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DECEMBER 1988

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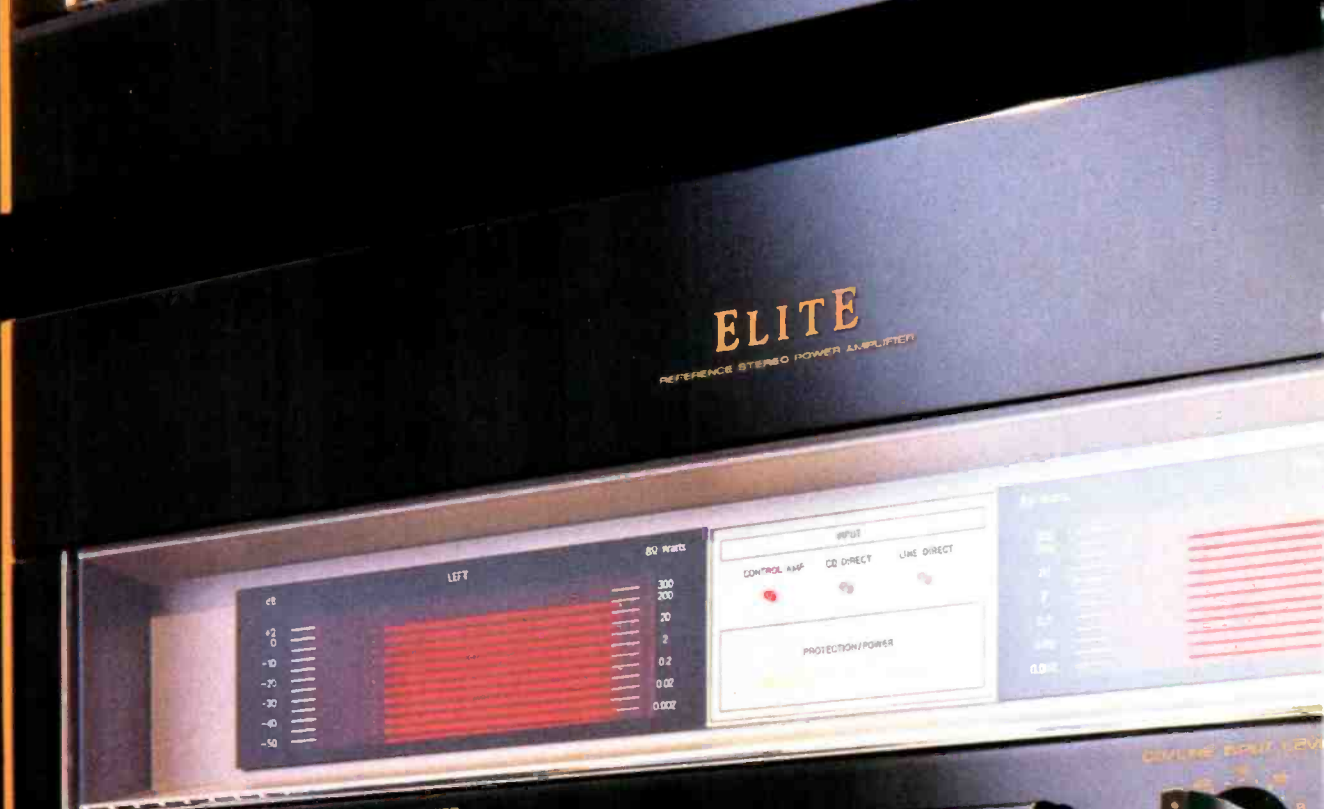
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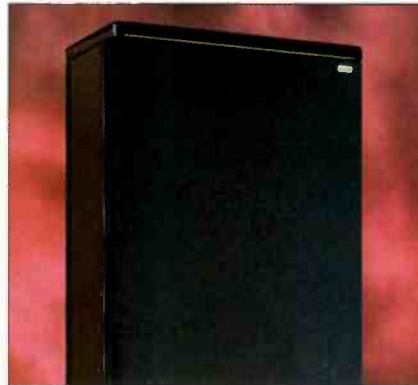
# HIGH FIDELITY

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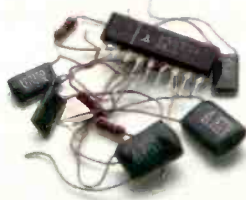
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On the cover (clockwise from the left): Mirage's M-1 loudspeaker, Tandberg's TPT-3031A tuner (with remote), and Pioneer's CLD-3030 Laserdisc/CD-V player (with remote).



