB at 100 Hz and 1,000 Hz, 77 dB at 10,000 Hz, 70 dB at 20,000 Hz
Frequency response: ±0.2 dB from 20 to 20,000 Hz

Maximum phase shift (from 5,000 to 20,000 Hz): 42 degrees at 20,000 Hz
Low-level linearity error (with dither): 2 dB at −70 dB, 4 dB at −80 dB, 9 dB at −90 and −100 dB
Cueing time: 3 seconds
Cueing accuracy: A
Impact resistance: top, B; sides, A
Defect tracking: tracked maximum-level defects on Philips TSSA test disc

CIRCLE NO. 20 ON READER SERVICE CARD
Prism Effect

What has prism effect, a refractive phenomenon, to do with audio equipment? Nothing, except that it is the simplest analogy to describe what our sophisticated XM-3® Mobile Electronic Crossover does to audio signals.

When an ordinary ray of white light passes through a prism, it is systematically separated into the primary colors of the spectrum—optically much more aesthetic than the original light.

Similarly, when an audio signal enters the XM-3, the original signal is then separated, via various controls, to the front and/or rear tweeters, midranges and sub-woofers, creating distinctive bands of the audio frequency spectrum that are space and user-specific.

Specially engineered features such as Front and Rear Pre-Amp Inputs and Front and Rear Outputs as well as a constant Sub-Woofers Output, Asymmetrical Electronic Crossover which has two high-pass (32-400 Hz variable) crossover points for the front and rear outputs and a low-pass (32-400 Hz variable) crossover point for the sub-woofer output, Woofer Enclosure Equalization engineered for optimizing bass response, Phase Inverter allowing the sub-woofer output to be shifted 180 degrees out-of-phase to compensate for in-vehicle acoustical abnormalities and Frequency Multiplier Switch which, by multiplying crossover points for the front channel, transforms the XM-3 from a BI-AMP SYSTEM to a TRI-AMP SYSTEM, etc., all contributed to create the PRISM EFFECT and make the XM-3 the most versatile electronic crossover ever manufactured for automotive use.

Coustic... a sound investment.
Carver Model 6250 AM/FM Receiver

Julian Hirsch, Hirsch-Houck Laboratories

The Model 6250 from Carver Corporation is a very powerful AM/FM stereo receiver. It is rated to deliver 125 watts per channel into 8 ohms, or 140 watts into 4 ohms, from 20 to 20,000 Hz with no more than 0.1 percent total harmonic distortion. In addition to its audio functions, it can serve as a video control center, with audio and video switching facilities for two VCR's and a video output to a monitor.

The Model 6250 is styled like other Carver receivers: A large digital frequency display and LED indicators for signal strength and other operating parameters are located in the center of the panel. Surrounding the display are pushbutton controls for tuning and input selection, including six preset buttons. Besides the tuner there are inputs for a moving-magnet phono cartridge, an auxiliary line-level source, two audio tape decks, a CD player, and the video sources.

Other buttons to the right of the central group operate the special features of the receiver, including Carver's Sonic Holography circuit for enhancing the ambiance and sound-stage width of stereo programs, the Asymmetrical Charge-Coupled Detector (ACCD) circuit, which reduces the effect of multipath distortion on stereo FM programs, and the loudness-compensation circuit.

A power-output display at the left of the panel shows the instantaneous output (based on 8-ohm loads) for each channel, including a clipping indication. Knobs operate the three tone controls (bass, midrange, and treble), the balance control, and the volume control. A five-position switch selects either of the audio tape decks for listening or recording or connects them for dubbing in either direction. The supplied remote control operates most front-panel functions, and it can also control a compatible Carver CD player.

In addition to the audio and video input and output jacks, the rear apron of the receiver contains terminals for the supplied AM wire-loop antenna and a coaxial jack for a 75-ohm FM antenna feeder. A 75-to-300-ohm matching transformer is supplied for use with 300-ohm FM antennas. Insulated binding posts carry the speaker outputs, and two of the four AC outlets are switched.

The Carver Model 6250 is finished in dark gray, with knobs and...
Double Scoop
When one is plainly not enough ... indulge!

PORTABLE CD PLAYER (OPTIONAL)
IN-DASH COMPACT DISC PLAYER
RX-533 DIGITAL CAR RADIO
RE-573 DIGITAL CAR RADIO
CIRCLE NO. 18 ON READER SERVICE CARD

POWER LEFT CHANNEL REMOTE RIGHT CHANNEL GROUND SUBWOOFER OUTPUT

HT-602 0.5 INCH TWEETER LOUDSPEAKERS (8000-20,000 Hz)
HT-604 4 INCH MIDRANGE LOUDSPEAKERS (100-20,000 Hz)
HT-605 5.25 INCH MIDRANGE LOUDSPEAKERS (400-20,000 Hz)
HT-606 6.5 INCH LOWER MIDRANGE LOUDSPEAKERS (100-20,000 Hz)
HT-608 8 INCH MID WOOFER LOUDSPEAKERS (40-20,000 Hz)
HT-615 15 INCH SUBWOOFER LOUDSPEAKERS (20-40 Hz)

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HT-608 8 INCH MID WOOFER LOUDSPEAKERS (40-20,000 Hz)
HT-615 15 INCH SUBWOOFER LOUDSPEAKERS (20-40 Hz)
The clipping power level increased to 175 watts into 4 ohms and 195 watts into 2 ohms. The dynamic power output was 248 watts into 8 ohms and 350 watts into 4 or 2 ohms. The total harmonic distortion plus noise with 8-ohm loads was a minimum of 0.03 to 0.04 percent just before clipping occurred, and with 4-ohm loads it was 0.05 percent. Driving 2 ohms, the minimum distortion was 0.04 percent from 50 to 100 watts, increasing to about 0.3 percent at 110 watts and 1 percent at 200 watts. The distortion varied only slightly with frequency. At the rated power (into 8 ohms) it was typically 0.035 percent from 20 to 10,000 Hz, rising to 0.04 percent at 20,000 Hz.

With the tone controls centered, the frequency response of the amplifier was +0.0, -1 dB from 20 to 20,000 Hz. The bass and treble controls provided a maximum boost of 9 dB at 50 Hz and below and at 20,000 Hz. The maximum cut was 12.5 dB at 20 and 20,000 Hz. The midrange control's effect was at its maximum at 1,000 Hz but extended over the full 100- to 10,000-Hz range, with a ±6-dB control range.

The RIAA phono-equalization error was about +0.8 dB from 25 to 300 Hz, essentially zero from 1,000 to 10,000 Hz, and -0.7 dB at 20,000 Hz. The phono-preamplifier input termination was 47,000 ohms in parallel with 87 picofarads. The phono stage overloaded at about 135 mv over the 20- to 20,000-Hz range. The amplifier's sensitivity, for a reference 1-watt output, was 16 mV through a high-level input and 0.24 mV through the phono input, with respective A-weighted noise levels of -79 and -75.2 dB referred to 1 watt. The loudness compensation boosted only the lower frequencies (those below 100 Hz) by a maximum of 8 dB.

The FM tuner's usable sensitivity was 13.5 dSb (2.6 µV into 300 ohms). The 50-db quieting sensitivity was 17 dSb (4 µV) in mono and 38 dSb (49 µV) in stereo. The distortion at 65 dSb was 0.14 percent in mono and 0.065 percent in stereo, with a noise level of -78 dB in mono and -67 dB in stereo. The capture ratio was 2.3 dB, and the AM rejection was a very good 72 dB. The alternate-channel selectivity of 65 dB was good, and the adjacent-channel reading of 13 dB was well above average. The muting and stereo/mono threshold level was between 35 and 38 dSb (31 to 44 µV). Pilot-carrier leakage into the audio was -70 dB, and the power-line hum level was undetectable (better than -90 dB).

The FM frequency response was +0.75, -0.35 dB from 30 to 15,000 Hz (almost all of the variation occurred between 8,000 and 15,000 Hz). Stereo channel separation was excellent, reaching a maximum of 55 dB at 400 Hz and narrowing to 40 dB.

### FEATURES
- Tuner presets for six AM and six FM stations
- Auto or manual scan tuning
- Two pairs of speaker outputs, separately switchable
- Audio mute
- Switchable loudness compensation
- Bass, midrange, and treble tone controls
- Wire-loop AM antenna
- Coaxial jack for 75-ohm FM antenna; transformer supplied for use with 300-ohm antenna
- Four AC outlets (two switched)

### LABORATORY MEASUREMENTS
- **Usable sensitivity (mono):** 13.5 dSb (2.6 µV)
- **50-db quieting sensitivity:** mono, 17 dSb (4 µV); stereo, 39 dSb (49 µV)
- **Signal-to-noise ratio at 65 dSb:** mono, 78 dB; stereo, 67 dB
- **Harmonic distortion (THD + noise) at 65 dSb:** mono, 0.14%; stereo, 0.065%
- **Capture ratio at 65 dSb:** 2.3 dB
- **Dynamic headroom (relative to rated output):** 0.96 dB (8 ohms), 0.97 dB (4 ohms)
- **Dynamic power output:** 248 watts into 8 ohms, 350 watts into 4 ohms or 2 ohms
- **Dynamic headroom:** 3 dB (8 ohms), 4 dB (4 ohms)
- **Maximum distortion:** (20 to 20,000 Hz into 8 ohms): 0.045% at 125 watts, 0.045% at 62.5 watts, 0.04% at 12.5 watts
- **Sensitivity (for a 1-watt output into 8 ohms):** auxiliary/CD, 16 µV; phono, 0.24 mV
- **A-weighted noise (referred to a 1-watt output):** auxiliary/CD, -79 dB; phono, -75.2 dB
- **Phono-input overload:** 153 to 141 mV from 20 to 20,000 Hz
- **Phono-input impedance:** 47,000 ohms in parallel with 87 pf
- **RIAA equalization error:** +0.9, -0.7 dB from 20 to 20,000 Hz
- **Slew factor:** greater than 25

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**Stereo Review March 1989**
distortion increased at the clipping point, but the waveform rounding was gentle, and there were no obvious signs of distress from the receiver. Although we made no measurements of the performance of the Sonic Holography circuit, in listening tests it appeared to operate as effectively as it does in Carver's 4000T preamplifier. The performance of the Asymmetrical Charge-Coupled Detector was more ambiguous. With most signals its benefits were not required, and there were no audible effects from switching it on. With a few signals that had audible hiss, switching on the ACCD drastically reduced the hiss, although we could sometimes hear the noise “pumping” with program level changes. Unfortunately, I have few stations in my area that are candidates for the ACCD treatment. Under other receiving conditions, with more marginal stereo signals available, it might have performed to better advantage.

In any case, the Carver Model 6250 is a lot of receiver—powerful, easy to use, and highly versatile. It is a good value in its price range. Circle 143 on reader service card.
AUDIOSOURCE EQ TEN
EQUALIZER/ANALYZER

Julian Hirsch, Hirsch-Houck Laboratories

The AudioSource EQ Ten is a versatile twelve-band graphic equalizer and real-time spectrum analyzer with a built-in pink-noise generator and a separate electret microphone. It is furnished with a wireless infrared remote control that duplicates most of its front-panel controls. In addition to the typical equalizer functions of modifying program or loudspeaker response characteristics to suit the listener's taste, the EQ Ten is capable of automatically equalizing (flattening) the combined frequency response of a room and a speaker system in a few seconds at the touch of a button.

Most of the individual frequency bands of the EQ Ten are spaced at octave intervals; the three lowest frequencies are somewhat less than an octave apart. The gain in each band is set by its own center-pivoted control button, located directly below its amplitude display, which adjusts the gain in 2-dB increments over a ±12-dB range. The setting in each band is indicated by the vertical position of a red LED; a green LED indicates the center (0-dB) setting. Two additional light columns show the overall level of each channel.

The EQ Ten’s display, which has two brightness settings, can be switched to show either the equalizer response or the frequency spectrum of the program. In the spectrum mode, a PAUSE button causes the peak value in each band to be held for 3 seconds or until a higher value is sensed in that band. If the button is held in, the entire display is frozen as of that moment, allowing a detailed examination of the program spectrum.

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The EQ Ten is designed to be inserted into a system through a tape-monitoring loop, and it has its own input and output jacks for two tape decks. Front-panel buttons allow a signal to be equalized either before or after it is recorded, and two decks can be cross-connected for dubbing from either one to the other. The signal can be monitored from either the input or output of a tape deck or directly from the line inputs. A REVERSE button allows an equalized tape to be played back without further equalization.

To equalize the entire system automatically, one channel at a time, the supplied microphone (which has a 15-foot cable) is placed near the normal listening position and plugged into a front-panel jack on the EQ Ten. Two buttons switch on the microphone amplifier and the pink-noise generator, whose output replaces the normal line-input signal. The EQ-L (left) button is pressed, then AUTO-EQ. Normally, it takes about 10 seconds to complete the equalization for that channel, and the process is repeated, using the EQ-R button, for the right channel. The resulting equalization data can be saved in one of the four memories of the EQ Ten, from which the settings can be recalled at any later time. The equalization curves for both channels, which are usually somewhat different, are stored and recalled simultaneously.
This is an extremely ambitious cigarette. Even though it is an ultra light, it promises to deliver a richer, more satisfying taste than you’d ever expect at such low tar levels. And judging by the fact that it has quickly become one of America’s fastest growing brands, Merit Ultra Lights is fulfilling that promise. Enriched Flavor™ is the reason why. Only Merit has it. So raise your expectations of ultra low tar. Switch to Merit Ultra Lights.

Enriched Flavor™, ultra low tar. A solution with Merit.
The EQ Ten has two pairs of level adjustments. One, marked SEN, varies only the sensitivity of the display to center a change in the ±12-dB display range; it does not affect the signal level going to the amplifier. That function is assigned to the VOLUME buttons, which should be set so that using the equalization does not change the average listening volume materially. At its maximum volume setting, the EQ Ten is rated to achieve unity gain (0 dB).

A FLAT button on the panel instantly restores a flat response in both channels for convenience in judging the effect of the equalization, which can always be restored by touching the appropriate memory button. The memories should retain their information indefinitely, even when the unit is turned off, as long as the EQ Ten is connected to a powered AC source, such as an unswitched outlet on an amplifier or receiver.


Lab Tests

The maximum gain of the AudioSource EQ Ten was exactly 0 dB, as rated, and its maximum input/output voltage (without clipping) was 3.9 volts (rated 4 volts). At a 1-volt output, the 1,000-Hz distortion was 0.12 percent (rated 0.008 percent). The A-weighted noise level was a very low —109 dB referred to a 0.5-volt level (rated —93.7 dB). The output of the built-in pink-noise generator was 140 millivolts (rated 150 mV), and its spectrum conformed closely to that of true pink noise, whose amplitude increases by 3 dB per octave with increasing frequency.

The center frequencies were close to their rated values. Although many of the bands came close to equaling the ±12-dB-rated adjustment range, five or six of them could only develop a 10-dB boost, and all were limited to a maximum cut of 10 dB. We noted that the display for each band has only eleven LED's (five for boost, five for cut, and one in the flat position), which suggests that the EQ Ten may have been originally designed for a ±10-dB range, but the difference is insignificant for the intended application of the equalizer.

With all bands set flat, the frequency response was down 1 dB at 17 and 22,000 Hz. Response adjustments in the higher frequency bands had an appreciable effect at ultrasonic frequencies (for example, there was a boost of 9 dB at 80,000 Hz when the 8,000-Hz band was set for maximum boost). Although this never caused any problem in our use of the EQ Ten, it could conceivably create high-frequency overload under certain conditions.

Comments

The EQ Ten’s most noteworthy feature, especially for an equalizer so modestly priced, is the AUTO-EQ function. Computerized equalizers have been available for a number of years, notably from dbx, but at several times what the EQ Ten costs. Although it lacks some of the features of the higher-priced products, its capabilities are probably better suited to the needs of the typical hi-fi enthusiast.

The idea of equalizing speakers and room simultaneously to produce a flat frequency response is appealing, especially when it can be accomplished in a few seconds at the touch of a button. Within limits, the AudioSource EQ Ten can indeed do this—perhaps not as accurately as a more expensive unit, but certainly more accurately than most people can manage by manually adjusting a graphic equalizer. By itself, however, automatic equalization rarely results in a sound that is subjectively “flat,” no matter how precisely it is accomplished.

Essentially, equalization is an attempt to flatten a system’s room response, which is largely a function of the speaker’s acoustic power output as modified by room absorption and resonances. But a flat response at the speakers usually results in a response that is not flat in the listening area forward of the speakers. I have never heard a genuine improvement in the sound of a system as a result of flattening its measured response at the listening position—the listening process is far too complex for such a simplistic approach. In this respect, the EQ Ten was no exception.

The EQ Ten’s computer-derived equalization curve can easily be seen on the display and correlated with what is being heard. A little experimenting with manual adjustment of the equalizer soon indicates how to correct the response for the listening position. The whole process is far swifter than manual equalization from scratch, and once the AUTO-EQ response has been modified to achieve the desired results, the final curve can be memorized in place of the computer-derived one.

Apart from its AUTO-EQ feature, the AudioSource EQ Ten offers above-average versatility as a straightforward hi-fi equalizer with extensive pre- and post-equalization taping functions and dubbing configurations. Despite a multitude of buttons, it is not difficult to use, although careful study of the instructions and hands-on practice is essential. Its multiple memories are also a highly desirable feature. Altogether, an excellent value.

Circle 144 on reader service card

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**Test Reports**

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Circle 144 on reader service card
A GUIDE TO QUALITY VIDEO FOR THE AUDIO ENTHUSIAST

A Special Advertising Supplement Produced for

Stereo Review

BY BRUCE APAR
27" model 27J245 with 8 Video inputs, 2.5 megabytes of memory, S-Video input, Variable audio outputs. Winner of EIA's "Innovations '88" design and engineering award. 31" model 31J460 also available.
No matter how good your conventional color television is, our IDTV monitor receiver is superior. By far. Because Philips IDTV (Improved Definition Television) will show you an image that has greater accuracy, better definition and less noise than any available today.

Superior technology. Conventional television and monitors display 262½ scanning lines every 1/60th of a second to "paint" the image on the screen. With Philips non-interlace technology, the scanning rate is doubled to 525 lines. As a result, scanning lines are eliminated and vertical resolution is improved by 40%. And Philips patented "Median Filter Algorithm" overcomes distortion typically associated with other double scan systems.

Plus you can dial down video noise from broadcast or direct video sources digitally by up to 12dB for a cleaner image with significantly greater video noise reduction than any currently available. And our revolutionary digital field comb filter provides up to 480 lines of horizontal resolution detail.

Superior features. With Picture-In-Picture (PIP) and dual tuners built in, two programs can be watched simultaneously. PIP also allows previewing up to nine channels at once on the screen. "Still Picture" freezes images that otherwise would be missed. Our 49-button Philips LCD/Learn Uniremote also controls most TVs and any brand of VCR, cable or audio product.

Throughout the world, Philips has long set the standards for audio and video performance. We continue our leadership in digital technology with Philips IDTV—the highest standard in today's television technology.

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AND LATER, AND LATER.

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By joining forces, hi-fi audio and video components have forged a singleness of purpose—total entertainment that brings home the sight and sound spectacle of a movie theater or live event.

New media such as CD-Video and enhancements like Dolby Surround sound have silenced those critics who once didn’t suffer gladly the sound of video.

Dolby Surround sound has silenced the beholder. “The effects, ambiance and multidimensional atmosphere which the surround channel provides,” according to Dolby Labs, “enhances the visual experience to such a degree that it gives one the illusion that the image is larger.”

**EYE-FIDELITY PICTURES**

Ever try driving with your ears plugged? Quite unnerving. Instead of driving, do it while watching TV. Then again, don’t bother. Because unless your videoscreen is wired for hi-fi stereo sound, you’re watching TV with your ears plugged.

As TV pictures have moved closer to razor-sharp eye-fidelity, their accompanying sound has remained ear-tattingly inferior. The electronic imbalance in sound/screen quality results in a chemical imbalance in the viewer’s brain. Distraction sets in faster as the attention span shrinks.

For the past 40 years, we’ve been subject to this sort of sensory deprivation. Compared with the video picture you see, typical TV sound is still in the dark ages.

**FROM DEPRIVATION TO REVELATION**

Stop staying unlightened. Come to your senses and sample the marvels of Video Hi-Fi waiting for you in the new generation of TV monitors, super VCRs, laserdisc players, surround sound components and more. You’ll see and hear a whole new world of wonders that is nothing short of... well, sense-ational.

It doesn’t take a spec-spouting purist to enjoy the sensual pleasures that pour forth from a multimedia center. Just don’t expect every single piece of gear to excite friends and impress people. Untrained eyes or ears may not immediately appreciate the detail in a Super VHS picture or the tonal texture of stereo TV sound.

When these perform in ensemble, though, home viewers will be held in thrall, perched at the leading edge of a new age in home entertainment.

There is an aura that attends the Video Hi-Fi experience. Stereo TV is a first step, a building block. Moviegoing enganges us in ways watching TV seemingly cannot because it’s a unique chance for personal reflection in the shared context of a social event. More viscerally, the modern movies’ main attractions are: 1) the size, shape and high-definition of the widescreen image, and 2) the high fidelity and surround sound of the Dolby Stereo system popularized in 1976 with Star Wars and used extensively since in over 1600 movies, on music videos and even in TV telecasts such as the Super Bowl.

**NEW WAVE ELECTRONICS**

The new wave of home electronics is able to recreate the acoustical ambiance and visual embrace that give commercial entertainment its power and its gloss. Better yet, certain of Video Hi-Fi’s features provide what movie theaters certainly can’t—myriad remote-controlled entertainment choices at your fingertips, and multi-room capability for family members to enjoy different audio and video selections, at the same time.

Engineering ingenuity has conjured up high-performance mini-theaters for the home unimaginable a few years ago. There’s Dolby Surround everywhere you turn, in receivers, amplifiers and TV monitors. High resolution TVs, VCRs and laserdisc players approach studio-quality monitors. Even big-screen TVs are sharper than ever. Selected movies are showing up on tape and disc in the same seductive shape (widescreen) they exhibited in movie houses.

The best is still ahead. When the 1990s arrive, so will high definition television (HDTV), with video as vivid as 35 mm still or motion pictures. There’s even the prospect TV screens will arrive, so will high definition television (HDTV), with video as vivid as 35 mm still or motion pictures. There’s even the prospect TV screens will arrive, so will high definition television (HDTV), with video as vivid as 35 mm still or motion pictures. There’s even the prospect TV screens will arrive, so will high definition television (HDTV), with video as vivid as 35 mm still or motion pictures.
GET IN REMOTE CONTROL

The Luxman Remote Control Center (TP-117, $1,800) is a tuner with two preamps that permits two-zone operation in several areas of a home. Each zone plays an independent program source. (e.g., a CD can be heard in the living room while a surround sound video is playing in the family room). Using two or three TP-117 units creates up to six zones for up to 30 rooms, each zone having the same independent source selection and volume control. Four audio/video input jacks. Compatible Luxman components include infrared remote sensor for each room (RC-501, $100), 50 watt power amplifier (M-113, $600), remote keypad (RTP-117, $60), and remote repeater (RC-503, $150), which allows the RTP-117 remote to control any non-Luxman equipment.

MEET F.R.E.D. THE DECODER

The Recoton MTS Stereo TV Decoder, nicknamed F.R.E.D. (V524, $179), enables almost any non-stereo TV or VCR to receive programs telecast in stereo, and mono programs in simulcast stereo. It connects to the audio inputs of a hi-fi system, with its special probe attached to the TV or VCR cabinet. Built-in 12 watt amplifier. Separate volume, balance, bass & treble controls. Coaxial cable TV connectors. Second audio program (SAP) function. Dynamic Noise Reduction (DNR) button & dbx circuitry. Headphone jack. Auxiliary input for VCR playback, dual stereo output jacks. MPX input jack for stereo-ready TVs. Pictured is F.R.E.D. II. On F.R.E.D. III ($199) are separate volume, balance, bass & treble slide controls.

HOME VIDEO JUKEBOX

Designed to make home editing as slick and easy as you please, DirectEd Plus ($549) is an ingenious add-on from Videonics. It's used with two VCRs (second can be a camcorder) and is complete with titles, graphics, the works. Used in tandem with DirectEd is CollectEd (pictured, $79), which automatically indexes (by title & artist) and retrieves music video selections you've recorded. No guesswork, no awkward card file. Your own music library is just a remote key away. New is ProEd ($995), which hooks up to editing VCRs with remote control jacks.

SUPER TAPE

Sure you can use regular VHS blank tape on a Super-VHS VCR, but you won't be recording the very high frequencies that are the hallmark of an S-VHS picture. For that you need a special grade cassette. Super VHS tape is available from TDK and Maxell among others, with a list price in the $20-plus range. Maxell also makes a premium tape for VCR hi-fi recording. Called XL Hi-Fi, it is the top of Maxell's line of videocassettes.
We put so much into our new RZ-7000 Computerized Stereo A/V Receiver, we thought it deserved a new, sleek look on the outside, too. It deserves more because it provides a better man/machine interface that makes every operation simpler and more logical. Like the station call/equalization memory system: not only can you preset stations and equalizations, you can give them four-character names for quick and easy recognition. You can even make an equalized setting part of the station preset.

And it deserves more because it has everything you need to incorporate audio and video components into a single versatile system. Don't you think you deserve the RZ-7000?

The RZ Series of receivers consists of the RZ-7000, RZ-5000, RZ-3000 and RZ-1000.
Erich Kunzel captures The Pink Panther — and all of Henry Mancini's unforgettable music in one pure gold release: Mancini's Greatest Hits. 68 minutes of the Mancini music you love. 24 hits — from Moon River to The Thorn Birds — performed as only Erich Kunzel and the Cincinnati Pops can. With a contemporary flair. Exciting. And slightly unexpected. We call it The New Pops Culture. You'll call it fantastic.
KOSS TAKES THE KORDLESS STEREOPHONE TO NEW HEIGHTS, WIDTHS AND DEPTHS.

KOSS’ JCK/300: THE SECOND GENERATION OF THE KORDLESS STEREOPHONE. Ever since Koss invented the SP/3 stereophone over 30 years ago, the company motto has been the same: If at first you do succeed, try, try again.

So even when the JCK/200 Kordless Stereophone became one of Koss’ biggest successes, research and development continued. The result is the finest Kordless Stereophone system available today: The Koss JCK/300.

IT CONQUERS INNER SPACE WITH FOUR TIMES MORE POWER. At the heart of the JCK/300 is a new transmitter with up to four times more power than conventional infrared headphone systems. The transmitter consists of two pieces: A modulator and an emitter panel. The two may be snapped together, or the emitter panel can be hung separately for maximum dispersion, and connected to the modulator with an accompanying cable.

The result of all that power is three-fold. With more signal, infrared interference is significantly reduced, effectively increasing the signal-to-noise ratio. Secondly, reception is improved, particularly in fringe areas where signal loss might otherwise be a problem.

And thirdly, it is now possible to enjoy the Kordless Sound Of Koss in an even larger room than ever before.

Or perhaps that should be “rooms.” Because Koss has made it possible to “daisy chain” up to four additional emitter panels together by cable so that you can enjoy the JCK/300 wherever the music moves you. Whether it’s watching a music video on the living room TV, or settling back to the sound of a CD in the bedroom.

GREAT SOUND IN, GREAT SOUND OUT. To fully capitalize on that improvement in transmission, Koss developed better stereophones. The JCK/300 headset contains two new transducers that supply a smoother, flatter response.

And there are additional creature comforts, like separate level controls for each channel. Of course, no amount of description here can serve as a substitute for an actual audition. That’s why Koss encourages you to try the new JCK/300 at your favorite audio or video store. And discover a Kordless listening experience of incredible proportions.


For more information call 1-800-USA-KOSS.

CIRCLE NO. 55 ON READER SERVICE CARD
"I'D LIKE A VCR WITH EVERYTHING ON IT"  
No digital effect is left unturned on JVC's deluxe Super-VHS VCR (HR-S8000U, $1,600). It has a rare zoom function that enlarges any quarter of the picture to full-screen size. Multi-screen digital freeze, channel scan & strobe, plus solarization & mosaic patterns. Intro search sequentially calls up, scans past every recorded segment on any tape at start of recording. Index search. LCD programmable remote also controls TV volume. 181-ch cable tuning. Fixed & variable audio jacks and multiple video jacks. Later this year, JVC bows the HR-S10000, with even more advanced editing and other features.

PRODUCT SHOWCASE

FIVE FEET OF TV  
A screen measuring five-feet diagonal in an oak veneer cabinet with folding doors is the focal point of this Mitsubishi stereo monitor/receiver. (The company's Diamondvision screens are a popular sight in sports arenas around the country). Auto-programmable channel memory scan tuning: A/B antenna switching (eg, for broadcast/cable). 181-ch cable tuning. On-screen display of time, channel, channel lock. S-Video input, variable/fixed stereo outputs, two video & stereo audio outputs. Video & tuner output. 560 lines resolution. Illuminated remote.

I WANT MY IDTV!  
With true high definition TV (HDTV) some years away, Philips harnessed HDTV research to bow improved definition TV (IDTV). The most visible difference in this digital technology is the virtual lack of scan lines seen on conventional sets, with a 40% improvement in picture quality. Philips 27-in. IDTV (27J245SB, $1,500) has two tuners with picture-in-picture that displays up to nine channels on-screen at once. Smart 49-key remote controls most other brand components. Surround sound (5 watts/ch). Variable audio out & S-Video connectors. On-screen channel display & lock-out. Sleep timer. Also available, 31-in. screen size with 10 watt/ch amp for surround sound. $2,600.

DIGITAL SOUND ALL DAY LONG  
If you're forward looking and looking for another VCR, consider Sony's Video 8 PRO (EV-S800, $1,950). The 8mm metal tape videocassettes are audiocassette size. PCM digital stereo recording in video mode, up to 24-hr digital recording on single tape in audio-only mode (with six 4-hr tracks). 99-position index to instantly find any selection. Jog shuttle dial on deck & remote for precise control of transport, other functions. MTS stereo or cable tuner. Synchro edit feature with flying erase head, for use with camcorder or editing controllers. Two sets of video, audio outputs. Tape remaining indicator.

TV GOES TO PIECES  
High-end performance and design meet in the XBR Pro component TV system from Sony. Featured in the modular TV are a 25-in. monitor, MTS tuner (15 w/ch Amps) and a pair of APM speakers, with all functions remote controlled. Black matte finish & cubic design blend in well with comparable hi-fi gear. Matrix surround sound stereo. Direct video & stereo audio inputs, S-Video connectors. Variable audio & video/stereo audio outputs. 560 lines resolution. System is $2,499.95, monitor alone is $1,699.95. Also available are single-unit XBR Pro monitor/receivers in 27-in. ($1,299.95) and 32-in. ($2,699.95) screens.

DISC-O-RAMA  

LOOK MA, NO HANDS  
You don't have to flip over changing discs mid-movie with Pioneer's LD-W1 LaserDisc Player ($1,700). The unique double-tray design precludes turning over or switching discs to continue watching a movie or other program. Jog shuffle dial on remote for precise scan & slow motion. Other special effects include still picture with sound, strobe motion with sound. Also two-way frame-by-frame still-step, instant search by frame or real time, dual-speed scan in full color, nine-step multi-speed play and six-mode repeat. Auto play of up to 20 chapters in any order. On-screen status display. Remote controls other Pioneer sets. Pioneer's top-of-the-line LaserDisc Player is the LD-S1, with single-disc play and a host of deluxe features, $2000.
COMPROMISING WITH YOUR TAPE IS LIKE COMPROMISING WITH ANY OTHER COMPONENT IN YOUR SYSTEM.

Even the most advanced system is only as good as the tape you put into it. That's why Maxell has created XLII-S.

Its unique Epitaxial formula combines gammaferric oxide and cobalt ferrite for superior response at all frequency levels. The resulting superfine particles offer unprecedented clarity and brilliance. And make XLII-S the perfect tape for recording your most demanding sources.

So match your tape to the other components in your system and use only XLII-S from Maxell. Anything less is just kid stuff.
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Remember, if it plugs into the wall, protect it with ComponentGuard.

ComponentGuard coverage is sold at fine audio, video and electronics stores everywhere. Or, call 1-800-421-9820.
Film sound wizard Rich Chace is setting Hollywood on its ear with his patented processes that eliminate noise from older films and convert monaural soundtracks to stereo for theater, TV and video release. Far from being a gimmick, Chace's work has done wonders for over 100 movies including classics like Gone With the Wind, Casablanca, and Yellow Submarine. When lifelong jazz fan Clint Eastwood needed someone to restore Charlie Parker's original recordings for the soundtrack of Bird, he knew who to call.

Q. How did you end up working with Clint Eastwood on Bird?
A. We had done a number of Clint movies in stereo, starting with Dirty Harry. The word I got was that when Clint heard what we did he stood up from the couch and said, "That's terrific! We've got to do them all this way." About eight months before he started Bird, Sondra Locke (his wife), and his editor, Joel Cox, restored his 78 collection of jazz records. They used our equipment to clean the stuff up and put it on cassette, and gave it to him for his birthday. When he decided to do the movie, he came to me through Joel. He went to France and came back with original tape of Charlie's work. Some of the earliest tape recordings... paper tape.

Using our stereo processor, we were able to isolate the sax part and attenuate other parts enough that they were able to reorchestrate those other parts and let the sax part sit out front. We made them sound as good as they ever could have and a little bit better. You don't hear clicks and pops, there's almost no hiss level. And it sounds wonderful.

Q. You recently made The Godfather into stereo for TV broadcast. Wasn't that originally in stereo?
A. Everybody thinks everything made in the last 15 to 20 years was in stereo. That simply isn't true.

Q. How does your process differ from synthesized stereo?
A. Please don't compare me to that. I call it "fat mono." We have full surround. Our stereo shows up wherever you are in the room. It's very big so even on small sets you hear it, and on big sets it's wonderful.

Q. What's the difference between watching TV in stereo and in regular TV sound?
A. If you press the mono button, you hear a sense of loss. When stereo comes in, you feel like you're getting something extra. Stereo gives you more involvement with the picture.

Q. What was it like working on the restoration of Gone With the Wind's soundtrack for its 50th anniversary this year?
A. A wonderful sound man at MGM, Scott Perry, went to the vaults and located some virgin, almost untouched separate sound elements that had never been played. We made them sound as good as they ever could have and a little bit better. You don't hear clicks and pops, there's almost no hiss level. And it sounds wonderful.

Q. Didn't you add stereo to the Beatles' Yellow Submarine?
A. Warner and I agreed we should replace the music in that with the real stereo from the record. We didn't know how bad the mono track was until they sent us over the negative and said, "Ok, make up stereo from this." It was distorted. When it came out, in 1968, the sound for movies had been the same since Gone With the Wind. Warner is an extremely sound-conscious company. They got a nice fresh Dobby mono copy of it they found in England. It was better by far and we made the stereo from that. So the soundtrack on the video is better than the movie ever sounded.

Q. What were some of your toughest projects?
A. Bullitt was a tough one, that car chase scene. I recommend it if you want to rent it. That took a whole day to do. It was an event in itself. Gone With the Wind was the most challenging because it took so long, two months. Typical time is two weeks. We're dealing with a theatrical venue, so little errors that are infinitesimal in speakers six feet apart are going to be noticed severely in speakers that are 60-feet apart.

Q. How costly is your process?
A. If we don't have much work in the mono stage, about $8,000. If there's a transfer involved and clean-up, it's between $12,000 and $15,000. The high end is around $20,000, not counting Gone With the Wind, which cost the same as two movies in that range.

Q. Is your system patented?
A. Yes. We've been trying to get our name on the package, Chace Stereo, like Dolby Stereo. We have Dobby's blessing on this. We both end up compatible with each other, but I start with one channel and they start out with four.

Q. Have other directors besides Eastwood reacted to your work on their films?
A. Stanley Kubrick sent us a reel of A Clockwork Orange to see what we could do with it and we did it. He was surprised at how good it sounded. He said he was going to wait and so it's on hold. But he thought enough of it to call me from London and tell me that he liked it.

Q. What's next as far as the technology you work with?
A. Have you heard of No Noise? It's a group of people who broke away from George Lucas and started their own company. They came up with a computerized process that removes the noise from audio tracks without affecting the music or other material. We have the first one in L.A. We've been making them real quiet for a long time. This is a quantum leap. We're talking industrial strength, major state of the art.

### Movies Back to Life

- Gone With the Wind
- Casablanca
- Yellow Submarine
- Yankee Doodle Dandy
- White Christmas
- Giant
- The Wizard of Oz
- Rebel Without a Cause
- Bullitt
- Dirty Harry
- Rebel Without a Cause (Warner)
Laser Discs From CBS FOX

Die Hard
Sugg. Retail Price $49.98

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(Available the end of March)
Sugg. Retail Price $39.98

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CIRCLE NO. 43 ON READER SERVICE CARD
ALL SYSTEMS GO
SUPER SETUPS THAT SOUND AS GOOD AS THEY LOOK

Electronics elegance is epitomized in this high-tech, high-rise apartment overlooking New York's Central Park. Audio Command of Rockville Centre, NY worked closely with owner Mark Terk and interior designer Scott Bromley. The result is a fully integrated multimedia entertainment system. Not pictured is a ceiling-mounted projection TV with a flat screen that pulls down in front of the built-in TV. Mr. Terk can independently control any of eight different A/V sources in any of four different areas or zones throughout the home via special microprocessor-controlled panels with alphanumeric read-outs. Each room has its own TV, and two of the control panels also adjust lighting. Says Terk: "I hate having buttons that don't do anything."

Photo by Mike Grimaldi.

ROOMS WITH A VIEW

SPEAKERS OF PRICE OF ADMISSION $10,000 to $15,000 (cabinetry not included)
FEATURED PLAYERS Kyocera R861 receiver, P811 cassette deck, PL701 turntable, DA 710 CX compact disc player, RC101/RT102 remote controller and terminal, Pioneer CLD-1010 LaserDisc player, NEC 965 hi-fi VCR, NEC 4650 46-in. projection TV, Dahlquist DOM-9 speakers, Niles speaker switchbox. Not pictured: six pair Sonance 3 speakers, 4 RS203 remote sensors.

SYNOPSIS Main components can be remote controlled via sensors in four rooms—master bedroom, kitchen, breakfast room and exercise room—where Sonance speakers are installed. Master bath also has speakers. Remote terminal controls all transport functions of electronics. Projection TV sound plays through stereo system, with speakers installed behind grilles at top of cabinet.

SECOND FEATURE The Shure Home Theater Sound (HTS) series of components are priced separately but designed to work together for optimum audio/video surround performance. The HTS models also are sold together as the

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THE HOUSE

THE COMPLETE HTS Theater Reference System. For $9,600 you get three signal processing amplifiers (100 w/ch each), a Dolby-compatible Acra Vector Logic Decoder, four speakers for left/right front and surround sound, a subwoofer, and a center channel speaker.

CREDITS Media installation by Audio Encounters, Dublin, Ohio. Photos by Garrett White.

MEET OUR COVER MODEL

PRICE OF ADMISSION Over $40,000 (cabinetry not included)

FEATURED PLAYERS Sony 1040Q video projector (not pictured), Draper 100-in. (diagonal) screen, 2 NEC 20-in. color monitors w/remote, Proton video tuner w/remote, 1 pair B&W Matrix speakers (front), 2 pair ADS speakers (surround), Canton speaker (center channel), Canton subwouler, 2 Adcom 555 200-watt amplifiers, 2 Adcom 545 100-watt amplifiers, 1 Crown D-75 amp (for subwoofer), 1 Adcom tuner, NEC PLD-910 Pro Logic surround processor w/remote, NEC 8000 Super VHS VCR w/hi-fi sound & digital effects, NEC 965 Hi-Fi VCR, Pioneer CLD-3030 LaserDisc Player, Denon DCN-555 compact disc changer, Audio Command 9000 control center console, GE universal handheld remote. Not pictured: B&W, ADS, KEF speakers throughout house with built-in control panels, plus six outdoor Rockoustic Rocky Jr. speakers (33 speakers total), 3-jack headphone panel built into Sony projector/coffeetable.

SYNOPSIS This is a 2-zone system, meaning the media room (shown) can be playing one audio/video source while a separate component is being used in one or more areas of the house. Each area has its own speakers and in-wall control panel that selects source, and controls on/off, local volume & transport functions of VCR, CD et al., and also readout of operating status. Coffeetable in media room has three headphone jacks to enable private listening to three different sources (TV, CD, etc) for three people. Empty space at bottom right of equipment bank reserved for digital audio tape (DAT) recorder. Machines can be purchased in this country through professional audio retailers and other sources.

SECOND FEATURE Even going out to a movie can't beat this setup.

YOU JUST HAD TO BE THERE.

Woodstock. Buzzing with the presence of half-a-million people down on the farm for three unforgettable days of peace, love and rock and roll.

Zenith's 27" Digital TV with Sound by Bose brings it back. Capturing the emotional impact of a live performance with the world's most advanced built-in television sound systems.

Bringing you sounds you never heard or felt before from a TV this compact. Without surrounding you with a roomful of components.

It starts with the stereo signal Zenith invented, fed into the separate left and right amplifiers of a specially designed Bose sound system. Front-firing TWIDDLER™ drivers provide spaciousness and presence, filling the air with crisp, clear mid-range and treble harmonics. All shaped into astonishingly true-to-life stereo images that complement the picture beyond the capabilities of separate component systems.

Next, deep, clear bass is added by the exclusive Bose Waveguide technology, immersing you in the on-screen action, even at low levels. With virtually no distortion, even at earth-shaking volumes.

Finally, instead of the old-fashioned loudness button, an exclusive dynamic equalization circuit automatically adjusts bass levels to give you natural tonal balance with extraordinary richness and clarity at all volume levels.

And because it's digital, Zenith's square-cornered picture brings you sharper, more vibrant colors than ever before. Plus on-screen displays. Built-in Teletext for instant news, weather and sports. And a full set of jacks that make it the ultimate receiver/monitor for everything from VCRs and cable to PCs.

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U.S. Video Source is all you need to know about Laser Discs!

1-800-USA-DISC
ABOUT LASERDISCS
One Is Silver, the Other Gold

It may surprise some, but laser video discs (LV) have been around longer than laser—or digital—audio discs (CD). Ironically, it took the popularity of compact discs in the mid-Eighties to renew interest in the laser disc. There are 2000 movie and music titles on laser disc, most priced $25 to $70 apiece.