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Cover photo: David A. Wagner

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#### ADVERTISING OFFICES

**New York:** ABC Consumer Magazines, Inc., 825 Seventh Ave., 8th fl., New York, N.Y. 10019. Tel. (212) 265-8360. Peter T. Johnsmeyer, Vice-President, Advertising; Walter Stolz, Associate Advertising Director; James R. McCallum, Advertising Director (Music/Books); Maria Manaser, Classified Advertising Director  
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## FrontLines

### Silk Purses and Old Standards

By Michael Riggs

**T**he process of figuring out what components deserve Product of the Year Awards (see page 45) also tends to clarify current design trends. And this year we see something very interesting: Two of our winners this time around are loudspeakers, distinguished by their quality and, in a sense, their conservatism. Neither lays claim to revolutionary technology, and neither incorporates any radical design elements. (One of them has a more or less omnidirectional radiation pattern, but this is hardly an earthshaking event in 1988.) These speakers are as good as they are because they were designed by talented people who worked very hard and took full advantage of the best modern materials and test facilities. In particular, the designers paid close attention to getting right those performance characteristics known to have the greatest effect on sound quality.

Superficially, then, the speakers are rather different from 1988's other two Products of the Year. The Lexicon CP-1, for example, is a genuinely unique product, combining on one chassis a superb Dolby Pro Logic surround-sound decoder for movie soundtracks and a highly sophisticated and unusual digital ambience-synthesis system for music. In the latter respect, it represents a component category so new that you can count the members on one hand. (The very first such component, Yamaha's DSP-1, took pride of place in 1986, in our very first Product of the Year competition.)

The Philips IDTV monitor/receivers, which also win an award, are equally innovative on the video side, using digital signal processing to extract the last iota of information from ordinary NTSC television signals. They, and others like them, are the final way station on the road to the advanced HDTV (high-definition television) systems of the future.

However, when you get past the newness of what they do and how they accomplish it, IDTV and the CP-1 are perhaps as conservative as the speakers with which they share honors. Both are designed to extend and enhance current standards: NTSC video encoding in television and stereophonic recording in audio. I say this not to diminish their significance; these are important products for the very reason that they preserve our investment in existing means of storing and transmitting information. NTSC television will be with us for many, many years to come and will be the only alternative well into the next decade, at least. Anything that can be done to improve reproduction within that standard will therefore be a great boon to videophiles and other quality-conscious viewers. I expect those who prefer truly large-screen television will be particularly pleased with the benefits of IDTV.

Stereophonic sound is even more firmly entrenched than our current television system. The only serious commercial effort at multichannel recording and playback—the quadriphonic experiment of the early 1970s—hit the ground so hard that you can still hear the thud if you put your ear to the pavement in Osaka. It will not get a second chance anytime soon. Yet if we are to increase the realism of music reproduction in the home, we must break through the barriers imposed by ordinary two-channel audio. The Lexicon CP-1, and the increasing number of products like it, do just that by more fully exploiting the information contained in the pits and grooves of our stereo CDs and records. Like IDTV, it is giving us more from an existing format than we would have thought possible only a few years ago. It's not quite a matter of getting silk purses from sows' ears or gold from lead, but close enough to be very pleasing indeed.

#### Coming Next Month

In keeping with long tradition, January brings HIGH FIDELITY's annual test-report special, with reviews of ten exciting new audio and video products. Don't miss it.

**ADVANCED SURROUND SOUND . . .**

I just finished David Ranada's review of the Yamaha DSP-3000 Digital Sound Field Processor [July]. I want to upgrade my system, and after reading your report I think incorporating a DSP-3000 might be a good idea. My system currently includes a Tandberg 3008 preamplifier, a Tandberg 3006 power amplifier, and Klipschorn loudspeakers. How does one wire a DSP-3000 into his system? Does it act as a preamp, or would it feed an aux input on my present preamp? Also, will I need another Tandberg amp to power the additional speakers? If so, how does the wiring work? Finally, can you recommend loudspeakers for the surround channels that will complement the Klipschorn's?

Maj. John C. Martin  
San Francisco, Calif.

*The DSP-3000 (like others of its ilk) is designed to go between preamp and power amps or, when that is not feasible, in a tape-monitor loop. You will need a channel of amplification for every speaker used in the system. The Yamaha can be used with as many as ten loudspeakers (including the*

*main pair), but the normal recommended complement is six, and you can get by with just four. That means at least one additional stereo power amp, and potentially as many as four. (They don't have to match your existing main-channel amplifier, by the way, and Yamaha makes a four-channel amp expressly for use with its DSP components.) The DSP-3000 feeds all the amplifiers from its various outputs, with the amplifiers in turn driving the loudspeakers.*

*The speakers for the surround channels should sound similar enough to the main-channel loudspeakers that they do not call attention to themselves. Ideally, all the speakers would be identical. Usually the most practical approximation of that ideal is to use speakers from the same manufacturer on all channels.—Ed.*

**. . . AND MORE**

I thoroughly enjoyed the articles in your September issue—especially the comparison of the Yamaha DSP-3000 and Lexicon CP-1 surround-sound processors. (I have owned a Yamaha DSP-1 since it was introduced in 1986.) Now I'm debating whether I might enjoy having a CP-1 as well.

What are the hookup problems in such an arrangement, and how might I solve them so that I could use both the CP-1 and the DSP-1 compatibly in my system?

Also, I agree completely with Robert Long's ideas about the effective rebirth of quad in his article "Something Old, Something New." But it seems to me that some further discussion is required, particularly in light of Gordon Brockhouse's "Analog and Digital Technologies Coexist in High-End Audio" in the same issue. The RDAT standard includes provisions for discrete four-channel recording capability, and it has been reported that a prototype discrete four-channel Compact Disc player has been demonstrated. Now, consider the high-tech advances in playback equipment for analog vinyl discs reported by Brockhouse. What sort of quadriphonic/surround-sound system will emerge (or re-emerge) for LPs? Will it be Sansui's QS, CBS's SQ, JVC's CD-4, or something else? And which of these methods might benefit most from Teldec's landmark DMM (Direct Metal Mastering) LP technology?

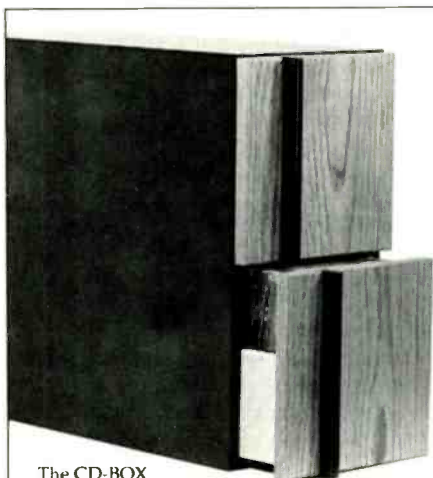
Finally, how will I integrate decoders for such systems into my system while still maintaining compatibility with my Yamaha DSP-1 and Lexicon CP-1?

William P. Johnson, Jr.  
Rochester, N.Y.