Laser discs come in one shape—round—but in various sizes, three to be exact, and in silver and gold. The silver platters are either 8- or 12-in. diameter. A limited number of laser discs are in the 8-in. size, mainly for music releases of 30 to 40 min. This year, new, thinner 8-in. singles are due in the U.S. Most video discs are in the larger, LP size, play up to 60 min. per side. A special disc type, called CAV, limits play to 30- min. per side but allows full use of all laser features, including freeze frame, slow motion and random access by individual frame within seconds. One disc side contains up to 54,000 frames. Special pressings of movies and special interest discs often will be marked "CAV." It is ideal for informational and educational purposes.

Voyager Press, also known by its label Criterion, specializes in laser discs that use the full features of CAV. For classic films, like King Kong and Citizen Kane, on the second audio track will be expert commentary that can be listened to while watching the movie. Supplementary material—such as production stills, outtake footage, original scripts and trailers—is sometimes included. Widescreen movies also are seen in their original shape, which Voyager calls Videoscope. All this comes at a premium, $50 to $100 plus per title.

CD Video—five-in., gold-tinted compact discs—is another type of laser disc. It has five minutes of video and up to 20 min. of digital audio only, which may be accompanied by still images.

The prime mover behind CD Video is Polygram. Its labels include Deutsche Grammophon, London, Philips Classics, Polydor, Mercury and Wing. Polygram distinguishes its laser disc titles from all others by using CD Video to identify not only its 5-in. (CDV-Single) releases, but also its 12-in. (CDV-LP) and 8-in. (CDV-EP).

CDV-Singles sell for under $10, while longer-form CDV-EP and CDV-LP titles are priced $15 and up. Below is a sampling from the more than 100 CDV titles available. All are Polygram labels, except where noted.

CDV-EP (8-in. silver)
Kiss: Crazy Nights

CDV-LP (12-in. silver)
The Robert Cray Band
Heavy Metal Compilation Various Artists
Eurythmics: Live
Del Leppard: Hysteria
Bernstein: West Side Story
Ira Te Kikawa
Jose Carreras
BBC documentary with music
Tina Tumer: Live in Rio
Wagner: Der Ring Des Nielenburg
Pierre Boulez: Siegfried, Gvotterundzumung
The Who: Who's Better Who's Best

CDV-Single (5-in. gold)
Joshua Bell: Brahms Hungarian Dance #1
MTV-type concept video in b/w
Yngwie Malmsteen: Heaven Tonight
Fat Boys: The Twist
John Cougar Mellencamp: Paper In Fire
Donald Fagen: New Frontier (Warner)
Randy Newman: I Love L.A. (Warner)
Tears for Fears (Warner)
Madonna: Papa Don't Preach (Warner)
Bob Jovi: Livin' On A Prayer

See D Graphics
What's so special about the CD of Talking Heads' Naked album? It's the first to feature CD+Graphics. With the proper circuitry (built into a CD player or in a separate decoder), you can view song lyrics, follow the instruments at play and similar computer-like color images. The brainchild of Warner New Media, CD+G is constantly being refined. Information Society is another CD+G, and Lou Reed's New York recently became the third entry. A&M Records is releasing Transmissions from Gentlemen Without Weapons as its first CD+G. JVC offers a $500 decoder that plugs into your CD player and TV.
NOW YOU GET THE PICTURE

Introducing CD Video: uniting the superb sound of a digital compact disc with a rich, vivid, high resolution picture. Watch your favorite music performance, videos and concerts or simply listen to the best music reproduction money can buy.

Whether you choose the Magnavox CDV474, or any of the other superb new players, you can play your entire collection of compact discs plus all laser-read five, eight and twelve inch video discs. This makes CD Video the ideal home entertainment theater — you can see great performances by Luciano Pavarotti, Rudolph Nureyev, Herbert von Karajan and many others:

Also great music by Bon Jovi, Cameo, Cinderella, Robert Cray, Def Leppard, Kool and The Gang, Rush, John Cougar Mellencamp, and many more.

CD VIDEO IS MUSIC TO YOUR EYES!
Front Row Center. No crowds. No traffic. No standing in line. Tonight and every night, the best seats in the house are right here. In front of the Pioneer CLD-3030 combination CD/CDV/LaserDisc™ player.

Simply put, LaserDisc players deliver the best picture and sound you can get. The CLD-3030 plays both audio CD's and video laser discs, in all sizes. It also offers you eight different modes to produce spectacular digital video special effects. And choose from a catalog of laser discs ranging from movies to jazz to operas to encyclopedias. All backed by 18 years spent perfecting LaserDisc technology.

Whether it's audio, video or both, the new line of Pioneer LaserDisc players is the only home entertainment source worth staying home for.
Before you buy a TV, look around.

Toshiba's new 27" color TV is designed from an unusual point of view. All of them. No matter how you look at it, it's an unbelievably advanced TV. It has a five-speaker stereo sound system with a sub-woofer and Carver Sonic Holography®, for sound that puts you right in the middle of the action. 520 lines of horizontal resolution, Super VHS, dual RF and full A/V connections. Full on-screen displays. 181-channel cable compatibility. Toshiba's FST® tube. And to back it up, a 30-month limited warranty, one of the longest in the business. 

And if all that sounds like the kind of television that belongs up on a pedestal, don't worry. We've already done it for you.
PARTICIPATE IN 
THE STEREO REVIEW 
BUYER POLL

Stereo Review wants to know more about our readers. How much equipment you buy (and how often), how much you spend on it, what sort of product features you like. That will help us create a better, more informative magazine, specially geared to your tastes and preferences.

To gather this important information, we've created the Stereo Review Buyer Poll. And we need your help to make it work.

If you've bought any equipment within the past 30 days, we'd like you to participate (see instructions below). We'll use the information you give us to keep manufacturers up to date on the buying habits of stereo enthusiasts—the most knowledgeable group of audio buyers in the country. And in the long run, that will mean better service for you.

HOW TO PARTICIPATE
You can participate in the Stereo Review Buyer Poll by sending in the Reader Service Card appearing next to this page. We've provided space for you to list any equipment purchased in the past 30 days. Any kind of audio/video equipment qualifies.

For example:

Home Audio Components
- Amplifier
- Receiver/Tuner
- Speakers
- Turntable
- Cassette Deck
- Equalizer
- CD player

Portable Stereo
- Portable Cassette Player
- Portable CD Player
- Headphones

Car Stereo
- Tuner
- Cassette Deck
- Speakers

Home Video
- VCR
- Camcorder
- Videodisc Player
- Stereo TV

Fill in the type of equipment, manufacturer, model number, and price you paid. Include all the equipment you bought this month. Then print your name and address and drop it in the mail (we pay the postage). It's that simple!

LOOK FOR THE BUYER POLL EVERY MONTH
The Stereo Review Buyer Poll will appear in every issue—just check the Table of Contents for that month's location. You can participate in any month in which you purchased audio/video equipment. Of course, even if you don't join our Poll, you can still send in the Reader Service card to get information about products advertised in that month's issue.

We hope you'll participate regularly in the Stereo Review Buyer Poll. Your answers are important to us—and you'll find the resulting benefits important to you.

Thanks for helping us out!

Stereo Review
Now to get the most out of your cassette deck, most of us don’t take the family car out to a test track to learn for ourselves just how hard we can corner without skidding or throwing the rear end out. It’s a lot easier—and safer—to perform analogous tests on your cassette deck, however, and the advent of digital recordings makes it important for you to determine just how far you can stretch your machine’s capabilities and still get good results.

Actually, cassette decks were not designed to accommodate the tremendous dynamic range and the high-level high-frequency content of CD’s and live music. Dynamic range is the difference (in decibels) between the maximum and minimum signal levels. In the case of a cassette deck, the minimum signal is residual hiss, which begins to rise with frequency at 2,274 Hz for metal and CrO₂-type tapes or at 1,326 Hz for ferric-oxide tapes. At the maximum level, cassettes are limited in the bass end by the onset of distortion. At the treble end, the maximum recordable signal level decreases as the frequency rises.

Thus, the dynamic range of a cas-
sette deck is narrowest in the high frequencies, where it is limited both by the rising noise level and by a declining achievable signal level. This is not a problem in recording FM broadcasts, which are limited to 15,000 Hz and are usually compressed in overall dynamic range in order to reach as wide an audience as possible. Very few LP's come close to the full dynamic range of live music at all frequencies, either. In the case of a CD, on the other hand, the available dynamic range is the same throughout the audio frequency spectrum. That's why the cassette's limitations show up as vividly as they do when you try to dub a CD.

For the technically inclined, some of these limitations and their implications are graphically presented and discussed on the next two pages. If you're one of those readers who habitually skip the "Laboratory Measurements" section of our test reports, take heart anyway! With a few tips and a little patient practice in determining your deck's capabilities by ear, it's remarkable how good a job you can do on an up-to-date cassette deck, even with

BY CRAIG STARK

An exemplary recording setup might include Yamaha's KX-800U cassette deck—with Dolby and dbx noise reduction and Dolby HX Pro—and high-quality headphones, such as Signet's EP700, for close monitoring.
therefore “impossible” music sources. By an “up-to-date” cassette deck I don’t mean it must have been bought in the last six months. In “Five Top Tape Decks” a year ago I included one model that was first tested for STEREO REVIEW in 1983. Today, however, even mid-price decks have come to incorporate features I would consider important in a cassette deck suitable for making critical recordings.

A Deck for Serious Recording

That Dolby C noise reduction is a must today may seem to need no argument. What many people don’t realize, however, is that in addition to reducing audible tape hiss drastically, Dolby C significantly extends a deck’s ability to record high-level frequencies. That’s like giving Achilles a heel protector.

Separate record and playback heads are next on my list of needed features for serious recording. From an engineering viewpoint, the compromise gap width that’s necessary to use the same head for recording and playing back is too wide for top-quality playback and too narrow for optimal recording. And a “three-head” design is also necessary if you want to monitor the quality of a recording while you’re making it. Without that ability you can’t begin to make the adjustments needed to get away with fitting in a source signal (from a CD or live music) that’s too big for the cassette medium.

A dual-capstan, closed-loop tape transport is the only practical way today to achieve adequately low wow-and-flutter. The moment-to-moment changes in tape speed that produce wow-and-flutter don’t have to be so great that you can actually hear pitch changes in a sustained piano or flute note in order to ruin your recording. Tape-speed variations add a “graininess” or grit to the sound that makes violins and brass seem even more shrill and harsh than they do on a badly recorded CD.

Even well-miked CD’s (and live music) contain far more treble energy than cassette decks can handle without assistance. For this reason, the Dolby HX Pro headroom-extension system, which allows you to put more treble on the tape at just the moments when it’s needed, has become a much more important feature than it was when all we had to dub were FM and LP’s.

While almost all machines automatically switch their factory-set record bias and playback equalization for different tape types (ferric, Cr02-equivalent, metal), different brands among each tape type frequently require slightly different bias settings than the tapes the manufacturer used. Too low a bias level results in excessive high-frequency response, low-frequency distortion, and a less-than-optimal signal-to-hiss ratio. Too high a bias current cuts off high frequencies like a knife going through butter.

The only alternative, with most decks, is to use the record-level controls without bias adjustment. The top models provide built-in test-tone generators that let you optimize the bias for any given tape while watching the machine’s own record-level display. Many more-affordable decks have bias-optimization controls without the tone generator and indicating facilities. With such machines you must usually use a constant-noise source, such as FM interstation hiss, and adjust the bias until the source and tape signals sound the same.

If you use FM interstation hiss for optimizing bias, be sure to keep your record level down to approximately –20 dB on your machine’s indicator. Otherwise, high frequencies in the “test” signal will begin to saturate the tape and you’ll drive a false impression.

Even with proper precautions, however, “earballing” the bias may not always work. If the audible level varies even slightly between your system’s source and tape positions, it will be almost impossible to judge the proper bias setting by ear. Some decks provide a tape sensitivity adjustment that can bring the source and tape levels into sync. Such a feature is a sign of serious design, as making sure that the source and monitor levels are identical is also important for minimizing frequency-response errors in the operation of the noise-reduction system.

A defeatable FM-multiplex filter is a necessity unless you want to limit your frequency response to approximately 15,000 Hz. And, while it is rarely found, I think a separate playback output-level control is important, as it lets you exactly match the audible output level of your CD player in making A/B comparisons. The only alternative, with most decks, is to use the record-level control to do that job, which may compromise its best setting.

My final equipment-related rec-
Figure 1. Peak signal levels in hard-to-record CD's.

Figure 2. Distortion performance of metal and chrome-equivalent tape.

Figure 3. High-frequency saturation of metal tape without Dolby.

Figure 4. High-frequency saturation of chrome-equivalent tape without Dolby.

Figure 5. Metal-tape performance with Dolby C and comparative noise levels.

Figure 6. Chrome-equivalent-tape performance with Dolby C and comparative noise levels.
Inevitably, given the limits of the cassette medium, you will hit recordings that you can’t dub without either audibly overloading the loud sections or setting the record level so low that you hear hiss—even with Dolby C—in the soft passages.

Faced with this situation, what you should do is to fake the dynamic range—following the example of countless record engineers before you. “Gain riding” is a technique you should avoid when possible, but use it without hesitation when you must. What you do is slowly fade up a little before the very, very quiet passages and slowly reduce your record level before the tremendously loud sections.

Perfecting this technique takes practice. Any sudden gain change will be detectable not only in the music, but in the character of the “inaudible” background noise. That noise is never really inaudible; it’s just sufficiently low and constant to ignore—until it draws attention to itself by changing. Gain riding reduces the original loud-to-soft ratio (the dynamic range of the source material) enough to make a good recording, and if done judiciously by a practiced hand, it won’t be spotted. That’s hi-fi heresy, no doubt, but it’s also true.

Next to Godliness

A little overbias or slightly too high a recording level can easily diminish the response at 10,000 Hz. So can a build-up of tape debris only 20 millionths of an inch thick (roughly the size of one oxide particle) on your deck’s heads.

Look carefully at the visible band that forms on the pinch-roller(s) that squeeze the tape against the rotating capstan(s). When you see it start to form, generally after 10 to 12 hours of use—and, for safety’s sake, before any critical recording—it’s time to clean your recorder’s heads, as described in your owner’s manual.

A cotton swab or two and a small bottle of isopropyl alcohol from the pharmacy are all you need. There are more powerful solvents, of course, but some of them can attack the glue that holds the head laminations together, and others may harm the synthetic rubber in the pinch-rollers. And don’t use a “rubbing-alcohol” compound. These usually contain glycerine and leave behind an oily film. That may be fine, but it’s the last thing you want in your tape drive.

Like other rites for propitiating unseen powers, head demagnetizing (“degaussing”) is a mystery to the uninitiated. But it’s a ritual faithfully performed (usually at head-cleaning time and just before a critical recording session) by all knowledgeable tape devotees.

Both tape heads and ferrous tape guides and capstans can, over time or by sudden incidental accumulation, a small residual magnetic charge. Applied to the tape as it flows past, this charge can permanently erase some of the very high frequencies every time you play a tape. In their place the magnetized part “records” a low-level DC magnetism, which you hear as added tape hiss.

You can get an AC-powered tape-head degaussing device at any audio dealer. I use the Annis Han-D-Mag ($31), which is strong enough even to demagnetize the screwdrivers on my workbench. Degaussing takes only 30 seconds, but, like other ritualistic practices, it is effective only if you follow the right procedure.

First, turn your cassette deck off and remove any cassettes in its immediate vicinity. Open the cassette-well door, and, if your owner’s manual shows you how, remove it to get better access.

Second, plug in and turn on the demagnetizer unit at least a couple of feet away from the machine. Then slowly bring it up to the tape-touching surfaces of the heads, guides, and capstans.

Third, very slowly withdraw the demagnetizer to a distance several feet from the machine before you turn it off. If you turn the degaussing device off while it’s close to the heads, its rapidly collapsing electromagnetic field will “zap” them with a magnetic charge far stronger than any you’ve removed, so be careful.

Getting the most you can from your tape deck is one way you can contribute to the process of creating the musical thrill that hi-fi is all about. As you go back recording and re-recording the same passages and listening for and learning to minimize the differences between source and tape, it’s easy to get bored. It was just as easy for the musician who had to practice all those scales. But no pain, no gain, right?
BASF

Digital Audio Tapes
Ultra-fine metallic pigment specifically developed for helical-scan recording.
DAT C120. 120 min around $13
DAT C90. 90 min around $12
DAT C60. 60 min around $11

Metal Maxima IV Cassettes
Metal-particle formulation, high-performance cassette mechanism.
C120. 120 min $6.49
C90. 90 min $3.99
C60. 60 min $3.29

Chrome Maxima II Cassettes
High-density chrome formulation, dual-layer coating, high-performance cassette mechanism.
C90. 90 min $2.99
C60. 60 min $2.69

Chrome Extra II Cassettes
Pure chrome formulation, high-performance cassette mechanism.
C90. 90 min $1.69
C60. 60 min $1.49

Ferro Maxima IV Cassettes
Dual-layer "micro-coating" of BASF meagadium iron oxide.
C90. 90 min $2.29
C60. 60 min $2.09

Ferro Super I Cassettes
High MOL to increase S/N, extra high-frequency sensitivity.
C90. 90 min $2.54
C60. 60 min $1.94

Ferro Extra I Cassettes
Iron-oxide formulation features increased S/N over the entire frequency range.
C90. 90 min $1.69
C60. 60 min $1.49

DENON

All Denon cassettes feature large window, lifetime warranty, and head-cleaning leader.

High Density Series
HD-M Metal Cassettes
High-stability metal tape formulation uses high-density dispersion technology that yields a residual magnetic flux density of over 3,500 gauss and a coercivity of 1,200 Oe.
HD-M-100. 100 min $5.99
HD-M-90. 90 min $5.50
HD-M-75. 75 min $5.00

HD-8 High-Bias Cassettes
High-density metal particle formula uses New High Techneurum magnetic pigment to increase residual flux density to 3,000 gauss yielding an MOL of -4.5 dB at 10,000 Hz.
HD-8-100. 100 min $4.99
HD-8-90. 90 min $4.75
HD-8-75. 75 min $4.50

FUJI

FR Metal Series Cassettes
Metal-coated tape with tensilized polyester base; designed for metal bias, 70-µsec EQ. packaged in hinged plastic box.
FR (C-90). 90 min $5.99
FR (C-60). 60 min $5.49
FR (C-46). 46 min $4.99

FR-II Super Series Cassettes
Super-premium Type II high-bias cassettes with 70-µsec EQ and cobalt-modified super-fine Benidox magnetic particles.
FR-II Super (C-90). 90 min $4.99
FR-II Super (C-60). 60 min $4.49

In 1987 Americans purchased 390 million blank audio cassettes and 410 million prerecorded cassettes, confirming that the compact cassette remains our favorite music format. As of mid 1988, cassettes were outselling CD's by a three-to-one margin and LP's by nearly five to one.