*One problem in using a CP-1 and DSP-1 together is that of switching between them. If your preamp has two pairs of main outputs, you could attach the CP-1 to one set and the DSP-1 to the other. Then connect their outputs to the aux inputs of integrated amplifiers instead of to straight power amps—to simplify selecting which of the processors you want feeding the speakers. If you don't have a separate preamp, you can modify the above procedure slightly by putting each processor in a tape-monitor loop on your receiver or amplifier. Neither approach is elegant, but both will work.*

*The bigger stumbling block is that the CP-1 and the DSP-1 are designed for somewhat different placements of the surround speakers. You can work around this difficulty by putting loudspeakers everywhere they may be needed and taking advantage of the speaker-switching facilities on the integrated amps (alluded to above) feeding the surround channels. As you can see, what you're asking for is a very complex system. We really think you'd be better off settling on just one processor.*

*The RDAT standard does include provisions for discrete four-channel recording at a 32-kHz sampling rate; we doubt, however, that many manufacturers will build machines with this capability. Much the*



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same goes for four-channel CD: The standard provides for it, but at the expense of a 50-percent reduction in maximum playing time. We don't think you will see four-channel CDs or machines to play them any time soon, if ever. And you certainly will not see four-channel LPs again. That's dead. The wave of the foreseeable future in audio is not four-channel recording but multi-channel playback from ordinary stereo sources. Today's technology, as exemplified in the Lexicon CP-1 and the Yamaha DSP units, yields better sound and greater flexibility from ambience extraction, enhancement, and synthesis than was possible with the quadriphonic systems of yesteryear. Don't look back.—Ed.

#### A SENSE OF LOSS

As magnificent as Compact Disc technology is, it deprives fanatics such as me of a simple but significant feature: a view of the record majestically spinning and the tone-arm gently swinging as the music plays—a really magic vision. In these sad days of dry, "hi-tech" designs, lovers of music on disc must learn to manipulate a black box through some sort of pocket calculator stuck to one of its sides (alas, the "face panel"), which indicates what is going on inside by means of little green numbers. As for the record, you put it in a drawer, the machine swallows it, and that's all.

I want to see the laser beam! May some true high fidelity designer come up with a completely transparent player, in order that we may recover this lost pleasure. Meanwhile, we are bound to stare at flashing indicators or, worst of all, a deadly countdown to the music's extinction.

J. I. Espinosa  
Santiago, Chile

You are not alone—see October's "Medley." Unfortunately, your wish is likely to remain unfulfilled. The law requires that the laser itself be tucked safely out of sight during operation, and, in any case, the light it emits is in the invisible infrared range. Even portable players, with their exposed lens mechanism, have covers whose maximum opening prevents you from getting your eye over the laser. Early top-loading players that allowed a view of the spinning disc proved unpopular.—Ed.

#### ALL CDs SMALL AND SMALLER

Reading your coverage of 3-inch Compact Discs ["All CDs Great and Small," October], I was confused by your comments about two titles from my client Dunhill Compact Classics, now DCC International, until I realized the following: You seem to have assumed that these Harry Chapin and Ray Charles discs were commercial releases. Not so.

Both were issued late last year, before there was such a thing as a commercial

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Please include all applicable bonuses.

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DEPT: A

CD-3. The Chapin title was a limited-edition picture disc and was intended as a commemorative item in conjunction with the all-star Chapin gala at Carnegie Hall last December. Similarly, the Charles title was also a picture disc and also put to market as a limited-edition collector's item; it sold out immediately. We sent you one of each with the compliments of DCC, and

each was accompanied by a press release describing the edition.

I would not want the readers of HIGH FIDELITY to have any cause to believe that DCC ever offers CD fans anything less than premium-quality product.

Robert S. Levinson  
Levinson Associates  
Los Angeles, Calif.

Popular Music Editor Ken Richardson replies: I was confused, too, when I received the two-track Chapin disc and the one-track Charles disc: Were these titles commercial releases or promotional items sent to the media? Before assigning them to Andrew Nash for inclusion in his CD-3 story, I telephoned Mr. Levinson's public-relations firm for the answer—and was told that, yes, they were for sale.

But I was further confused when I read, in Levinson Associates' press release, that the Chapin CD-3 featured "two previously unreleased songs, 'Hokey Pokey' and 'Oh Man,' according to Dunhill President Marshall Blonstein"—because the Chapin CD-3 on my desk contained "I Miss America" and "Remember When the Music." So I called Mr. Levinson's office again—and was told that, yes, the title on my desk was the correct and only Chapin CD-3, and that the press information was wrong. I was also reassured that both the Chapin and the Charles titles were commercial releases.

I am now even further confused by Mr. Levinson's letter. First, he writes: "You seem to have assumed that these . . . were commercial releases. Not so." But then he says: "Similarly, the Charles title was also a picture disc and also put to market as a limited-edition collector's item; it sold out immediately" (my emphasis added). The way I see it, either something is put to market or it isn't. And because both the Chapin and Charles discs were indeed commercially available, as I was told, they were fair game for review: Whether we're talking limited edition or marketplace flood, we're still talking about the consumer's money.

By the way, as we reported, Rykodisc's CD-3 of Frank Zappa's Peaches en Regalia was released in October 1987—so there was "such a thing as a commercial CD-3" when the Chapin and Charles discs were released a month later.

**PROTEST INADEQUATE HEARING AIDS**  
"Golden Ears" ["Medley," by Ted Libbey, July] struck a responsive chord. I am a music lover with a conductive hearing loss; the conductive mechanisms in both of my ears have been destroyed by a combination of disease and surgery, but my auditory nerves are very good. When my last surgical repair stopped functioning, I was told that a hearing aid, not additional surgery, was the best solution to my problem.

After hearing my first Cleveland Orchestra concert through a hearing aid, I literally wept bitter tears. The very limited frequency response of a hearing aid (400 Hz to 4 kHz) is grossly inadequate for music, and the sound systems that theaters provide for the hearing-impaired are de-