The information contained in this Buying Guide was provided by the manufacturers. The suggested retail prices were current at press time but are subject to change, and actual selling prices vary from retailer to retailer in any case. Although cassettes dominate these pages, open-reel enthusiasts take heart—two manufacturers, Maxell and Radio Shack (Realistic), still offer consumer open-reel products (3M and others make open-reel tapes for professional applications). Manufacturers' addresses appear on page 90.
## TAPE BUYING GUIDE

### FR-II Series Cassettes
Chromium-dioxide cassettes with tensilized polyester base; designed for high T/H CrO; bias, 70-usec EQ. Comes packaged in hinged plastic box.
- FR-II (C-90), 90 min. $3.99
- FR-II (C-60), 60 min. $3.49

### DR Series Cassettes
Type I normal-bias cassettes with 120-usec EQ.
- DR (C-90), 90 min. $1.99
- DR (C-60), 60 min. $1.49

### Digital Audio Tape
Super Fine Metalix ultra-fine metal-particle formulation.
- DAT (R-90), 90 min. $10.95
- DAT (R-60), 60 min. $11.95
- DAT (R-45), 45 min. $12.95

### GOLDSTAR
Cassette Tapes
All tapes have tensilized polyester base material; tape width: 1.81 mm; tape length 315 m; yield strength 3.0 kg; breaking strength 1.0 kg; residual elongation 0.05%; squareness ratio 0.8; sens uniformity 0.3 dB; output fluctuation 0.4 dB (except for HP: 0.5 dB).
- MT Series Cassettes (Metal)
  - C-90 $4.65
  - C-60 $3.15
- CR Series Cassettes (Chrome)
  - C-90 $1.89
  - C-60 $1.49
- HP Series Cassettes (Ferric)
  - C-90 $98e
  - C-60 $85e

### JVC
F Series Cassettes
XFIV. Metal tape with 70-usec EQ.
- C-90, 90 min. $4.50
- AFII. High-bias tape (CrO₂) with 70-usec EQ.
- C-90 $2.60
- C-60 $2.35
- AFII. Normal-bias tape with 120-usec EQ.
- C-90 $2.20
- C-60 $1.80
- GII Normal-Bias Cassette Tape
  - Popular series. Coercivity 370 Oe. C-90, 90 min. $1.60
  - C-60, 60 min. $1.30

### Laser by Swire Magnetics
Laser UHD-II Cassettes
High-bias ferric cassettes with high energy and extended frequency response.
- C-90 $2.59

### Laser UHD-I Cassettes
Normal-bias ferric cassettes with high-energy and high-density formulation.
- C-90 $2.59
- C-60 $1.99

### Laser XL Cassettes
Normal-bias ferric cassettes with low noise for voice or music.
- C-90 $1.89
- C-60 $1.49
- C-45 $1.39

### Laser 11110-1 Cassettes
Extended frequency response.
- C-90 $4.50

### Laser UHD-II Cassettes
Normal-bias ferric cassettes with high-energy and high-density formulation.
- C-90 $2.59
- C-60 $1.99

### Laser XL Cassettes
Normal-bias ferric cassettes with low noise for voice or music.
- C-90 $1.89
- C-60 $1.49
- C-45 $1.39

### UD-I Normal-Bias Cassettes
Normal bias; 120-usec EQ.
- C-90 $3.29
- C-60 $2.49
- C-46 $2.49

### Normal-Bias Cassettes
Normal bias; 120-usec EQ.
- UR-120, 120 min. $2.79
- UR-90, 90 min. $2.19
- UR-60, 60 min. $1.99
- UR-46, 46 min. $1.99

### Open-Reel Tapes
XL-I Back-Coated Open-Reel Tapes
- XLI-35-180B. 1.800 ft. 10.5" reel. $35.79
- XLI-35-90B. 1.800 ft. 7" reel. $12.79

### Ultra-Dynamic Open-Reel Tapes
UD35-180. 3.600 ft. 10.5" reel. $28.39
UD35-90. 1.800 ft. 7" reel. $19.19

### MEMOREX BY MEMTEK
CDX II Metal High-Bias Cassette
Metal tape for recording CD's or other demanding source material. 70-usec EQ. Greater headroom for distortion-free reproduction at significantly higher recording levels than conventional high-bias tapes. New permanent reference cassette mechanism shell.
- C-90. $4.79

### HBY II High-Bias Cassettes
High-performance ferric/cobalt tape for use at high-bias, 70-usec settings. Higher MOL's; greater sensitivity compared to standard high-bias and CrO₂ tapes. New permanent reference cassette mechanism.
- HBY II High-Bias C-90. $3.79
- HBY II High-Bias C-60. $2.99

### HBS II High-Bias Cassettes
Premium tape for high-bias, 70-usec positions. Improved low-end MOL, greater sensitivity, new permanent reference cassette mechanism; high-visibility clear shell.
- HBS II High-Bias C-100. $2.59
- HBS II High-Bias C-90. $2.29
- HBS II High-Bias C-76. $1.99
- HBS II High-Bias C-60. $1.79
- HBS II High-Bias C-46. $1.59

### MXI Normal-Bias Cassettes
Premium normal-bias tape. Lifetime warranty. High-visibility clear shell.
- C-90. $2.29
- C-60. $1.79

### dBMS Normal-Bias Cassettes
Normal-bias tapes for all general-purpose voice or music recording. Features high-visibility clear shell.
- C-120. $1.99
- C-90. $1.49
- C-60. $1.19
- C-46. $1.10

### Nakamichi
UX Reference Cassette Tapes
Metallor (metal-particle) formulation for recording on metal-compatible decks only; features ultra-high coercivity and retentivity for improved distortion and noise. 70-usec EQ.
- UX-C90. 90 min. $10
- UX-C60. 60 min. $7.25

### SV II Reference Cassette Tapes
Double-coated ionized cobalt and ferric-oxide...
### TAPE BUYING GUIDE

#### SX Reference Cassette Tapes
Single coated ionized-cobalt and ferric-oxide formulation; high coercivity permits use of CoO, bias and EQ (70 usec) for 4.5 dB better S/N.

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<tr>
<td>SX-C90</td>
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<td>$6.90</td>
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#### MIV Metal
Fine-grain metal particles; 5-screw housing; hinged storage box.

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<td>MIV-60</td>
<td>60 min</td>
<td>$13.99-$9.99</td>
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#### MIV Metal High-Bias
Metal tape for recording and playback with Type II bias and EQ (120 usec); extra-low noise, high output.

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<td>MIV-60</td>
<td>60 min</td>
<td>$13.99-$9.99</td>
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#### IIID High-Definition Chrome-Equivalent
For recording and playback with Type II bias and EQ; head-cleaning leader; hinged storage box.

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<td>III-60</td>
<td>60 min</td>
<td>$11.99-$8.99</td>
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#### XR Premium Ferric
Hinged storage box with index card.

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#### LN Low-Noise Standard Ferric
Hinged storage box with index card.

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<td>LN-90</td>
<td>90 min</td>
<td>$2.79-$1.85</td>
</tr>
<tr>
<td>LN-60</td>
<td>60 min</td>
<td>$1.99-$1.29</td>
</tr>
<tr>
<td>LN-30</td>
<td>30 min</td>
<td>$1.59-$1.05</td>
</tr>
</tbody>
</table>

#### Concertape Ferric Cassettes

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-120</td>
<td>120 min</td>
<td>$4.99-$3.49</td>
</tr>
<tr>
<td>C-90</td>
<td>90 min</td>
<td>$3.99-$2.99</td>
</tr>
<tr>
<td>C-60</td>
<td>60 min</td>
<td>$2.59-$1.99</td>
</tr>
<tr>
<td>C-30</td>
<td>30 min</td>
<td>$1.99-$1.49</td>
</tr>
<tr>
<td>C-90</td>
<td>90 min</td>
<td>$1.25</td>
</tr>
<tr>
<td>C-60</td>
<td>60 min</td>
<td>$0.75</td>
</tr>
</tbody>
</table>

#### XSM 1F Cassettes
Fine metal-particle formulation; delivers up to 10 dB higher maximum output than typical oxide tapes and up to 7 dB higher than chrome tapes; low distortion, added high-frequency response, and improved SN.

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 min</td>
<td></td>
<td>$6.99</td>
</tr>
<tr>
<td>60 min</td>
<td></td>
<td>$5.49</td>
</tr>
</tbody>
</table>

#### XS II Cassettes
Features redeveloped premium-grade formula with improved S/N; less tape hiss; dual-layer, cobalt-modified ferric oxide; for use with recorders in the chrome or 70-usec EQ position; improved shell for critical mechanical permanence.

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
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<tbody>
<tr>
<td>90 min</td>
<td></td>
<td>$3.79</td>
</tr>
<tr>
<td>60 min</td>
<td></td>
<td>$2.99</td>
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#### CX Cassettes
Normal-bias ferric-oxide cassette featuring improved low-frequency output and clarity; 5-screw impact-resistant polymer shell houses an inner assembly with specially made low-friction roller guides; album package.

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 min</td>
<td></td>
<td>$2.99</td>
</tr>
<tr>
<td>60 min</td>
<td></td>
<td>$2.40</td>
</tr>
</tbody>
</table>

#### BX Cassettes
Ferric-oxide formulation for all-purpose cassette use; polyester base; 5-screw impact-resistant polymer shell featuring low-friction roller guides.

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 min</td>
<td></td>
<td>$1.95</td>
</tr>
<tr>
<td>60 min</td>
<td></td>
<td>$1.79</td>
</tr>
</tbody>
</table>

#### SCOTCH

#### Digital Audio Tape

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-90</td>
<td></td>
<td>$15.00</td>
</tr>
<tr>
<td>C-60</td>
<td></td>
<td>$13.00</td>
</tr>
<tr>
<td>C-46</td>
<td></td>
<td>$11.00</td>
</tr>
</tbody>
</table>

#### XSM 1F Cassettes
Fine metal-particle formulation; delivers up to 10 dB higher maximum output than typical oxide tapes and up to 7 dB higher than chrome tapes; low distortion, added high-frequency response, and improved SN.

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 min</td>
<td></td>
<td>$6.99</td>
</tr>
<tr>
<td>60 min</td>
<td></td>
<td>$5.49</td>
</tr>
</tbody>
</table>

### Prices

- **SXII-C90**: 90 min - $8.90
- **SXII-C60**: 60 min - $6.50
- **SX-90**: 90 min - $6.50
- **SX-60**: 60 min - $4.50
- **EXII-C60**: 60 min - $5.49
- **EXII-C90**: 90 min - $5.99
- **MII-60**: 60 min - $5.49
- **MII-90**: 90 min - $5.99
- **MIV-60**: 60 min - $5.99
- **MIV-90**: 90 min - $6.99
- **MIV-60**: 60 min - $4.50
- **EXII-C90**: 90 min - $6.50
- **EXII-C60**: 60 min - $4.25
- **XR-120**: 120 min - $5.49
- **XR-90**: 90 min - $4.99
- **XR-60**: 60 min - $3.99
- **XR-45**: 45 min - $2.99
- **LN-120**: 120 min - $3.49
- **LN-90**: 90 min - $2.79
- **LN-60**: 60 min - $1.99
- **LN-30**: 30 min - $1.59
- **C-120**: 3-pack, each 120 min - $4.99
- **C-90**: 3-pack, each 90 min - $3.99
- **C-60**: 3-pack, each 60 min - $2.59
- **C-30**: 3-pack, each 30 min - $1.99
- **C-90**: Single, 90 min - $1.25
- **C-60**: Single, 60 min - $0.88

*Prices may vary according to quantity purchased, with prices lower per tape with larger quantities.*
SA-X 90. 45 min each side ............... $3.50
SA-X 60. 30 min each side ............... $3
SA-X 46. 23 min each side ............... $3

SA High-Bias (Type II) Cassette Tape
Super-Precision Anti-Resonance cassette mechanism.
SA 100. 50 min each side ............... $4
SA 90. 45 min each side ............... $3
SA 76. 38 min each side ............... $2.75
SA 60. 30 min each side ............... $2.50

SD High Bias (Type II) Cassette Tape
Low noise; improved sensitivity and MOL; High-Precision Anti-Resonance mechanism.
SD-90. 45 min each side .......... $2.50
SD-60. 30 min each side .......... $2.25
SD-46. 23 min each side .......... $2.25

AR-X Normal-Bias (Type I) Cassette Tape
Dual coating of nonporous ferric particles for extra headroom; Super Avilyn particle for extra headroom; Super-Precision Anti-Resonance cassette mechanism; 120-µs EQ.
AR-X 90. 45 min each side ............... $3
AR-X 60. 30 min each side .......... $2.50

AR Normal-Bias (Type I) Cassette Tape
Nonporous ferric particles; High-Precision Anti-Resonance mechanism.
AR-100. 50 min each side .......... $3.50
AR-90. 45 min each side .......... $2.75
AR-60. 30 min each side .......... $2.50

AD Normal-Bias (Type I) Cassette Tape
Linear ferric-oxide particles; High-Precision Anti-Resonance cassette mechanism; 120-µs EQ.
AD-X 90. 45 min each side .......... $2.50
AD-X 60. 30 min each side .......... $2.25

D (Dynamic) Cassette Tape
Normal bias; 120-µs EQ; High-Precision RCII mechanism.
D-120. 60 min each side .......... $2.50
D-90. 45 min each side .......... $2.00
D-60. 30 min each side .......... $1.75
D-46. 23 min each side .......... $1.60
D-30. 15 min each side .......... $1.50

TRIAD Cassette Tape
MG-X90. Metal-particle (Type IV) tape; high bias, 70-µs EQ; FR to 10,000 Hz +3.0 dB; MOL +0.5 dB at 315 Hz, -6.0 dB at 10,000 Hz; retentivity 1.800 gauss; coercivity 380 Oe, 90 min. .......... $3.99
CD-Iv 76. Metal tape; 76 min .......... $5.79
CD-II 102. Type II tape with exclusive metal alloy; 120 min .......... $5.99
CD-II 76. As above .......... $5.79

EM-X90. Type II metal tape; high bias; 70-µs EQ; FR to 10,000 Hz +0.5 dB; MOL +5.0 dB at 315 Hz, -3.0 dB at 10,000 Hz; retentivity 3.100 gauss; coercivity 720 Oe, 90 min .......... $4.99
F-X90. Type I tape; normal bias and EQ; FR to 10,000 Hz +3.0 dB; MOL +5.5 dB at 315 Hz, -6.0 dB at 10,000 Hz; retentivity 1.800 gauss; coercivity 380 Oe, 90 min .......... $3.99

TAPE BUYING GUIDE

TDK
MA-XG Metal-Alloy (Type IV) Cassette Tape
Metal bias; 70-µs EQ; 3-layer RS-II vibration-damping mechanism designed to eliminate sympathetic vibrations for reduced modulation noise.
MA-XG 90. 45 min each side .......... $9.25
MA-XG 60. 30 min each side .......... $7

MA Metal-Alloy (Type IV) Cassette Tape
Metal bias; 70-µs EQ; High-Precision Anti-Resonance mechanism.
MA-110. 55 min each side .......... $5.25
MA-90. 45 min each side .......... $4
MA-60. 30 min each side .......... $3.50

SA-X High-Bias (Type II) Cassette Tape
RS-II high-performance cassette mechanism; Super Avilyn formulation.
SA-XG 90. 45 min each side .......... $8.75
SA-XG 60. 30 min each side .......... $6.50

SA-X High-Bias (Type II) Cassette Tape
Super-Precision Anti-Resonance II cassette mechanism; dual-coated Super-Avilyn formulation; 70-µs EQ.
SA-X 90. 45 min each side .......... $3.50
SA-X 60. 30 min each side .......... $3
SA-X 46. 23 min each side .......... $3

Visa by InterWorld Electronics Inc.
UCX-II 111 High Tech Turbo
High-bias cassette tape with ultra-refined CrO₂ coating and special headroom.
90 min .......... $4.99
60 min .......... $3.49

UCX-II High Tech Turbo
High-bias cassette tape.
90 min .......... $3.99
60 min .......... $2.99

UFX-I High Tech Turbo
Ferric cassette tape with clear housing.
90 min .......... $3.99
60 min .......... $2.99

CX-II Professional Tape
High-bias cassette tape.
90 min .......... $3.49
60 min .......... $2.49

FDX-1 Professional Tape
Ferric cassette tape.
90 min .......... $2.79
60 min .......... $1.99

Extra Performance II Tape
High-bias cassette tape.
90 min .......... $2.49
60 min .......... $1.99

High Performance I Tape
Ferric cassette tape with iron-dioxide coating.
90 min .......... $1.99
60 min .......... $1.59

Directory of Manufacturers
BASF, 10 Crosby Dr., Bedford, MA 01730
Denon, 222 New Rd., Parsippany, NJ 07054
Fujifilm, 555 Taxer Rd., Elmsford, NY 10523
Goldstar, 1050 Wall St. W., Lyndhurst, NJ 07071
JVC, 19701 S. Vermont Ave., Torrance, CA 90401
Realistic by Rowe, 1300 One Tandy Center, Ft. Worth, TX 76101
Recoton, 46-23 Crane St., Long Island City, NY 11101
Scotch by 3M, 3M Center, St. Paul, MN 55144-1000
Sony, Sony Dr., Park Ridge, NJ 07656
TDK, 12 Harbor Park Dr., Port Washington, NY 11050
Triad by Harman America, 240 Crossways Park W., Woodbury, NY 11797
Visa by InterWorld Electronics, 3095 N.W. 77th Ave., Miami, FL 33122
Stylish in-wall speakers are beginning to rival boxed speakers in sound quality.

The two-way Boston Acoustics Model 360, shown above in a "media wall," is $350 to $450 a pair installed.

Remember when you were back in elementary school and class would be interrupted by a burst of raspy static (it sounded vaguely like the principal's voice, but no one could be sure) emanating from a tiny in-wall speaker somewhere up near the ceiling? Remember how awful that sounded? No wonder you've cringed at the thought of in-wall speakers ever since.

Well, cringe no more. In-wall speakers for the home are beginning to rival boxed speakers in sound quality—and that quality, coupled with their camouflage appeal, is heating up demand among discriminating listeners who want their music to be heard but not seen.

The demand for in-wall speakers has increased so much, in fact, that speaker manufacturers are now scrambling to keep up. Not long ago, Polk Audio decided to dip its toe into the market with a single in-wall model, and the item has been on back-order ever since; the company is now set to introduce two or three additional in-wall models in the coming months.
HE new popularity of in-wall speakers is directly tied to recent improvements in the technology over the last two years. The category, which once consisted largely of modified car stereo speakers, is now benefiting from serious R&D efforts by some of the speaker world's heaviest hitters. Along with Polk, KEF recently made a major move into the high-end flat-mount market, and introductions from B&W are on the way. Meanwhile, in-wall speaker veterans such as a/d/s and Boston Acoustics have upgraded their offerings, as have Sonance, Phase-Tech, and Bang & Olufsen. The current in-wall models are no longer retooled car speakers; they feature sophisticated crossover networks, and many have the same high-quality woofers and tweeters found in better boxed speakers. Some companies are also offering in-wall subwoofers so you can really rock the house. With these advances, manufacturers are addressing the sonic problems traditionally associated with in-wall speakers—inaccurate imaging and weak bass—while also improving construction hardware and cosmetics.

"The in-wall speakers we're building now are vastly superior to what we produced a couple of years ago," said Russ Wells, national sales manager at Phase-Tech. "Engineering and design have become much more sophisticated." That, in turn, has enabled audio dealers to recommend in-wall speakers with confidence. "In the past, in-wall speakers represented a compromise," according to Charles O'Meara, president of Absolute Sound, a high-end audio store in Winter Park, Florida. "Basically, the customer had to trade off good performance for the sake of appearances. Today, for the first time, these can be considered credible speakers."

The main appeal of in-wall speakers has always been their ability to blend into any setting, and that hasn't changed. If anything, the speakers are more subtle than ever; some models are barely visible once installed. The only part of the speaker that shows is the faceplate, which generally measures no more than 8 x 12 or 6 x 10 inches. The clean, contoured grilles and trim generally come in a matte white, which can be painted; some grilles can be covered with cloth to match the wall. Either way, the speakers are designed to create a perfect match with the existing decor.

Wall-mounted speakers tend to be ideal for "secondary" applications—in kitchens, bedrooms, and dens, where space is at a premium and boxed speakers just don't fit with the decor. In-wall speakers can be installed in these rooms and wired, through the walls, to a main system. Meanwhile, in "primary" listening rooms, in-wall speakers are frequently used as add-ons for a surround-sound system.

"That's the application we're most excited about," said Paul DiComo, national sales manager at Polk. "One of the problems with surround sound has always been where to put all the speakers. Now customers are using boxed speakers up front and two or four in-wall speakers elsewhere in the room."

For primary applications—that is, used as primary speakers in the main listening system—in-wall speakers may still not measure up to audiophile standards. There are some inherent problems with wall-mounted speakers that have not yet been fully solved. For one, unless bass reinforcement is provided, most in-wall speakers still lack deep, rich bass response. In addition, performance of the speakers can vary in different walls because there's no real way for speaker makers to gauge the air volume that the woofer will encounter in a particular wall space (it varies according to the height of the wall, the amount of insulation in the wall, etc.). Another common problem that is associated with wall-mounted speakers is "sympathetic vibration" in the wall itself, which can lead to diffraction distortion.

The bass problem is the most noticeable, and it's one that some manufacturers have tried to address through in-wall subwoofers. KEF's CR250SW subwoofer is said to provide bass all the way down to 32 Hz (−2 dB). "We're finding that our three-piece in-wall system with the subwoofer is being used increasingly in primary applications," said Fred Yando, president of KEF Electronics of America.

Still, a number of audio experts maintain that in-wall speakers require out-of-wall subwoofers for best results. One of the problems with in-wall subwoofers is that they, too, can create resonance problems in the wall. "At 20 Hz, a plaster wall is acoustically transparent," according to John Bishop, executive vice president of a/d/s. "The wall will vibrate at those frequencies and transmit the sound. That rattling is not only a coloration, but it is also absorbing energy and taking output away from the speaker." Bishop said a/d/s is opting for a different approach by offering fully enclosed subwoofers that can be mounted below a floor or above a ceiling (in support struts for the roof).

If manufacturers continue to refine in-wall sound systems, they may eventually become a threat to the boxes, but for the immediate future they'll probably continue to be used mostly for beautiful background music. Still, there's background, and then there's background. Ideal speakers for the bedroom would tend to be of a higher quality than those used in the kitchen; for the bathroom, the user might be less discriminating about sound, although here a waterproof model is necessary. Since needs tend to vary from room to room, some companies are now offering several options within their wall-speaker lines.

Sonance, for example, offers the miniature M-30 (measuring 9 x 6 1/2 x 2 inches), a speaker designed for space-tight bathrooms and kitchens, while also providing larger, high-end models such as the Sonance IV (8-inch woofer and 1-inch polydome tweeter). From a/d/s there's both a compact in-wall model, the 300i/TR3, and a larger flush-mount speaker with extended bass and smoother overall response, the C400i. The Boston Acoustics Designer Series includes the Model 350, with a 5 1/4-inch woofer, and the Model 360, with a 6 1/2-inch woofer. KEF's Custom Series includes both two-way and three-way systems, the latter an impressive combination of the flush-mount 10-inch CR250SW subwoofer and a pair of CR200F satellites. Phase-Tech offers three pairs of in-wall speakers for various applications, the CI-20, CI-40, and CI-60, and the CI-SUB subwoofer. Polk has the AB-7, a two-way system with a 6 1/2-inch woofer and a 1-inch dome tweeter, and several
The a/d/s Model 300C (above), a two-way acoustic-suspension speaker, has a standard brushed-aluminum finish, but six colors, with matching grilles and brackets, are available on special order. Price: $430 a pair.

The Sonance Model IV lists for $650 a pair, including installation brackets. The grilles are available in cloth or in perforated metal that can be painted as desired.