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**AZ Flagstaff:** Sound Pro • Phoenix/Mesa: Hi Fi Sales • Tucson: Audio Emporium • Yuma: Warehouse Stereo  
**CA Bakerfield:** Casa Moore • Campbell: Sound Goods • Canoga Park: Shelley's • Chico: Sounds By Dave • Corona Del Mar: Pacific Coast Audio Video • Davis: World Electronics • Eureka: Eureka Audio Video • Lancaster: California Soundworks • Mountain View: Sound Goods • Napa: Futurvision • Orange: Absolute Audio • Penngrove: California Stereo • Redondo: Systems Design • Sacramento: Good Guys • San Diego: Sound Company • San Francisco & Suburbs: Good Guys Stereo Store • San Gabriel: Audio Concepts • San Jose: Good Guys • San Luis Obispo: Audio Ecstasy • Santa Barbara: Creative Stereo • Santa Cruz: Sound Wave • Santa Maria: Creative Stereo • Santa Monica: Shelley's Stereo • Sherman Oaks: Systems Design • Stockton: Guskins • Thousand Oaks: Creative Stereo • Ukiah: Music Hut • Upland: Audio Haven • Ventura: Creative Stereo • Victorville: Incredible Sounds • Westminster: Videotek Stereo  
**CO Boulder:** Soundtrack • Colorado Springs: Sunshine Audio • Denver & Suburbs: Soundtrack • Pueblo: Sunshine Audio  
**CT Avon:** Hi Fi Stereo House • Danbury: Carston's • Fairfield: Audio Design • Greenwich: Al Franklin's • Hartford: Al Franklin's • New Haven: Audio Etc. • Newington: Hi Fi Stereo House • New London: Roberts • Norwalk: Audiotronics • Waterbury: Zimo Music  
**DE Wilmington:** Bryn Mawr Stereo  
**FL Daytona Beach:** Stereotypes • Ft. Myers: Stereo Garage • Ft. Lauderdale: Sound Advice • Ft. Pierce: Sound Shack • Ft. Walton Beach: Audio International • Gainesville: Electronics World • Jacksonville: Audio Tech • Key West: Audio International • Lakeland: Sound Factory • Merritt Island: Southern Audio • Miami: Electronic Equipment Co. Sound Audio • Naples: Stereo Garage • Orlando: Audio Spectrum • Panama City: Walford Sound • Pensacola: Fidler Hi Fi • Sunrise: Sound Advice • St. Petersburg: Cooper for Stereo • Sound Advice • Tallahassee: Stereo Store • Tampa: Sound Advice • W. Palm Beach: Electronic Connection, Sound Advice  
**GA Athens:** Hi Fi Buys • Atlanta & Suburbs: Hi Fi Buys • Augusta: Stereo City • Brunswick: Hi Fi Stereo Store • Columbus • Merrill TV • Macon: Georgia Music • Savannah: Audio Warehouse • Valdosta: Stereo Connection  
**HI Honolulu:** Hanihulu Audio Video  
**IA Davenport:** Gregg's Music • Des Moines: Audio Labs • Dodge City: Sound World • Dubuque: Renier • Iowa City: Hawkeye Audio • Mason City: Sound World • Waterloo: Team  
**IL Bolise:** Stereo Shoppe • Sandpoint: Electracraft • Twin Falls: Audio Warehouse  
**IL Alton:** Reliable Stereo • Aurora: Stereo Systems • Carbondale: Southern Stereo • Champaign: Good Vibes • Chicago & Suburbs: United Audio • Decatur: J.R. Lloyd's • DeKalb: Audio Plus • Highland Park: Columbia • Joliet: Stereo Systems • Kankakee: Barrett's Entertainment • Lansing: Audio Clinic • Naperville: Stereo Systems • Normal: Sundown One • Peoria: Team Electronics • Rockford: Columbia • Springfield: Sundown One • Spring Valley: Audio Labs • Vernon Hills: Alans • Waukegan: Alans  
**IN Bloomington:** Campus Audio • Bluffton: Eley TV & Appliances • Evansville: Riley's • Ft. Wayne: Classic Stereo • Indianapolis: Ovalton • Lafayette: Good Vibes • Marion: Classic Stereo • Michigan City: Audio Connection • Muncie: Classic Stereo • South Bend: Classic Stereo • Terre Haute: Stereo Crafters