A 13-inch-square subwoofer, the CR250SW (at right in photo below), is said to give KEF's three-piece in-wall system a response down to 32 Hz. The CR200F satellites have 13 x 10-inch panels. Combined price: $1,100.

Bang & Olufsen's IWS 100 speaker (below) is priced according to the complexity of the installation. The system is designed to house a B&O Master Control Link and relay box.
more in-wall models are soon to come, including some type of subwoofer.

Bang & Olufsen's ISW 100's each have two 4-inch bass drivers and a 1-inch dome tweeter; the speaker system is designed to house the Master Control Link and relay box for remote operation of a B&O multiroom system. Bang & Olufsen is also in the process of introducing flat speakers that hang on the wall like paintings, an alternative to flush-mounting. Jamo has already moved in this direction with its Jamo Art speaker, a flat system that's roughly the same size and shape as the picture tube of a 20-inch TV set.

How do you choose from among this considerable assortment? It isn't easy, particularly since you may not have an adequate opportunity to sample the differences in sound. Few retailers have substantial in-wall speaker demo areas, although that is beginning to change. For now, you may be dependent on the advice of your dealer—so your best bet is to shop at a very reliable, high-end store. If you let the dealer know exactly how and where you intend to use the speakers and what your budget is, he can give you some guidance.

GOOD installer will tend to approach the job with an awareness of both sound and appearances. Norman Field, who heads the custom-installation division of Chicago's Columbia Audio/Video, considers the focal points of a room—such as a fireplace—and places the speakers so that "they're congruent with those focal points." Field may try to create visual lines in a room as well; if there are heater vents in the wall, he'll place the speakers at the same height as the vents.

At the same time, Field must consider the position of the listener. "If the installation is in a primary listening area, that will take priority," he explained. "In that instance, you're going to place the speakers at ear level and as far apart as the listener is from the speakers."

That may not sound too complicated, but the actual drilling is what separates the men from the boys in this type of work. An inexperienced driller can end up cracking walls, going through the backside of the wall, cutting holes in the insulation, or even drilling into electrical wires—which can be a shocking experience. If you can get by the drilling, the job of actually laying in the speaker isn't too bad. Manufacturers have taken pains with the brackets and bracing that come with today's in-wall speakers, and they can help make speaker mounting much easier.

How much does installation add to the cost of your speakers? For a simple cut-and-mount job involving one set of speakers, about $100 or less. Many in-wall customers opt for multiroom installation jobs, however, putting speakers all through the house. The thinking is, as long as you're cutting walls and running wires to one extra room, why not wire up two or three? Naturally, this will tend to double or triple your installation bill.

If you are going to install in-wall speakers yourself, there are some points to keep in mind. When you mount a subwoofer in the wall, it's best to use an exterior wall because it tends to be more rigid than an interior one. But be aware that in any wall, a subwoofer is moving air in great volume—a phenomenon that could lead to cracks in the plaster if the volume's too high. Also, never put in-wall speakers next to an air duct. If you do, the duct will "sing," and the music will be heard loud and clear in every room that has a vent leading into that duct.

Finally, if you're connecting multiroom satellites to a single amplifier, be aware of the impedance load. If three or four sets of speakers are operating off that one amp, you risk a blowout. Some installers recommend hooking up a secondary amp, which can be fed through the tape output from the main preamp or receiver. Anyone doing a multiroom setup should know that there's a good selection of switching equipment available from several of the in-wall speaker manufacturers. Sonance's new SDS-4 switcher, for example, can connect four pairs of 8-ohm speakers to a single amplifier and operate them in any combination, from one to all four pairs. Another of the company's new switchers, the ABW1, can be installed in a light-switch box and be covered with a conventional wall plate.

If the thought of choosing the right in-wall speakers, drilling through the wall, connecting all the wiring and switchers, and trying to make it all look pretty in the end seems a bit intimidating to you, you're not alone. Dealers and manufacturers report that more than 80 percent of in-wall customers turn to professionals for installation help. With the right assistance, though, you can end up with a sound system that you'll be proud to show off—if anyone can see it.
Iamo's versatile Art Wall speaker (above) can be used on or off a wall and as a satellite or a full-range system. It has a 1-inch tweeter and a 5-inch woofer. Price: $400 a pair.

The JBL S-4 is a 12 x 8¾-inch flush-mounting speaker with a 1-inch dome tweeter and a 6½-inch woofer. A pair lists for $295 and can be used alone or with the companion pedestal-mounted S-1 subwoofer.

The OWI Model 2301 "Thindy" speaker can be mounted in a wall or ceiling. It measures 9 inches square and needs only 1¼ inches depth. In ivory or black, $230 a pair.

Polk Audio's two-way AB-7 (below) has a rated response of 30 to 26,000 Hz. The white metal grilles, 6¼ x 9¾ inches, can be painted to match any decor. Price: $400 a pair.
GERMAINE HASEROT, a retired concert and opera singer, went to Absolute Sound in Winter Park, Florida, with an unusual request. Her 1961 RCA entertainment console was no longer working properly, and she wanted to replace the radio, color TV set, and record player while preserving the console.

Dave Cheezum, head of custom installation at Absolute Sound, checked with his craftsmen about the feasibility of the project. "They said it was nuts, that it would be too expensive," Cheezum reported. Unfazed, Mrs. Haserot gave the go-ahead and left the logistics to Cheezum. Three weeks and $3,000 later, her console housed an NAD Model 7220 AM/FM receiver, an NAD Model 6240 cassette deck, a Dual Model 505-2 turntable with Signet Hitech 103 cartridge, an NAD MR20 TV set, a Phase Tech PC30 subwoofer and two PC60 satellite speakers, and a Discwasher Spikemaster surge protector. You'd never know from the outside that the console had changed.

The major challenge on the inside, Cheezum says, was fitting contemporary components into a hi-fi cabinet built over a quarter-century ago. The only place to put the receiver and tape deck, for example, was where the radio had been, on the top right side of the console. In order to make them fit so they'd be operable from the top (there's no access from the front of the console as there is with today's audio/video furniture), the installer hooked them together with U-brackets, dropped them knobs-up into the hole, and bolted them to the side of the console. The remainder of the hole left by the radio was covered by custom-fitted black-laminate particleboard.

The installer sealed the small satellite speakers in silicone to secure them to the inside face of the console. For better imaging, he laid them on their sides with the drivers pointing out of the speaker openings. He tucked the subwoofer on its side under the right speaker and ported it to the rear, using the wall behind the console as a reflecting surface.

Cheezum chose the 20-inch NAD TV set for ease of use and size. To fill the space left by the original 25-inch set, the installer again used custom particleboard panels. The Dual turntable fit nicely into the space left by the original RCA record player.

Mrs. Haserot, Cheezum reports, is thrilled with the new system. It fits into the console, it is simple to operate, and it passed the ultimate listening tests: playing the operatic recordings she made in New York City in 1938, which were originally on four 78-rpm records and were transferred to LP in the early 1960's.
THE NEW JAZZ

Today's young "neoboppers" are dedicated musicians with a keen sense of jazz history.

by Chris Albertson

In the Forties, when someone posed the already old question of what is jazz, Fats Waller allegedly replied, "If you have to ask, you'll never know." If you think it was a tough question back then, imagine how Waller would have responded today when record companies, radio stations, and trade publications indiscriminately attach the "jazz" label to a far greater variety of music.

"The public is definitely confused, but you can't really blame them," said Harry Connick, Jr., a young New Orleans pianist who knows the real stuff and stretches his keyboard from Thelonious Monk back to Jelly Roll Morton. Connick believes the public must be educated. "Nowadays, it isn't enough just to play," he told me. "You must also have something to say, to get your point across. The message must be, 'This is what jazz music is; that
other stuff is simply not jazz.' That will wake them up."

With alarming regularity, out-and-out pop performances crop up on "jazz" radio programs and in the "jazz" charts of publications that certainly ought to know better. The confusion has probably never been greater than it is today, but it has reigned for some time, so a bit of background may be in order.

Everybody agrees that the music of King Oliver's Creole Jazz Band and Jelly Roll Morton's Red Hot Peppers is jazz, and though the purists of fifty years ago, the so-called "moldy figs," thought otherwise, most fans have no trouble applying the label to the swing idiom. The controversy really started with the post-World War II emergence of be-bop, which Cab Calloway called "jujitsu music" and many veteran musicians and fans considered an intrusion. A fierce debate erupted between two factions of fans, the traditionalists and the "modernists." It was played up as Hot versus Cool, or Bix versus Bird, but it really boiled down to promotional ball-hoo and even bebop's most obstinate detractors eventually came around to accept the new form as jazz. Bebop was cool, but only in the sense that it was "in." The early Fifties then saw the emergence of "West Coast" jazz, an aloof California style that was a bit too frosty for some tastes but became generally accepted. There were now numerous styles of jazz, and cities like Chicago and New York even had their own variant forms, but on the whole the music was fairly well defined in the mind of the public.

The real confusion began at the end of the Fifties, when saxophonist Ornette Coleman opened the door to a free-form style that the adventurous embraced but others simply dismissed as jazz gone sour. Unlike earlier developments, free jazz really was a major breach of jazz tradition, but Coleman's unchained style was not the flash in the pan many people thought it would be. Not only did it establish him and a few of his disciples as important figures, but it also fostered other styles, among them the so-called "avant-garde" movement, which featured a form so free that it was impossible to distinguish an intentional note from one that wasn't. Though largely inaccessible to ears accustomed to hummable melodies, the freewheeling avant-garde style at least offered the element of surprise that so sharply characterized the earliest jazz forms. To the general public, however, the toots and squeaks typical of this music were not pleasant surprises, and the style never caught on. Audiences were more interested in groups like the Cannonball Adderley Quintet and the Art Farmer-Benny Golson Jazztet, groups that stomped onto the scene with a funky, highly rhythmic, gospel-tinged style that label makers were quick to dub "soul jazz." To some fans, this period of churchly romps represents the last of the red-hot jazz eras. With it jazz more or less bid college campuses goodbye, and the Beatles grabbed a generation of would-be jazz fans.

Enter the Flower Generation, and—with the Seventies—re-enter Miles Davis. A major force behind the "cool" jazz movement twenty years earlier, Davis donned the new generation's garb and zeroed in on the long-haired, love-beaded Fillmore crowd, blowing their way a cosmic blend of jazz and electronic funk. We called it "fusion" jazz, and it remains with us even as the Eighties draw to a close.

As settled-down yuppies, a great number of Flower Generation graduates think of themselves as jazz fans, but it isn't Morton, Armstrong, Bird, or Monk that vibrates their high-priced speakers; more often it's fusion twice removed, a bland hybrid called "New Age." But now we have an exciting alternative—fresh, real jazz, not a diluted substitute. Now we have the neo-boppers, a group of dedicated young jazz musicians with a keen sense of history and a zealous respect for the great forefathers of jazz.

These young keepers of the flame include Connick, Wynton and Branford Marsalis, Terence Blanchard, Donald Harrison, Mulgrew Miller, and Lonnie Plaxico. All are spirited players, and many of them gained prominence as members of Art Blakey's Jazz Messengers. Interestingly enough, a good number of these musicians hail from New Orleans, the original cradle of jazz, and they seem to have a clear mission: to uphold the artistic excellence and soul of this music, to make it pure again.

Saxophonist Branford Marsalis, whose own Columbia albums contain only the purest jazz ingredients but who also enjoys success with Sting's pop group, told me he
doesn't think there is any great upsurge in jazz interest. He blames the current confusion about jazz's identity on ignorance and mental laziness: "I think that when a guy gets to be twenty-three or twenty-four and he gets his first job, and he makes $40,000 a year, he suddenly says, 'I can't listen to pop music anymore. I'm too old for that. I have to mature.' So what does he go and get? A pop record without words, and they call that a jazz record. Americans don't want to spend any time listening to something that will make them think, and jazz is a thinking person's music.

Yet, just as the one-fingered rock-and-roll style of the Fifties stirred up a backlash and made young music fans look to jazz as a respectable alternative, so the keyboard ramblings of George Winston and the buzz of Kenny G's souped-up saxophone may well be catalysts for a renewed interest in the brand of straight-ahead acoustic jazz played by the new breed of purists.

**D**

**ESPITE** his own success, Marsalis is skeptical. "Yes, we've got an audience," he conceded, "but when you go and see Harry [Connick, Jr.] at Knickerbockers, all these people talk while he plays, then clap, and at the end of the songs they tell him how good he is. People read an article on you, or they see you on a morning news program, so they show up when you perform, but they are not necessarily into the music.

"You do a gig in, say, Blues Alley [a popular Washington, D.C., jazz spot], and the first set is the Young Republicans. They sit around in their very conservative suits and their very conservative ties, and they expect to hear something like Hello Dolly, especially from me, because I tell a lot of jokes. They say, 'Oh God, he's funny,' and prepare to laugh throughout the show. I may give them a line or two that's funny, but there's nothing funny after that because the music is what it is. So they sit there and they look at each other, then they just start talking and eating, and doing whatever, and we become background music. The second set is about fifty-fifty, a mixture of the Young Republicans who couldn't get into the first set and the hip people who don't want to stay out late. The third set is almost always just the hip people."

Perhaps we are not seeing a major renaissance of acoustic jazz, but the work and dedication of these young musicians is having an effect on less dedicated colleagues. Recently, even some of the most plugged-in fusioners have been known to yank their electric cords from the wall and bop along the acoustic trail. If enough of them do that, who knows? Perhaps the public will discover that saxophones don't all have to sound the same, that instruments have individual tone qualities, and that it can be quite stimulating to hear music that challenges the mind.

"I like to challenge myself," said Connick, who started playing on Bourbon Street when he was six. "When I think about what Trane [John Coltrane] did, what Bud Powell and Art Tatum did, I realize that they worked too hard on this music for me to waste my chance to do anything by playing something that doesn't challenge me. I have to respect those men for doing what they did and to try to understand them—so I'm dedicating my life to that."

"All music is a challenge for a little while," said Marsalis, "but jazz is the only music that is always a challenge. Every time I listen to a Sonny Rollins record I am humbled—it's such beautiful music. The first record that made me turn on to jazz was Charlie Parker's April in Paris. What is more beautiful than Charlie Parker playing Summer-time? Not a lot, man, not a lot."

No one is saying that there isn't a place for fusion and New Age music, just that these forms should not be called jazz, even when their exponents are as closely identified with jazz as, say, Herbie Hancock. The new school of jazz players would like to see critics, disc jockeys, and booking agents treat jazz more objectively and be unafraid to criticize those who stray from its fold. "Sometimes you have to drop bombs in order to wake people up," Connick said. "I am, of course, referring to Wynton, but he is totally justified in what he does."

Trumpeter Wynton Marsalis, brother of Branford and unofficial leader of the pack, is the most visible member of the neoboppers. A calm, outspoken man, he does not mince words when it comes to criticizing the jazz establishment or even some of his revered colleagues. This has not exactly endeared him to party-line jazz critics and the people who run today's record industry, but it has made him a hero of sorts within his own generation. There was an uproar when he openly criticized Miles Davis for downgrading his music and surrounding himself with sidemen of inferior talent; whether Marsalis was right or not, his expressed views were regarded by many members of the jazz press as arrogance—certain jazz figures are sacrosanct.

**B**

**UT** "Wynton never personally slandered anybody," Connick explained. "He was only cutting down the types of music they played. Somebody has to speak up, and the press is constantly abusing him for doing that. He's been laying low now, but he told me he's getting ready to do it again, to give interviews. I said, 'Good, let me be a major in your army, General Marsalis.'"

Only time will tell if the Blanchards, Marsalis, and Connicks can turn the public taste around, and they will probably not succeed without help from those who run the business of jazz. "Most record-company executives never profess to be anything else but accountants," said Branford Marsalis. "That's what kills me about the record industry. Here I am sitting down with a guy who has a law degree, and he's going to tell me about music. I find that to be the most humorous thing of all. I mean, I don't even find it offensive—I find it hilarious. But they sign guys like us to the label because jazz gives them prestige."

The frankness of these young players is as refreshing as their music, and you have to admire their dedication to jazz. "I spoke to [promoter] George Wein the other day," Connick recalled, "and I said, 'Man, how come you put people like Grover [Washington, Jr.] and Kenny G on your festivals? Why don't you book some straight-ahead jazz?'" He said, 'What is straight-ahead jazz now? What is jazz music? I don't know what it is. I just try to make money now.' What happened to the music?"
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LUCINDA WILLIAMS: REAL

The first time I played the new Lucinda Williams album, I started to think about my late colleague Noel Coppage. Noel used to keep a list in these pages of what he called “Real People,” an appellation that had nothing whatsoever to do with the early-Eighties TV show. He was talking about performers, specifically musicians. To my knowledge, Noel never heard Lucinda Williams, although she's knocked around for over a decade, but if he had, or if he’d lived to hear her remarkable record, I'm sure he would have added Williams to his small, select list. This woman is as real as it gets.

The idiom is basic rock, country, and blues. The songs, all written by Williams except for one by Howlin’ Wolf, are anecdotal, sharply observed, and by turns wry and poignant. But what makes them really special (not to discount the fine performances by her obviously sympathetic band) is Williams herself. She has the kind of voice that suggests the rise and fall of empires as witnessed through the bottom of a shot glass. It's an instrument's comparisons it most often draws, but there's an edge to Williams's singing, a raw, wounded, and utterly soulful quality, that also suggests a male honky-tonker like Gram Parsons. As a result, Williams really doesn't sound like any other woman rocker currently working, and listening to her album was an experience that hit me about as hard as falling in love.

There are moments in “Lucinda Williams” that verge on the merely ordinary. Crescent City, for example, rocks along quite nicely and is obviously felt, but it’s a fairly prosaic reminiscence nonetheless. Mostly, though, the music will make you laugh (Changed the Locks) or break your heart (Abandoned), sometimes both in the same song (Passionate Kisses). Even in an era when it's suddenly, suspiciously fashionable to be a smart solo woman in rock, Lucinda Williams is clearly something special, and I suggest you hear her immediately. Meanwhile, Noel, I think we've got another Real Person here.

Steve Simels

LUCINDA WILLIAMS: Lucinda Williams (vocals, guitar); Gurf Morlix (vocals, guitars); Dr. John Ciambotti (bass); Donald Lindley (drums); other musicians. I Just Wanted to See You So Bad: The Night's Too Long; Abandoned; Big Red Sun Blues; Like a Rose; Changed the Locks; Passionate Kisses; Am I Too Blue; Crescent City; Side of the Road; Price to Pay; I Asked for Water (He Gave Me Gasoline). ROUGH TRADE US 47LP, US 47MC, US 47CD (39 min).

BLOMSTEDT'S RESPLENDENT STRAUSS

With some twenty versions of Also sprach Zarathustra currently listed in Schwann, any further attempt at this most brilliant of the Strauss tone poems had better have something special going for it besides blockbuster sonics. Happily, Herbert Blomstedt's performance in a new Denon recording, notable for magnificent playing by the Dresden Staatskapelle and the striking acoustic surround of the city's Lukaskirche, offers a memorable musical experience. While there is plenty of brilliance and power in both performance and sonics, the blockbuster aspect is incidental to a presentation that is intensely lyrical and poetic.

Blomstedt takes the opening more broadly than usual, and as the music unfolds he exercises the greatest care with inner melodic strands and details of coloration. The fugal matter at the center of the opening section is first slow and somber, then fast and fierce, achieving an overwhelming impact at the climax with the “sunrise” motive. Much of what follows emerges with stunning brilliance, and the enigmatic epilogue is done with an almost Classical poise and sensitivity.

Also sprach Zarathustra is coupled with a Don Juan that is on the same high level. The opening is superbly articulated, and the ensu-
Best Recordings of the Month

Michelle Shocked: Mesmerizing

Herbert Blomstedt: intensity

ing lyrical episode has a touch of decadence that makes it more than just a pretty melody. The passage leading to the final catastrophe moves with blistering intensity. In short, Blomstedt delivers two Strauss interpretations that are colorful and highly dramatic, yet impressively controlled. The sound is not as close up as in most other recordings, but on its own acoustic terms it is most impressive.

David Hall


Michelle Shocked is a writer and performer of sizzling personality and power, but much of the credit for the record's brilliance must go to producer Anderson, known primarily for his work with Dwight Yoakam. Here he spikes Shocked's coffeehouse-guitar sound with deft and subtle twinnings of hammered dulcimer, banjo, mandolin, dobro, fiddle, and drums, steering the backing far away from anything remotely formulaic. The instrumental framework shimmers with ingenuity and intrigue, mirroring the lyrics, and Shocked's somewhat subversive view of life, in superb little unexpected turns and trills—a wailing blues harp imitating her mournful alto in Graffiti Limbo and a million birdlike chirps of sound in When I Grow Up.

Even when the record is off the turntable, certain of these songs come home to roost. Foremost among them is V.F.D., her bebop memoir of childhood, when

Michelle Shocked: vision

Shocked and her friend Eddy whiled away their summer boredom setting fires in the field and then racing to stamp them out ("Doin' the toe and heel"). One day, predictably, the flames licked out of control, and by the time the Voluntary Fire Department showed up, the field and sky were black. "We was just racing Inevitability," Shocked explained to her mother. And for Shocked, whose album proves her to be a fire starter of the first order, fame looks just as inevitable.

Alanna Nash

Michelle Shocked: Short, Sharp, Shocked. Michelle Shocked (vocals, acoustic guitar); Pete Anderson (electric guitar, six-string bass); other musicians. When I Grow Up; Hello Hopeville; Memories of East Texas; (Making the Run to) Gladewater; Graffiti Limbo; If Love Was a Train; Anchorage; The L&D Don't Stop Here Anymore; V.F.D.; Black Widow. MERCURY 834 924-1, © 834 924-4, © 834-924-2 (34 min).
ZIMMERMAN’S BRILLIANT LISZT

T

he new Deutsche Grammophon recording of the two Liszt piano concertos by Krystian Zimerman and the Boston Symphony under Seiji Ozawa represents a significant breakthrough. Ever since the Sviatoslav Richter recording with Kiril Kondrashin and the London Symphony was released on LP by Philips in 1962, it has been the version against which all subsequent ones have been measured. Its sound quality, however, did not stand up well in the transfer to CD, and that has left the field open for a really brilliant successor. The Zimerman is it.

Heretofore I would not have associated Zimerman with Liszt, but rather with Chopin, first of all, and with Mozart and other repertoire that often calls for such adjectives as “poetic” and “exquisite.” Not that Liszt is without poetry or delicacy (or Mozart or Chopin without power), but his concertos, the First in particular, veer toward a more muscular category, and the Totentanz, which fills out the new disc, is an out-and-out barnstormer. Zimerman makes no attempt to downplay that aspect of the music but sails into it on its own terms. Subtlety is not exactly abandoned, but it is not thrown in the face of a storm. The playing is big and bold and even stupendous—certainly not understated, but for this music not overstated either. There are flashes of poetry in the Second Concerto and the inner movements of the First, because Liszt put them there, and Zimerman knows exactly how to make those moments glow.

Zimerman is not the first pianist to show that it’s possible to be both a bravura player and a poet—just pull out any of Jorge Bolet’s Liszt recordings or some of Alfred Brendel’s, or the one solo disc by the remarkable Minoru Nojima—but what a downright dazzling set of performances this is! It’s playing in what used to be called “the grand manner,” and its sense of sweep, spontaneity, and risk-taking is combined with an absolutely rock-solid technique that adds to the excitement by obviating the need for “making allowances.” When the music must caress the ear it is “exquisite,” but when it must roar it really roars.

There is nothing hokey or tongue in cheek in the ferocity of the Totentanz here; Zimerman obviously relishes it for the full-blooded assault it is. The intensity and flexibility of his playing, in both its hair-raising and seductive facets, made me think of Zimerman as a sort of Mendelberg of pianists, but the Mendelberg role is actually filled by Ozawa, in perhaps the most sympathetic partnership any conductor has provided in recordings of these works, and the Boston Symphony is in absolutely glorious form. The recording itself represents a high mark for DG: Every thundering or whispering note from the solo instrument and the orchestra is marvelously clear and in ideal perspective, and the unusually rich low end adds to the allure without dampening the power. A triumphant and irresistible record.

Richard Freed

LISZT: Piano Concerto No. 1, in E-flat Major; Piano Concerto No. 2, in A Major; Totentanz. Krystian Zimerman (piano); Boston Symphony Orchestra, Seiji Ozawa cond. DEUTSCHE GRAMMOPHON © 423 571-4, © 423 571-2 (56 min).

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POPULAR


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CLASSICAL


### Popular Music

**Discs and tapes reviewed by**
Chris Albertson, Phyl Garland, Ron Givens, Roy Henning, Alanna Nash, Parke Puterbaugh, Steve Simels

**TOM COCHRANE AND RED RIDER: Victory Day.** Tom Cochrane (vocals, guitars, keyboards); Red Rider (instrumentals). Big League, Sons Beat Down, Different Drummer, Saved by the Dawn, Good Times: Calling America: and four others. RCA 8532-1-R, © 8532-4-R, © 8532-2-R (41 min).

**Performance:** Earnest

**Recording:** Very good

His homeland may be Canada, but Tom Cochrane is definitely a heartland rocker. The moral of his stories—hope and heroism—recalls the work of John Cougar Mellencamp, Bob Seger, John Cafferty, and others in that line. Cochrane's journalistic background gives him a verbal facility that's up to the challenge of writing about winners and losers, moral conundrums, good and bad times—in short, the resilience of the human spirit when it's put to the test.

Basically, he's a bright guy with a guitar who's following the Mellencamps and Seger's through the amber waves of grain, measuring the North American dream (it's Canada's no less than our own) against the less glittery reality. It's a well-trod path, and Cochrane is not exactly a trailblazer, but his songs are thoughtful, and they blow wide open on occasion. Occasionally a certain stuffiness creeps in—largely because of Harper's arrangements—that may temporarily alienate children and adults alike. For the most part, though, "The Disney Album" is a true charmer.

**STEVE EARLE: Copperhead Road.** Steve Earle (vocals, guitars, harmonica, six-string bass, mandolin), Maria McKee, others (background vocals); vocal and instrumental accompaniment. Copperhead Road, The Devil's Right Hand, Johnny Come Lately: Everything but a Child, and four others. UNI/MCA UNI-7, © UNIC-7, © UNID-7 (43 min).

**Performance:** Stretching out

**Recording:** Very good

In his first two records, "Guitar Town" and "Exit 0," Steve Earle often pushed the country genre to the limit, threatening, like a wild man fighting a strait jacket, to rip into fierce, dead-ahead rock. In "Copperhead Road," he makes good on that threat: While still featuring some of Earle's country-oriented storytelling and traditional country instrumentation, it's billed as a rock vehicle, or, as Earle sees it, as a logical progression from the previous albums.

Recorded not in Nashville but in Memphis, "Copperhead Road" recalls the classic sounds of rock-level rock-and-roll as well as making obvious references to Earle's two largest rock influences, Bruce Springsteen and John Cougar Mellencamp.

But as ambitious as this project is, the album comes off more like a country singer's Led Zeppelin fantasy than a legitimate rock effort. While stylistically Earle is still a country singer, he attempts to alter his distinctly rural phrasing for a number of the harder cuts, sounding different almost every time and leaving the listener confused about just who he is musically. And where "Guitar Town" and "Exit 0" brilliantly illuminated the lure and the loneliness of the road and the frustrations of small-town life, "Copperhead Road" scattershot its message, often trading poignancy for posturing or, as in "Snake Oil," carrying some tedious political observations.

Not surprisingly, Earle is best both lyrically and vocally in the more country-oriented material, constructing three- and four-minute dramas and tragicomedies set to music. He delivers the most powerful recording yet of his much-covered The Devil's Right Hand and raises goose pimplies with Johnny Come Lately, a song that documents the changing image of the American GI, performed in a spadily collaboration with the Anglo-Irish punk-folk group the Pogues.

There are other gems here, particularly Earle's Christmas-themed duet with Maria McKee, "Nothing but a Child," and the vivid imagery of backwoods moonshiners in the title offering. In cuts such as these, Earle proves himself a hillbilly existentialist of the first order. Whether he will someday evolve into a formidable rock-and-roll street rat—or why he even wants to—are questions best left unanswered. A.N.

**SHEENA EASTON: The Lover in Me.** Sheena Easton (vocals); vocal and instrumental accompaniment. No Deposit, No Return; The Lover in Me; Follow My Rainbow; Days Like This; One Love; Cool Love; and four others. MCA MCA-42249, © MCA-42249, © MCA-42249 (50 min).

**Performance:** Okay

**Recording:** Okay

This record sounds very much like most of the successful dance music you hear these days, and for a very good reason. Sheena Easton is a good singer with a new record label, and she's been given special treatment—that is, the usual approach adopted for dance music, only...
with big names. A number of successful dance-music producers—L. A. Reid, Babyface, Jellybean Benitez, Angela Winbush—were hired to give her hit-making productions, and her good buddy Prince worked on a couple of tunes as well. The treatment may have achieved the intended result, dance hits, but “The Lover in Me” has all the individuality and flavor of processed cheese.

R.G.

NANCY GRIFFITH: One Fair Summer Evening. Nanci Griffith (vocals, acoustic guitar), vocal and instrumental accompaniment, Once in a Very Blue Moon; Looking for the Time (Workin’ Girl); Deadwood, South Dakota; I Would Bring You Ireland; Roseville Fair; Trouble in the Fields; Love at the Five and Dime; and five others. MCA MCA-42255, © MCAC-42255, © MCAD-42255 (41 min).

Performance: Change of pace
Recording: Excellent remote

Anyone exposed to the music of folk-billy singer Nanci Griffith will likely find her either among the most moving and intelligent of the current country newcomers, worthy of inclusion in the small group of writers and performers known as Nashville’s New Integrity, or else insufferably mannered and precious. In her new album, recorded live at the Anderson Fair Retail Restaurant, something of a landmark in Houston, Griffith demonstrates why the camps divide so radically.

With only a keyboardist, bassist, and harmony vocalists augmenting her winning acoustic guitar work, Griffith sets up an intimate atmosphere in the club where she originally learned her trade. Of the twelve songs here, only two are new (Deadwood, South Dakota and I Would Bring You Ireland), but most of them will still be unfamiliar to those fans who recently came aboard with her MCA albums and never heard the more interesting Rounder releases.

While Griffith here presents much of her best-loved material, she diminishes its beauty and impact by rushing through most of the performances in a manner surprisingly devoid of feeling. Far more irritating, however, is the way in which she introduces her songs. While some of the stories she tells are inherently funny and add to the audience’s appreciation of the songs, she delivers these introductions in a painfully exaggerated Texas twang, using a baby-fine voice reminiscent of the gently dizzzy Georgette Baxter from the old Mursy-Tyler Moore Show. This voice, which bears no semblance to the way Griffith speaks off stage, jars when set against her powerful singing voice and confuses the listener as to the honesty of her intentions. That aside, Griffith is

FAIRGROUND ATTRACTION

W HAT a wonderful thing it is to find the new in the old and make it your own, as Fairground Attraction has done in “The First of a Million Kisses.” An utterly contemporary throwback, the quartet plays a glorious fusion of swing jazz and heartthrob pop. Their new album sounds as fresh today as it would have thirty years ago.

At the core of this musical time machine is a singer, Eddi Reader, who has some of the vocal qualities of Bonnie Raitt and much of the expressive power of Rickie Lee Jones, but who swings and croons in a way that is all her own. The instrumental accompaniment is spare but irresistible. The group’s primary songwriter, Mark E. Nevin, plays guitar, Simon Edwards jazzes things up on guitar (an acoustic bass instrument), and percussionist Roy Dodds gives it all spark.

At times Fairground Attraction plays with the fury and grace of Benny Goodman’s small groups—lean, bouncy, tightly wound yet uncoiling like an exquisite timepiece. Ballads come slowly, drawn out like a deep sigh. A few songs have a rich theatrical quality. Moon on the Rain is a sad gallumph, with guitar, bass, and percussion playing a ponderous lockstep, until Reader sings about the music that “played in our hearts,” inspiring a glistening crescendo of mandolin, accordion, and glockenspiel. These effects contrast sharply with the generally restrained quality of the music, making them all the more effective. In Find My Love, Nevin, a delicate wordsmith, etches longing with the lines, “There must be someone like me/Sitting lonely as a boat out there.” Occasionally the lyrics are too precious, but the arrangements are so understated that everything balances out. “The First of a Million Kisses” is an altogether exhilarating debut.

RON GIVENS

FAIRGROUND ATTRACTION: The First of a Million Kisses. Fairground Attraction (vocals and instrumentals); vocal and instrumental accompaniment. A Smile in a Whisper; Perfect; Moon or the Rain; Find My Love; Fairground Attraction; The Wind Knows My Name; Clare; Comedy Waltz; The Moon Is Mine; Station Street; Whispers; Alleluia; Falling Backwards (CD only); Mythology (CD only). RCA 8596-I-R, © 8596-4-R, © 8596-2-R (48 min).
ANITA BAKER: Giving You the Best That I Got. Anita Baker (vocals); vocal and instrumental accompaniment. Priceless; Lead Me into Love; Giving You the Best That I Got; Good Love; Rules; Good Enough; Just Because: You Belong to Me. ELEKTRA 60827-1, © 60827-4, © 60827-2 (37 min).

ANITA BAKER: Priceless; Lead Me into Love; Giving You the Best That I Got; Good Love; Rules; Good Enough; Just Because: You Belong to Me. ELEKTRA 60827-1, © 60827-4, © 60827-2 (37 min).
rhythm-and-blues, a new opportunity to savor the gritty reality, strutting spirit, and downright infectiousness of her music. Before the arrival of electronic equipment that could make small voices sound big, there were artists like Etta James, artists whose full-bodied sound and powerful delivery required no electrical manipulation. The magic of that era is recaptured in this new recording. From the pulsing bass to the sassy horns and bluesy guitars, this is real "soul" music as it is seldom heard any more. If you want to know what R&B is all about, just listen to Etta James belting out "Come to Mama, Damn Your Eyes, and Breakin' Up Somebody's Home."

KIX: Blow My Fuse. Kix (vocals and instrumentals). Get It While It's Hot; Boomerang; Cold Blood; Dirty Boys; No Ring Around Rosie; and five others. ATLANTIC: 81877-1, © 81877-4, © 81877-2 (40 min).

Performance: Good clean fun
Recording: Excellent

Kix is a young man's game, but it doesn't hurt to have a knowledgeable adult or two manning the control board when the stuff is being recorded. Two teams of producers, including Tom Werman (Cheap Trick, Motley Crue), helped to focus Kix's blitzkrieg into a gloriously full sound, with ample studio pizzazz to counterpoint the frenzy. "Blow My Fuse" combines the shark-attack power of AC/DC, the muscular riffing of Aerosmith, and the bottomless whomp of Led Zeppelin. Yet it stands on its own as a model of hard rock in the Eighties.

The lyrics are standard-issue tracts on sex and rock-and-roll, cleverly disguised in Piece of the Pie and Get It While It's Hot so you're not sure whether they're singing about one or the other or both. Don't Close Your Eyes, a brief serious interlude, is the sort of song that might convince a discouraged teenager not to commit suicide. The biggest kicks, though, are when the guitarists lock in with the rhythm section and singer Steve Whiteman rasps about going for broke. The closer, Dirty Boys, is taken at such a frantic clip you'll be holding on for dear life—and loving every minute of it.

CLEO LAINE: Cleo Sings Sondheim. Cleo Laine (vocals); orchestra, Jonathan Tunick cond. I Remember; Not While I'm Around; Send In the Clowns; Not a Day Goes By; I'm Still Here; You Could Drive a Person Crazy; and ten others. RCA 7702-1-RC, © 7702-4-RC, © 7702-2-RC (60 min).

Performance: A knockout
Recording: Bright and alive

A lot of fine singers have been recording Stephen Sondheim albums lately, but none has done one better than this. I say that having faulted some of Cleo Laine's other albums for having too many idiosyncratic mannerisms, little touches put in for the sake of sounding "different." And if there's anything that will destroy a Sondheim song, it's not sticking to his lyrics and his music as written. But this time Laine sings all sixteen songs as straight as she's ever sung anything, but with passion, bite, compelling dramatic insights, and (where appropriate) a wonderful sense of fun. I doubt if anyone else has ever sung Not While I'm Around from Sweeney Todd with more directly communicative sincerity. The same goes for the much-abused Send In the Clowns. And has anyone ever done the line "Does anyone still wear a hat?" (from Company's The Ladies Who Lunch) as wryly as Laine does it here? Jonathan Tunick's fine arrangements range from the quietly subtle to the blazingly swinging, all just right to help her get to the heart of each song. R.H.
Pet Shop Boys: Introspective. Pet Shop Boys (vocals and instrumentals), vocal and instrumental accompaniment. Left to My Own Devices; I Want a Dog; Domino Dancing; I'm Not Scared; Always on My Mind/In My House; It's Alright. EMI MANHATTAN E1-90868, © E4-90868, © E2-90868 (48 min).

Performance: Ear candy
Recording: Good

Boredom and despair set to a disco beat—that is the essence of the Pet Shop Boys, a London duo with a growing streak of hits. Most of the instrumentals in "Introspective" are synthetic, and at times you wonder about the singing as well. In contrast to American dance music, where vocals are often wrenchingly overwrought, the Pet Shop Boys sound as if they're about to fall asleep. After nine minutes of Always on My Mind, a Willie Nelson hit turned into a pop-disco taffy pull, you might be too.

Crafted more for the dance club than the living room, "Introspective" contains only six songs, all of which clock in at more than six minutes. Sooner or later a payoff comes in the form of a catchy chorus, the hook of which is often as simple and repetitive as the "all day, all day" chant in Domino Dancing. Though the words are frequently downcast—in the case of I Want a Dog, they're downright plaintive—the music bounces along at an indifferent, cheerful, mechanical clip. The Pet Shop Boys make danceable pop that is not without charm, but between the lines their real gift is for intimating the void in the life of the modern urban "party animal." Let's dance—or shall we cry? P.P.

Pink Floyd: Delicate Sound of Thunder. Pink Floyd (vocals and instrumentals), vocal and instrumental accompaniment. Live at the Albert Hall: The Dogs of War; On the Turning Away; Money; Another Brick in the Wall, and nine others (ten others on cassette and CD). COLUMBIA PC2 44484 two LP's, © P2T 44484 two cassettes. © C2K 44484 two CD's (104 min).

Performance: Labored
Recording: Not great

"Delicate Sound of Thunder" is the sort of record that makes you think disgruntled former member Roger Waters had a point when he complained about the Pink Floyd "reunion": A live album recorded in an echo chamber of an arena, with the audience hooting and whistling audibly. Two discs or tapes but no new material. A hefty price tag. No visuals, which are a major component of a Pink Floyd concert. Why would anyone who has the superior studio versions need this?

The most objectionable aspect of "Delicate Sound of Thunder" is that the first half is a virtual rehash of the group's year-old comeback album, "A Momentary Lapse of Reason." It is the second part of the show, a runthrough

**THEY MIGHT BE GIANTS**

John Linnell and John Flansburgh, who work under the name They Might Be Giants (derived from an obscure George C. Scott movie), have been the darlings of college radio for a while now. Their previous album, which has sold 100,000 copies so far, is often referred to, with some justification, as the "Dark Side of the Moon" of the independent record charts. So it's with a certain embarrassment that I confess I never really paid attention that I confess I never really paid much attention to them until very recently. It was obviously my loss, because repeated listening to their new album, "Lincoln," reveals a clever, quirky, often brilliantly arranged and produced piece of postmodern art (yes, art) that just might be the "Pet Sounds" of the Eighties.

Which is not to say, of course, that "Lincoln" actually recalls the Beach Boys, although given its eccentric, frequently keyboard-driven textures—emanating from accordions, prepared pianos, cheesy electronic organs, and what sounds like harpsichords combined with harmonicas, autoharps, and God knows what else—I suspect that certain Brian Wilson productions probably lurk in these musicians' record collections. One of the intriguing things about "Lincoln" is its fascination with sheer sound, with the juxtaposition of aural elements that you wouldn't expect to go together.

That's a Sixties idea, of course, as old as Stockhausen or the Beatles' "Revolver," but "Lincoln" is hardly the work of hippie wanna-be's. As a matter of fact, the music is determinedly unconventional, a bizarre collage of TV sitcom themes, Beatleseque melodies, de-mented jazz riffs, Buddy Holly tunes, old-time cartoon soundtracks, and about a zillion other things I haven't yet identified. There are moments here when They Might Be Giants walks a fine line between period evocation and parody.

But there's actually a distinctive contemporary sensibility at work here, too, especially when you listen to the lyrics. These guys are wicked punsters, not above a certain calculated semblance of childlike naiveté, and occasionally their word play is dazzling simply for the sake of being dazzling. But more often than not, they're on to something important, even profound. Exhibit A in that regard is Purple Toupee, which, over an addictive, only slightly skewed pop-rock musical track, sums up an entire generation's ignorance of and disaffection from its predecessors, in the process saying more about contemporary angst in one song than is said in the entire Tracy Chapman album (and saying it a lot funnier, I might add).

There's more to this album—a lot more, actually. It's an embarrassment of riches, to the extent that the weaker tracks (where the whimsy level gets out of hand briefly) wind up looking worse than they might in another context. But no matter. This is definitely the best album ever made by guys who used to wear enormous fezzes onstage, and you should hear it right away. Steve Simels
of Pink Floyd's greatest hits, for which fans will likely pay twice the price of admission. They're all here—Money and three others from "Dark Side of the Moon," a couple of biggies from "The Wall," and so forth—and they're performed adequately by David Gilmour, Nick Mason, Richard Wright, and eight auxiliary musicians and singers, though a lot of the show's theatricality is lost in translation from the stage to the album. That line they sing about money ("It's a drag") sounds kind of hypocritical when you consider how much they'll be making from this recycled, redundant dud of a set.

PRETTY POISON: Catch Me I'm Falling. Pretty Poison (vocals and instruments); vocal and instrumental accompaniment. Hold Me; Nighttime; Let Freedom Ring; Catch Me I'm Falling; Don't Cry Baby; Shine; and four others. VIRGIN 90885-1, © 90885-4, © 90885-2 (50 min).

Performance: Steady
Recording: Okay

Pretty Poison has done its homework. The band members have obviously hit the dance clubs and clung to the radio. Why else would this record sound so familiar? To its credit, the band has tried some mild variations on the current vogue in dance music, and singer Jade Starling belts like a trouper in a few songs. The lyrics, however, are mostly strings of clichés and the grooves a little too complacent. Dancers may like what they hear, but more stationary folks needn't bother.

MICHELLE SHOCKED: Short, Sharp, Shocked (see Best of the Month, page 104)

BARBRA STREISAND: Till I Loved You. Barbra Streisand (vocals); vocal and instrumental accompaniment. Till I Loved You; The Places You Find Love; All I Ask of You; Love Light; and seven others. COLUMBIA OC 40880, © OCT 40880, © CK 40880 (47 min).

Performance: Warm and tender
Recording: Lush and lovely

With her first studio-recorded album in three years, the ever-surprising Barbra Streisand takes a noble stab at restoring romance to pop music—and makes it work. This is hardly the first time that ten or more songs have been tied together by a romantic story line. What counts is that most of the songs, which trace the rise and fall and possible rekindling of a relationship, are worthy ones, most written especially for Streisand by the likes of Burt Bacharach, Carole Bayer Sager, Michel Legrand, and Alan and Marilyn Bergman. And, best of all, Streisand sings them with the distinctive warmth, intensity, and intelligence that have kept her on top for nearly three decades.

One track, of course, has already made it to the charts: the title song, an appealing duet with TV actor Don Johnson. But the real gems are Andrew Lloyd Webber's All I Ask of You, from Broadway's The Phantom of the Opera, and Streisand's own (with the Bergmans) Two People, from the film Nuts, both of which call on her to make the kind of soaring vocal leaps that few other pop singers can negotiate so deftly. The arrangements, mostly by Bacharach, Quincy Jones, and Phil Ramone, combine acoustic and electronic instruments in stress-free ways that never steal the spotlight from the star. And get a load of the back-up vocalists for the opening track: Dionne Warwick, Jennifer Holliday, Siedah Garrett and Luther Vandross, to name just four of them!

LUTHER VANDROSS: Any Love. Luther Vandross (vocals); vocal and instrumental accompaniment. I Wonder; She Won't Talk to Me; I Know You Want To; Come Back; Any Love; and...
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JAZZ

JAMES P. JOHNSON: Carolina Shout. James P. Johnson (piano). Eccentricity; Baltimore Buzz; Carolina Shout; Charleston; Ole Miss Blues; Harlem Strut; Gypsy Blues; and seven others. Biography © BCD 105 (46 min).

Performance: Cascading Recording: Excellent

James P. Johnson was Bessie Smith's favorite piano accompanist, the composer of such classic keyboard compositions as Carolina Shout, Old Fashioned Love, and Charleston, and an inspiration to virtually every piano player of his day, including the very young Duke Ellington. Moreover, Johnson was the first black artist to cut piano rolls of his own compositions. Starting in 1916, before the first jazz phonograph recording was made, Johnson cut one or two rolls a month for the Aeolian company, some of which have been assembled by the Biograph label for "Carolina Shout," a compact disc that brings out the best in these performances. Pumpernickel pianos is an art that requires knowledge of the music and, above all, a good ear, and we're fortunate that when Biograph began issuing piano-roll performances on LP several years ago, experts were consulted and employed to get it right. On this CD not only is the tempo correct, but the digital recording does full justice to the piano sound. To be sure, a piano roll will always have a certain mechanical air about it, but that is part of its charm.

C.A.

LEE RITENOUR: Festival. Lee Ritenour (guitar, guitar synthesizer); Dave Grusin (keyboards); Bob James (keyboards); Omarr Hakim (drums); Marcus Miller (bass); other musicians. Night Rhythms; Latin Lovers; Humana; Rio Sol; and four others. GRP GR-9570, ©: GRC-9570, ©: GRD-9570 (41 min).

Performance: One of his best Recording: Excellent

While guitarist-composer Lee Ritenour tends to follow a commercially palatable path, he has ventured from it at times to come up with albums that indicate the presence of an inquisitive musical intelligence. "Festival" is one of those special occasions. He has teamed top studio musicians from New York and Los Angeles with Brazilian artists like João Bosco, Caetano Veloso, and Paulinho DaCosta to produce a record that thrills with a Latin pulse while reflecting the North American penchant for polished production. The music is melodically and rhythmically satisfying, and Ritenour's ever-impeccable technique applied to this superior material makes for one of his best recorded efforts. He hasn't done a Brazilian album in ten years, so perhaps that's
why he sounds so fresh here. Each selection is a delight, but my favorite is "Lil in Lovers," which most thoroughly reflects the festive feeling of the album’s title. This is a musical travelogue bound to lift late-winter spirits.

P.G.

GEORGE SHEARING AND ERNESTINE ANDERSON: A Perfect Match.
Ernestine Anderson (vocals), George Shearing (piano), Neil Swainson (bass); Jeff Hamilton (drums). On the Sunny Side of the Street; Body and Soul; I Won’t Dance; Some Other Time; The Second Time Around; That’s for Me; I Side. Jeff Hamilton (drums). Shearing (piano); Neil Swainson (bass); Ernestine Anderson (vocals); George TINÉ ANDERSON: A Perfect Match.
GEORGE SHEARING AND ERNES -
tation is a delight, but my favorite is Lat- -why he sounds so fresh here. Each selec-
tion in America. The years have treated
don sang with Lionel Hampton’s band
en a delightfully personal touch. Ander-
of familiar material, all of which is giv-
ven a 1934 song, the program consists
exception of
Everyone concerned. With the possible
tentment by the trio in a wonderful,
Shearing collaborations and two instru-
cuts on the Concord Jazz album “Dex-

Performance: Harmonious
Recording: Fine
That singer Ernestine Anderson and
pianist George Shearing are kindred
spirits became evident when they per-
formed together at the 1987 Fujitsu-
Concord Jazz Festival in Japan. Two
cuts on the Concord Jazz album “Dex-
terity” captured their teamwork so well
that more was called for. “A Perfect Match” features twelve Anderson/
Shearing collaborations and two instru-
mentals by the trio in a wonderful,
breezy set that brings out the best in
everyone concerned. With the possible
exception of Trust in Me, a rarely per-
formed 1934 song, the program consists
of familiar material, all of which is giv-
gen a delightfully personal touch. An-
derson sang with Lionel Hampton’s band
in the early Fifties and became popular
in Sweden before she achieved recogni-
tion in America. The years have treated
her voice well, for she sounds better
today than ever before.

C.A.

CEDAR WALTON: Cedar Walton Plays. Cedar Walton (piano); Ron Car-
ter (bass); Billy Higgins (drums); other musicians. Willow Weep for Me, Hallu-
cinations; He’s a Real Gone Guy, Book’s Bassa; and four others. DELOS © D/CD
4008 (62 min).

Performance: Excellent
Recording: Very good
An alumnumus of the Art Farmer/Benny Golson Jazztet and Art Blakey’s Jazz
Messengers, pianist Cedar Walton made his recording debut as a leader in
1968, on Prestige. Now he makes his
debut as a leader on CD with this Denon
release, playing with characteristic style
and taste. Rhythmic support is pro-
vided by bassist Ron Carter and drum-
mmer Billy Higgins, and there’s some fine
“embroidery” by five horns, including
 trombonist Steve Turre and baritone
saxophonist Charles Davis. Davis, a
player who has never received the
recognition he deserves, contributes the
most satisfying horn solos, especially in
Bud Powell’s Hallucinations. But this
whole set of loose, bluesy, boppish jazz
is thoroughly enjoyable.

C.A.

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Vibraphonist Gary Burton’s musical career has been an exploration of the possibilities of thoughtful jazz. He’s chosen projects that have challenged and broadened his musical sensibilities—and ours. Working for the most part in a quartet, he has varied the other solo voices in his group from guitar to piano to trumpet, and he’s investigated a complex array of composers, recording the high-minded work of Carla Bley as well as collaborating with the irrepressible Chick Corea. Without sacrificing the energy or the poetry of his playing, Burton has made music like an insatiable scholar.

For all its freshness and beauty, his new record, “Times Like These,” is a sort of recapitulation. The presence of guitarist John Scofield as the other primary soloist reinforces that impression. The album marks a double return: Not only was Scofield a regular member of the Burton quartet in the Seventies, but this is the first time in several years that Burton has worked extensively with a guitarist. The reunion of the two musicians works very well. Scofield’s astrigency cuts Burton’s mild sweetness, and their continuous interweaving of solos and background fills makes for a rich jazz tapestry.

Burton gets impeccable support from his rhythm section, bassist Marc Johnson and drummer Peter Erskine. They set the pace simply and unobtrusively, adding slight but exquisite flourishes—Johnson with slurred or bent notes, Erskine with tiny snare bursts that, in the context of Burton’s understated approach, give the music snap. Michael Brecker brings the muscular tone of his tenor saxophone to bear for solos on two tracks.

For the most part the music in “Times Like These” is restrained and unfolds carefully, as do many of Burton’s solos. In the title cut he takes a relaxed turn, in Where’d You Do It? he glides through arpeggios while tossing in a few bluesy accents, and in Was It So Long Ago? he plays with measured but assertive plunks. But P.M., a Chick Corea tune, gets zesty as the quartet shifts back and forth between breezy and blazing tempos, and Bento Box swings gloriously—tight and light and with the flavor of a tango. Gary Burton is a smart man, and he’s made a smart record, but he can burn a little, too, with the flavor of a tango. Gary Burton swings gloriously—tight and light and blazing tempos, and shifts back and forth between breezy and blazing tempos, and Bento Box swings gloriously—tight and light and with the flavor of a tango. Gary Burton is a smart man, and he’s made a smart record, but he can burn a little, too, when he wants to.

Ron Givens

Gary Burton: Times Like These. Gary Burton (vibraphone); John Scofield (guitar); Marc Johnson (bass); Peter Erskine (drums); Michael Brecker (saxophone). Times Like These; Or Else: Robert Frost: Why’d You Do It?; P.M.; Was It So Long Ago?; Bento Box; Do Tell (CD only). GRP GR-9569, © GRC-9569, © GRD-9569 (51 min).
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BARTÓK: Concerto for Orchestra; Mu-
sic for Strings, Percussion, and Celesta.
Montreal Symphony Orchestra, Charles
Dutoit cond. LONDON © 421 443-4, ©
421 443-2 (69 min).
Performance: Brilliant
Recording: Superb

It isn't often that you find the entire
personnel list of a large orchestra
printed with the annotation for a re-
cording. I would assume it was done
in this instance as Charles Dutoit's way of
sharing with his players the admiration
he has received for their by now numer-
ous recordings together—or, put anoth-
er way, his way of sharing with the pub-
lic the esteem he feels for the players. In
any event, this is certainly an approp-
riate record for such a gesture. The vir-
tuoso qualities of the Concerto for Or-
chestra are exploited smoothly, fluently,
and altogether brilliantly, with utter se-
curity in every choir and the richest
strutting of colors, and every phrase is
charged with conviction.

Some of the substance below the sur-
face may be missing, some of the little
subtleties that perhaps only a Hungarian
who knew Bartók could give us, that
come across so directly and effortlessly
in the classic Reiner/Chicago recording.
But then that version is simply beyond
comparison. Among more contem-
porary readings, Dutoit's is quite a distin-
guished one. His orchestra more than
holds its own against the strongest com-
petition, and the performance is en-
hanced more than a little by the abso-
lutely superb sound, which suggests a
new breakthrough by a company al-
ready responsible for so many mile-
stones in the art of recording the mod-
ern orchestra.

Dutoit has some refreshing ideas in
the Music for Strings, Percussion, and
Celesta. Instead of the darkish, some-
what mystical approach generally fa-
vored, his is relatively bright-eyed, as if
placing the work in a buoyant pastoral
context. This approach need not negate
or displace the more traditional one,
but it works, and it serves as a healthy

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A NEW "ARIADNE"

Jessye Norman: nothing short of thrilling

IT seems incredible that twenty
years ago Ariadne auf Naxos was a
novelty even to opera cognoscenti.
Today Richard Strauss's sixth
opera is not only popular and often per-
formed, but it is also not infrequently
recorded. Despite its widespread accep-
tance, however, Ariadne is still a very
special piece, balancing on the fine line
between the dramatically serious and
the farcical, between the musically no-
ble and the (intentionally) trilling.

Kurt Masur's new, admirably
recorded version of the opera on Philips
laudably captures its spirit and offers
some fine interpretations, chief among
them that of Masur himself. This very
musicianly conductor draws from the
excellent Leipzig Gewandhaus Orches-
tra the many subtleties of the delicate
yet impassioned score.

Surely the title role has never been
sung with greater amplitude of tone
than it is here by Jessye Norman.
Although she does not fully realize the
comedy of the Prima Donna's brief
appearances in the Prologue, she is
nothing short of thrilling in her two
arias and in the duet with Bacchus. Julia
Varady's Composer is expressively
sung; she is best in the Apostrophe to
Music, less effective in the angry pas-
sages, where she tends toward stridency.
Edita Gruberova copes easily with all
but the final high note in Zerbinetta's
cruelly difficult showpiece, and her
characterization of the "unfaithful"
comi-

cenne is nicely drawn throughout.

Canadian tenor Paul Frey brings a
finer than usual lyric quality to his por-
trayal of Bacchus. His wooing of the
deserted princess is as tender as it is
aggressive, which gives effective variety
to his performance. Dietrich Fischer-
Dieskau makes a warm and fatherly fig-
ure of the Music Master in an unusually
sympathetic performance. As the Ma-
jor-Domo, Rudolf Asmus is properly
starched and pompous, although he
misses comic opportunities that I feel
the librettist, Hugo von Hoffmannstahl,
tended. The four comedians, led by
Olaf Bär, are very good indeed.

Among the three recordings of
Strauss's Ariadne on compact disc—the
other two being Angel's 1954 recording
conducted by Herbert von Karajan and
the recent Deutsche Grammophon one
conducted by James Levine (the Lon-
don recording by Georg Solti has not
been transferred from LP)—a choice
would not be easy. What especially
delights me is simply that there are sev-
eral versions to choose from, each vali-
dating the work's status as a master-
work in the operatic repertoire. The
newest one, which is additionally dis-
tinguished by excellent sound, is un-
usually satisfying.

R. STRAUSS: Ariadne auf Naxos. Jes-
sy Norman (soprano), Prima Donna;
Ariadne; Julia Varady (soprano), Com-
poser; Edita Gruberova (soprano), Zer-
binetta; Paul Frey (tenor), Tenor; Bac-
chus; Dietrich Fischer-Dieskau (bari-
tone), Music Master; Olaf Bär (bari-
tone), Harlequin; Rudolf Asmus (spoken
voice), Major-Domo; others. Leipzig
Gewandhaus Orchestra, Kurt Masur
cond. PHILIPS © 422 084-2 two CD's
(118 min).
reminder that such masterworks not only invite a variety of interpretations but thrive under them. R.F.


Performance: Superb
Recording: Excellent

Claudio Arrau apparently regards the Beethoven sonata recordings he has been making for Philips in his eighties (his third such cycle in about thirty years) as a sort of testament, but very clearly not as an occasion for self-congratulation. He may remark on the spiritual essence in Op. 111, but he has never undertaken to play up such a notion with the sort of self-conscious solemnizing into which a lesser musician might be tempted. Indeed, such minor mannerisms as may be noted in this new recording—such as the little hesitations in the launching of the second part of the first movement and in the arietta that follows—seem less of a contrived interpretive aggrandizement than a sort of spontaneous response to a fresh discovery of some wondrous detail of Beethoven’s inspiration. In a sense, the entire performance gives off that feeling of fresh discovery and spontaneity, and at the same time an impression of immense assurance and authority. It’s something like (I imagine) climbing Everest with a confident, experienced guide who knows better than to compare his own importance with the exaltation of reaching the peak.

Arrau’s realization of the Sonata No. 32 is an exalting one—not the measurable “best,” perhaps (that being a quite unrealistic notion), but one whose great beauty and unostentatious intellectual power simply cannot be resisted. The earlier sonata in the same key takes on a certain breadth and depth in Arrau’s reading without at any point being inflated beyond its true proportions. The piano is recorded throughout with exceptional vividness and in virtually ideal perspective, effectively projecting both the strength and the subtlety of Arrau’s playing.


Performance: Genial
Recording: Excellent

Claudio Arrau: Beethoven with strength and subtlety

Francois Couperin was dubbed “Couperin le grand” (“the great Couperin”) not simply in recognition of his genius but also to differentiate him from the other five composers who bore his surname, his uncle Louis and his second cousin Armand-Louis among them. Included here in the musical context of his relatives, Francois seems grander than ever.

While the Suite in D Minor by Louis and the three modest works here by Armand-Louis are reasonably engaging, one immediately senses a much bigger personality taking command of the harpsichord, and of harpsichordist Gustav Leonhardt, at the opening of Francois’s eight preludes from his 1716 pedagogical work L’Art de toucher le clavecin. Compared with some of his other music, which can be extravagantly descriptive, these preludes are a bit subdued, though no less inventive. They’re marvelous works—often as short, fragmentary, and striking as Chopin’s preludes a century later.

The selections from Francois’s third book of harpsichord pieces show the composer back in more picturesque form, and while Leonhardt isn’t aloof from some of the more burlesque elements, he always incorporates them into the overall work in an organic, musical fashion. As a result, the humor never seems as obscure and dated as it usually does in less capable hands. Leonhardt’s performances aren’t as sensuous as one might imagine, but they’re full of conviction, and there’s a leisurely air about them that—combined with the crisp, inviting sound of his harpsichord, a modern German instrument based on a late-seventeenth-century French model—will make you want to return to this recording again and again.

D.P.S.

GLASS: Dance, Nos. 1-5. Philip Glass Ensemble, Michael Riesman cond. CBS © M2T 44765 two cassettes, © M2K 44765 two CD’s (105 min).

Performance: Effective
Recording: Ditto

Philip Glass seems to me to compose his best music when he is working with his own ensemble in a collaboration with other artists. His film scores are examples, as is his recent theater piece, 1000 Airplanes on the Roof, done with playwright David Henry Hwang and visual artist Jerome Serin. Glass also has a long history of working with choreographers. Dance, a three-way collaboration with choreographer Lucinda Childs and artist Sol LeWitt, was first performed in 1979 in Amsterdam and at the Brooklyn Academy of Music. The music for Nos. 1 and 3 was recorded at that time; the two organ solos, Nos. 2 and 4 (played here by Michael Riesman and the composer himself), and the quirky No. 5 were recorded in 1984 and 1985. Whereas Nos. 1 and 3 are in a familiar and lively idiom, the organ solos are more reflective, and the finale (Continued on page 124)
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is quite diverse and striking. The whole makes a suite of considerable variety and charm. The performances and the recording itself are highly effective, with the exception of the very opening of No. 1, which has a switched-on, cut-in effect that, intentional or not, I find distracting. The idea of starting in medias res is logical, but it sounds like a tape splice or a switch someone threw a split second too late.

E.S.

LISTZ: Piano Concertos Nos. 1 and 2; Totentanz (see Best of the Month, page 105)

MAHLER: Symphony No. 2, in C Minor (“Resurrection”). Benita Valente (soprano); Maureen Forrester (contralto); Ardwyng Singers; BBC Welsh Singers; Cardiff Polyphonic Choir; Dyfed Choir, London Symphony Chorus and Orchestra, Gilbert Kaplan cond. MCA CLASSICS @ MCAD 2-11011 two CD's (83 min).

Performance: Has its points
Recording: Needs more ambience

A well-heeled publisher takes it into his head to fulfill a near-obsolescent aspiration to learn, conduct, and record just one major score, Mahler's Resurrection Symphony—the idea invites mockery. But would-be Maestro Gilbert Kaplan was in dead earnest, and he made his business to unearth every iota of information concerning the genesis of Mahler's epic work as well as Mahler's own performance practices and those of his disciples. He carried off a successful performance at Lincoln Center in 1982 and did a repeat the following year at Carnegie Hall. International engagements followed, including one at the 1986 Festival in Wales, which led to this recording. Whatever the shortcomings of the performance, the set includes 128 pages of interesting annotation, half of it Mahler's own correspondence that will tell you everything you ever wanted to know about the Resurrection Symphony (and perhaps more). Moreover, every distinct section has its own track on the CD's for easy reference.

Kaplan scores highest, musically, in the three inner movements. The Andante moderato is nicely paced and beautifully nuanced, with just the right amount of subtle Mahlerian portamento; the "quietly flowing motion" specified for the scherzo is flawlessly achieved; Maureen Forrester, an old hand at this music, gives us a lovely Largo, and the London Symphony brasses perform with gorgeous tone and balance in the chorale episode.

Not altogether surprisingly, Kaplan is no match for veteran Mahler interpreter in the stormy orchestral sections of the outer movements. Nothing is wrong with his reading; he simply does not induce the electrifying response from the players that this music needs. (This is not to say that the London Symphony musicians are not thoroughly alert throughout, even though by now they can probably play the notes in their sleep.) Kaplan does shine, along with the production team, in the famous "grosse Appell" passage with its offstage band and horn and trumpet calls, as well as in the final choral apotropaic, which makes use of a tracked-in organ from Yale University's Woolsey Hall and the bells of the same university's Harkness Tower. Soprano Benita Valente is, as usual, a consummate artist in both her solo part and her duet with Forrester in the finale.

The recording itself is not without its problems. Most of them stem, I suspect, from the use of a hall somewhat undersized for achieving the illusion of depth so essential in the first and last movements. The lateral imaging is fine, as are the offstage elements, but the orchestral climaxen are a bit flat in acoustic perspective. Oddly enough, the sound opens up a bit in the final pages, when the remote recordings of the organ and bells are added to the mix.

All in all, while this recording will certainly not displace the many excellent versions of the Mahler Second by professional conductors now available on CD, as a study version it is a rather special production.

NIELSEN: Symphony No. 3, Op. 27 ("Sinfonia espressiva"); Maskarakade Overture. Susan Burghardt (soprano); Ralph Bassett (baritone); Danish National Orchestra, Sixten Ehrling cond. AUDIONO @ CD72025 (41 min.)

Performance: Sane and solid
Recording: Fine live job

From the Miami-based Audiofon label, which has heretofore confined its releases to keyboard and chamber works, comes this live recording from a Kennedy Center concert on May 19, 1984. Sixten Ehrling's reading of the Nielsen Third is solid, sober, and spacious (as befits its subtitle), and much care has
been taken with fine points of dynamic shading. The slow movement's offstage wordless voices are ideally placed, but, unhappily, the music's tricky intonation problems prove a bit much, especially for the soprano. The pacing is excellent, however, in the puckish, bit- tersweet third movement and the often miscalculated finale. By way of encore we get the sparkling overture to Nielsen's comic opera, Maskarade. The sonorities throughout are very realistically those of a live concert (there was no editing of the master tape), including some perceptible but relatively unobtrusive audience noise. There is also some applause, but it is faded to a merciful minimum.


Performance: Masterly Recording: Very good

Both of these works were written for the cello soloist, Mstislav Rostropovich. The Shostakovich dates from 1959 and has had a good number of recordings since its dedication made the first one, with Eugene Ormandy and the Philadelphia Orchestra, in 1960. Prokofiev's Sinfonia Concertante is a revision the composer made for Rostropovich in 1950-1951 of his Cello Concerto, Op. 58, completed in 1938. It has been performed only sporadically, and it is good to have it here, particularly since both recordings have the clean, crisp sound of London's Henry Wood Hall instead of the rather blowzy acoustic that marred Rostropovich's recent Paris recordings for Erato, as conductor, of the seven Prokofiev symphonies.

Surprisingly, both performances are marginally tauter than the earlier Rostropovich versions. The artist is his usual masterly and agile self in the essentially lighthearted Shostakovich piece, and, as before, the five-minute cadenza that follows the wistful slow movement is stunningly virtuosic. As always, the very end of the work presents a problem in clear articulation. Not even Seiji Ozawa's brisk, precise leadership overcomes the slight timpani overbalance, which obscures the rhythmic impact and thereby diminishes the sense of finality.

The Prokofiev is quite a different work in spirit from the original Cello Concerto, which bears traces of the Russian style mecanique cultivated in the Twenties and Thirties. The thematic material from the earlier work is imbued with a more lyrical spirit in the outer movements, and the central movement, largely new in substance and highly virtuosic, is a curious mix of the dissonance of Prokofiev's earlier scores and the more accessible manner of his late ballets. Rostropovich and Ozawa are admirable collaborators throughout.

D.H.

SCRIABIN: Piano Sonatas Nos. 3, 4, 5, and 10. Robert Taub (piano). HARMONIA MUNDI © HMU 907011 (53 min.)

Performance: Excellent Recording: Excellent

The few recordings Robert Taub has made to date, ranging from Beethoven and Schumann to the complete piano music of Milton Babbitt, have shown him to be an uncommonly thoughtful and persuasive musician, the sort who can think his own thoughts without turning everything upside down for the sake of novelty, who can bring fresh insights to familiar works and make those from outside the alleged mainstream more than accessible. He is certainly attuned to the Scriabin mystique, but he does not allow himself to be swept away by it. One of the intriguing things about his performances of the sonatas on this CD is the way he seems to be reminding us that Scriabin, an outstanding pianist himself, was after all well acquainted with the works of Schumann, Liszt, and Beethoven and that digesting them was part of the process that led to his own unarguably revolutionary contributions as a composer.

If this disc is to be the first in an eventual survey of all the Scriabin sonatas, it is an especially good beginning, for Nos. 3, 4, and 5 constitute a kind of concise documentation of the "revolution"—Scriabin's break with the past, assertion of his individuality (in the most ingratiating terms in No. 4), and confident setting-forth on a new path. Sonata No. 10, on the other hand, is in a sense a summing-up, a report from the very end of the work predicated on the dissonance of Prokofiev's earlier concerto. The way he seems to be letting the music speak for itself, and that can be the strongest sort of advocacy when it works as well as it does here. Interpretively, Taub more than holds his own with the others who have made modern recordings of these works—Horowitz, Richter, Gould, and Ashkenazy—and the Harmonia Mundi CD has about as vivid a reproduction of real piano sound as we are likely to hear in any format.

R.F.


Performance: Highly atmospheric Recording: Good

In this second installment of what promises to be a comprehensive survey of the Sibelius orchestral works, Jukka-Pekka Saraste conducts a Fifth Symphony that is notable for its emphasis.
HORSZOWSKI

T hardly needs saying that Mieczyslaw Horszowski is one of the wonders of the musical world. Born in 1892, he has been performing for nearly nine decades, and, as a member of the faculty of the Curtis Institute of Music in Philadelphia for roughly half that time, he has taught several of today's most distinguished pianists. In June 1987 he celebrated his ninety-fifth birthday with a recital in London as part of a European tour, and he is still touring.

During his long career, however, Horszowski has made few solo recordings, and Nonesuch recently moved to correct that situation while he is still with us in what might be called his extended prime. The label's initial release, a year or two ago, included one of his favorite recital pieces, Debussy's Children's Corner, along with a Beethoven sonata, a Mozart fantasia, and works of Chopin. A new collection taped at Curtis last May, a month before his ninety-sixth birthday with a recital in London as part of a European tour, and he is still touring.

Perhaps Horszowski cannot dazzle us with sheer power now, but that was never his long suit. His profound authority and apparently instinctive sense of the music's essence certainly do more than merely dazzle. There is no indulgent lingering over the Kinderszenen; that has never been Horszowski's way, nor would it be to turn the Arabeske into a mere virtuoso piece. His Schumann is as elegant and vital as his Mozart and Chopin. These performances are not "interpretations" in the usual sense, for Horszowski never seeks to intrude his own personality in a way that would obscure that of the composer. There is instead an almost modest but assured grasp of that elusive musical essence. One has a sense of the music's integrity, of its being communicated in its purest form. The recordings Horszowski is making now can extend his pedagogical impact for as long as aspiring pianists have access to them—but it is a much wider audience that will treasure them.

Nonesuch has provided not only superb sound but documentation that is clean-cut and thoroughly creditable, the coolish sonics of the EMI studio in London. The nearly twenty-minute finale can tempt a conductor to "chew the scenery," but, as in the first movement, Chailly concentrates on line and color but somewhat lacking in tensile strength compared with the recent versions by Simon Rattle (Angel) and Esa-Pekka Salonen (CBS). The central movement has more of a Brahmsian tinge than usual, and the finale goes swiftly, with a powerful drive. En Saga remains a singular work in its contrasting of Stygian darkness with points of light cutting through here and there. Again, Saraste gives a highly evocative reading, but one somewhat lacking in cumulative tension, particularly compared with Vladimir Ashkenazy's remarkable recording for London—also paired, by the way, with the Fifth Symphony. The bonus here, and by far the best performance, is Sibelius's last great masterpiece, Tapiola. Not only is the playing more taut and vital, but the recorded sound is brighter and more sharply focused.

D.H.

R. STRAUSS: Also sprach Zarathustra; Don Juan (see Best of the Month, page 103)


Performance: Strongly lyric

Recording: Handsome


Performance: Creditable

Recording: Lean and clean

Riccardo Chailly avoids emphasizing the bombastic aspects of this sprawling, Berlioz-like score, concentrating instead on its lyrical and coloristic elements, particularly in the opening movement. The Alpine Fairy of the scherzo is perhaps not quite as diaphanous and elusive as some I've heard, but the contrasting trio section falls on the ear most gracefully, and there is effective contrast between the calm and agitated passages in the pastoral third movement. The nearly twenty-minute finale can tempt a conductor to "chew the scenery," but, as in the first movement, Chailly concentrates on line and color and lets Tchaikovsky's musical rhetoric work on its own terms without any overemphasis. The disciplined yet warm performance is enhanced by splendid recorded sound.

I think of Michael Tilson Thomas in terms of the lighter Tchaikovsky works, such as his finely honed 1971 Boston Symphony version of the First Symphony on Deutsche Grammophon and the later recordings of the Suites Nos. 2 and 4 with the Philharmonia on CBS. While his Manfred Symphony recording is clean-cut and thoroughly creditable, the fiery music seems at odds with his essentially restrained temperament and the coolish sonics of the EMI studio in London.


NONESUCH © 79202-1, © 79202-4, € 79202-2 (70 min).

STEREO REVIEW MARCH 1989

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I was surprised to find that the Thomas' CD derives from a 1979 analog tapping, which was apparently held in the vault all these years. Trotting it out now, no doubt because of Thomas' recent appointment as principal conductor of the London Symphony, does him no service. Neither this Manfred nor his recent recording of the Mahler Third is representative of this conductor's best work, which is to be found particularly in the American repertoire.

D.H.

**WAGNER: Die Walküre.** Reiner Goldberg (tenor), Siegmund; Cheryl Studer (soprano), Sieglinde; Eva Marton (soprano), Brünnhilde; James Morris (bass), Wotan; Waltraud Meier (mezzo-soprano), Fricka; Matti Salminen (bass), Hunding; others. Bavarian Radio Symphony Orchestra, Bernard Haitink cond. EMI/ANGEL © CDCD-49534 four CD's (232 min).

Performance: Excellent, but... Recording: Cloudy

Bernard Haitink's new recording of *Die Walküre* would be fair to recommend if it hadn't been preceded by James Levine's superb set on Deutsche Grammophon. Haitink's recording is so well conducted and authoritatively sung that it will undoubtedly please discriminating Wagnerites and put to rest the notion that this is a poor age of Wagner singers. But the Levine recording is far more consistently satisfying.

Only one of Haitink's principals tops Levine's cast, and that's Reiner Goldberg, who gives a virile, heroic portrayal of Siegmund. With his Italianate tone, he could become a Wagnerian Franco Corelli. Cheryl Studer's Sieglinde is nothing like Jessye Norman's for Levine. Her slighter voice conveys nothing like Jessye Norman's for Leontyne Price.

Corelli.

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The story of how Andre Watts came to national attention at the age of sixteen, when he substituted on short notice for Glenn Gould as soloist with Leonard Bernstein and the New York Philharmonic, is almost as well known now as Bernstein's own breakthrough nearly twenty years earlier as a last-minute replacement for Bruno Walter. Watts has faced much better than many another brilliant performer who made it big in his teens. He did not allow himself to be pressured or exploited but chose to develop at a pace determined by considerations of maturity and depth, in the conviction that a true artist (in contradistinction to a mere celebrity) is one who never stops growing.

Angelo made this handsome recording last April at the Carnegie Hall recital in which Watts celebrated his fortieth-anniversary season. The program of Haydn, Mozart, Schubert, and Brahms is a strong one, reflecting obviously deep musical sympathies. (It's a special pleasure to encounter this particular Haydn sonata outside the context of an "integral" recording.) Throughout the recital, the performances are consistently and warmly satisfying on the intellectual and emotional levels as well as technically. The recorded sound is of studio quality, but you'd know these performances were live even without the applause.

R.F.

**COLLECTION**


Performance: Warmly satisfying Recording: Fine live take

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SPKERS

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IN THE multi-Platinum album “New Jersey” was released, Bon Jovi has been touring constantly, but only now has the quintet made its way back to the U.S. The band started in Dublin on Halloween and worked its way all over Europe, only taking time out to visit the Soviet Union and set up a massive benefit concert that will take place in Moscow this summer on the twentieth anniversary of Woodstock. After a quick swing through Japan and a couple of dates in Hawaii, Bon Jovi touched down on the American mainland with a nonstop set of dates that began in Dallas in January, followed by concerts on the East Coast and in the Midwest and then, finally, a sweep of the West Coast. Altogether, the band will have been nearly a year on the road and away from home in the state that gave that last album its name.

Throughout the ever-changing history of Starship, only one thing has remained constant: success. From the band’s beginning, as a spinoff from Jefferson Airplane originally known as Jefferson Starship, to its current incarnation, with no original members remaining, this organization has spawned one hit single after another. Now, in the wake of three No. 1 singles from its past two albums, Starship is releasing a new record on Grunt/RCA. Among the tracks are Wild Again, from the soundtrack for the movie Cocktail, and It’s Not Enough by Martin Page, one of the writers of Starship’s chart-topping We Built This City. Meanwhile, members of the original Jefferson Airplane have gotten together for a reunion, which is expected to yield an album as well.

Significant new signings at BMG Classics include British conductor Colin Davis, who’s been taken on board for a five-year period with a contract calling for some twenty recordings. A large contingent of Soviet artists has been signed, too, including conductor Yuri Temirkanov, violinist Vladimir Spivakov, violist Yuri Bashmet, and seventeen-year-old pianist Evgeny Kissin. BMG has also made a worldwide distribution agreement with Deutsche Harmonia Mundi, whose artists include harpsichordist-conductor Gustav Leonhardt.

The classical Arabesco label has launched a “sister label” devoted to jazz. Presided over by pianist Billy Taylor, the new label is called Taylor-Made. “For the first time in twenty years,” Taylor said recently, “I’m serious about recording again. Although I have great visibility on television and radio, music is documented by what you’ve done on record. What I’m doing in my music [today] is a lot different from what I was doing twenty years ago. During these two decades, I’ve been looking into the history of jazz, writing a book, and I’ve done a lot of work formalizing my ideas about what jazz is all about. This has contributed to the growth of my ideas in my music as well.”

The first Taylor-Made release is “White Nights and Jazz in Leningrad” by the Billy Taylor Trio, derived from a series of concerts in Russia last May. The Leningrad concert was filmed by CBS and shown subsequently on the network’s program Sunday Morning hosted by Charles Kuralt.

The second album in the new label’s initial release is simply titled “Solo” and is, in fact, Taylor’s own first solo album.

The Metropolitan Opera has released a new album in its series of Historic Broadcast Recordings, the December 4, 1954, performance of Giordano’s Andrea Chenier, conducted by Fausto Cleva.

Atlantic Records has released the first five Duke Ellington albums in a series of ten titled “Duke Ellington: The Private Collection.” The recordings were all personally produced by Ellington but remained in his possession; they are being made available now for the first time by the Ellington family.

London is the first record company (to our knowledge) to take the MTV marketing approach to the classical repertoire. Set for a first run on PBS television stations is a four-minute Interlink Productions video featuring Luciano Pavarotti. Accompanied by pianist John Wustman, the tenor sings M'appari tutt'amor (My Love Is Like a Dream), the popular aria from Friedrich Flotow's opera Martha, in a take from London's fast-selling "Pavarotti at Carnegie Hall." At press time that album had reached the No. 1 spot on Billboard's classical chart, and its staying power will no doubt owe much to this promotional video.

The latest Pavarotti release on London is actually a reissue on two compact discs of the album containing (on three LPs) his recordings of Leoncavallo's Pagliacci and Mascagni's Cavalleria rusticana. Speaking of videos, London is set to release the first classical recording in the pop-style compact disc video (CD-V) format. The artist is Joshua Bell, and the video portion of the five-inch disc shows him performing, with pianist Samuel Sanders, Brahms's Hungarian Dance No. 1. As with pop CD-V's, the video is supplemented by an audio-only program drawn from the same album that contained the "single"—in this case the young American violinist's first recording for the label, last year's "Presenting Joshua Bell." The new Capitol album by Bonnie Raitt is her first in more than two years and her third LP's) his recordings of Don Was of Was (Not Was) in the fall, she played a benefit concert in Austin, Texas, for the Rhythm and Blues Foundation. At the end of the year, she toured Europe with her old pals Little Feat and taped a cable-TV special in New Orleans with the Neville Brothers. Then it was on to the Rocky Mountains, where she played some acoustic dates at a number of ski resorts. Now, to promote the new album, "Nick of Time" (a March release), she'll hit the road again with a full band.

"You can't beat two guitarists, bass, and drum," says Lou Reed, which may explain the stripped-down sound of his new Sire release, "New York." Reed and Mike Ratke are the guitarists. Rob Wasserman is heard on bass, album co-producer Fred Maher and former Velvet Underground member Maureen Tucker play drums, and Dion DiMucci, the album's mixdown engineer, Jeffrey Lesser, and Reed himself did the background vocals. Appropriately enough, Reed recorded the album in New York, and the fourteen tracks were done in the order they appear on the album. "It's meant to be listened to in one fifty-eight-minute sitting," Reed says, "as though it were a movie."

When four talented young musicians, all virtuoso recorder players, get together and call themselves the Amsterdam Locki Stardust Quartet, you figure they've got to be up to something a little different. Well, they are. As they demonstrated on their first American tour in 1987, they are doing for the recorder what the Kronos Quartet has done for the string quartet—that is, they have brought a fresh and unconventional approach to a genre of music that routinely courts the danger of sounding merely academic. Academically the ALSQ is not. Extending the repertoire of the recorder to include jazz and even present-day pop, the quartet travels with an impressive array of some thirty Renaissance and Baroque instruments, ranging from an eight-inch soprano to a bass recorder measuring over six feet. And they are traveling in the U.S. again now, having begun a cross-country tour at the University of Maryland on February 18. From there, with stops in between, they headed north to New York and Montreal, west to San Francisco and San Diego, and back east to Boston for a final date on March 6.

The Amsterdam Locki Stardust Quartet has two albums on the L'Oiseau-Lyre label, both of which have won Europe's prestigious Edison Award—"Virtuoso Recorder Music" in 1986 and "Baroque Recorder Music" in 1987.

G RACENOTES. A&M Records is putting out three CD's of music recorded live at the Knitting Factory, an avant-garde musical outpost of jazz and new music in New York City. . . . Jimmy Witherspoon has a new live album on Fantasy, recorded at the Biltmore Hotel in Los Angeles. . . . Relativity Records has issued a wealth of show music on its First Night label, including London stage and concert productions of Cabaret, Kiss Me Kate, Wonderful Town, and Mack and Maude. . . . Virgin has rereleased Philip Glass's classic "4'33" Star" album of 1977. . . . A debut album by Show of Hands was released by I.R.S in January, only weeks after the trio's return from China, where it performed nine consecutive dates at the 13,000-seat Shanghai Auditorium.
by Ralph Hodges

THE OPTICAL TURNTABLE

It has been a while—about seven years, in fact—since a company called Finial Technology announced that it was preparing to play LP records with beams of light. In November of last year, Finial’s engineering vice president, Robert Stoddard, began talking to the Audio Engineering Society about what, precisely, he had in mind, and by the time you read this he will have demonstrated the optical turntable at the 1989 Winter Consumer Electronics Show.

Perhaps I should have waited for that event before venturing into print, but Finial’s several previous demonstrations have been cautious affairs that have left witnesses wondering whether the machine only works during certain favorable phases of the moon. In terms of hard information, I think I can do better than that right now. In fact, I have even located one of the beasts—in the household of Dan Gravereaux, formerly a highly placed engineer in the now-defunct CBS Technology Center and a heavily involved consultant on the laser-turntable project. I also talked with Fred Catero, a veteran recording engineer and producer with impressive credentials who also consulted with the Finial people and has followed the machine through much of its evolution.

But first, just what is the Finial machine as it stands today? It is a mechanism of four laser beams, two of which read the left and right channels of an LP’s groove, while the other two govern the lateral and vertical positioning of the optical system as it transits the disc. It is not a trivial mechanism. A diagram in Stoddard’s paper shows an assembly of twenty-two or more photodiodes, lenses, mirrors, and sensors, and this leaves out the various motors that shift things around to accommodate record warps, thickness variations, and variable groove pitch and width.

Unlike previous stabs at this technology, which evidently date back to 1929, the Finial LT-1 reads not the instantaneous position of the groove wall but instead the modulation angle, which is then translated into information about frequency and amplitude, using electronics mathematics that Gravereaux considers uniquely elegant and quite beyond anything he had previously thought possible. But even these efforts did not solve the problem of excessive modulation angles, which are routinely created when the back facets of the cutting stylus get involved in the mastering process along with the front—and which are almost inevitable, Gravereaux says, when a “hot” recording contains things like snare drums and muted trumpets. The problem seems to have been surmounted, but Gravereaux is not sure how and would not be at liberty to explain it anyway.

Another huge stymie factor was a familiar one: dust. As Catero suggested, a mechanical stylus simply nudges much groove debris aside without responding to it audibly. But a beam of light won’t do that. It plays practically everything. Gravereaux has no problem with it. That’s the theory, anyway, and Gravereaux has no problem with it.

Both men acknowledge a subtle difference between the sound of the LT-1 and what is obtained from a conventional tonearm and phono cartridge. As for a preference, they remain uncommitted, although Gravereaux’s son has plumped solidly for the laser.

Catero is a bit troubled by the many millions of dollars that have gone into the LT-1’s development and wonders how this investment can be recouped. High-tech spin-off applications will be many, but, this late, can the device ever be the consumer product that was intended? It’s hard to argue with his misgivings, especially since the latest projected price for the LT-1 is $3,700, and it will go anywhere but down. Yet, for audiophiles, this is perhaps the final development in a precious and glorious heritage.

Afterword: Sadly, the price did go anywhere but down. Shortly after I wrote this column, Finial, citing high production costs, abandoned marketing plans for the LT-1. But the technology is still there, and it will be heard from.
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