**KS Junction City:** Audio Junction • Overland Park: Audio Electronics • Wichita: Audio Visions • Topeka: Nelson's  
**KY Bowling Green:** Audio Center • Lexington: Ovalton Audio • Louisville: Audio Video Buy Design • Owensboro, Paducah: Risley's • Pikeville: Mayo Inc.  
**LA Lafayette:** Sound Electronics • Metairie & New Orleans: Allerman Audio • Opelousas: Sound Electronics  
**MA Boston:** Waltham Camera & Stereo • Fitchburg: Fitchburg Music • N. Dartmouth: Sound II • Pittsfield: H.B.S. Stereo • Worcester: O'Cons  
**ME Bangor:** Sound Source • Camden: Harbor Audio • Portland: New England Music  
**MD Annapolis:** Spaceways • Baltimore: Soundscape • College Park: Spaceways • Gaithersburg: Audio Buys  
**MI Ann Arbor:** Absolute Sound, Hi Fi Buys • Birmingham: Almas Hi Fi • Dearborn: Almas Hi Fi • Farmington Hills: Almas Hi Fi • Flint: Stereo Center • Grand Rapids: Classic Stereo • Kalamazoo: Classic Stereo • Lansing/Midland: Hi Fi Buys • Petoskey: Kurtz Music • Royal Oak: Absolute Sound, Court St. Listening Room • Traverse City: Kurtz Music  
**MN Duluth:** Mel's TV & Audio • Mankato: Audio King • Minneapolis & Suburbs: Audio King • Rochester: Audio King • St. Paul: Audio King  
**MO Cape Girardeau:** Stereo One • Columbia: Johnston Audio • Rolla: End of the Rainbow • St. Louis: Sound Central  
**MS Hattisburg:** McLeiland TV • Jackson: Hagar's • Passagoula: Empress  
**MT Billings:** Video Sat & Sound • Bozeman: Thrifty Ear • Great Falls: Rocky Mountain Hi Fi • Missoula: Aspen Sound  
**NC Boone:** Hollons • Chapel Hill: Stereo Sound • Charlotte: Audio Video Systems • Conover • Tri-City • Greensboro: Stereo Sound • Hendersonville: Pro Sound • Kinston: Stereo Concepts • Moorehead City: Anderson Audio • New Bern: Anderson Audio • Raleigh: Audio Buys • Stereo Sound • Rocky Mount: Microwave Audio • Wilson: Audio • Wilson: Modern Stereo • Winston-Salem: Stereo Sound  
**ND Bismarck:** Pacific Sound • Fargo: Today Electronics  
**NE Kearney:** Midwest Audio • Lincoln: Stereo West • Omaha: Stereo West • York: Midwest Audio  
**NH Concord:** Audio of New England • Laconia: Lakeside Stereo • New London: North Star • Salem: Cuomo's  
**NJ East Brunswick:** Atlantic Stereo • Maple Shade: Bryn Mawr Stereo • Montclair: Perdue Radio • Raritan: AC Audio • Ridgewood: Soundings Board • Shrewsbury: Monmouth Stereo • Toms River: Rands Camera • Wall Twp.: Monmouth Stereo • West Caldwell: Perdue Radio  
**NM Alamogordo:** D&K Electronics • Albuquerque: West Coast Sound • Carlsbad: Beason's • Clovis: Towne Crier • Santa Fe: West Coast Sound  
**NV Las Vegas:** Upper Ear  
**NY Albany:** Clark Music • Batavia: Unicorn Audio • Buffalo: Speaker Shop • Coming: Chemung • Elmira: Chemung • Fredonia: Studio One • Glen Falls: Audio Genesis • Goshen: Longplayer's Stereo • Ithaca: Chemung • Jamestown: Studio One • Manhasset: Audio Breakthroughs • Massena: Hi Fi Shop • Newburgh: Audio Expressions • New Hartford: Adirondack Music • New York City: Audio Breakthroughs, Electronic Workshop • Rochester: JB Sound • Scarsdale: Listening Room • Syracuse: Clark Music • Vestal: Hart Electronics • Woodbury: Audio Breakthroughs

**OH Akron:** Audio Craft • Canton: Belden Audio • Cleveland & Suburbs: Audio Craft • Cincinnati: Stereo Lab • Columbus: Stereo Lab • Dayton: Stereo Showcase • Findlay: Audio Craft • Lima: Classic Stereo • Toledo: Audio Craft  
**OK Lawton:** Hi Fi Shop • Oklahoma City: Audio Dimensions • Shawnee: Rave Sounds • Stillwater: Cartunes • Tulsa: Audio Advice  
**OR Beaverton:** Stereo Superstores • Eugene: University Hi Fi • Grants Pass: Shekells • Medford: Shekells • Portland: Stereo Superstores  
**PA Allentown:** Bryn Mawr Stereo • Blakeley: Hart Electronics • Bryn Mawr: Bryn Mawr Stereo • Camp Hill: Bryn Mawr Stereo • Chambersburg: Sunrise Electronics • Erie: Studio One • Johnstown: Gary's Entertainment • Kingston: Hart Electronics • Lancaster: G'n T Stereo • Longhorne: Bryn Mawr • Montgomeryville: Bryn Mawr Stereo • Natrona Heights: Stereo Land • Philadelphia & Suburbs: Bryn Mawr Stereo • Pittsburgh: Audio Junction • Quakertown: Bryn Mawr Stereo • Reading: G'n T Stereo • Sellersville: Stereo Shoppe • State College: Paul & Tony's Stereo • Stroudsburg: Main St. Audio Video • Westford: Audio Insight • Williamsport: Robert M. Sides  
**PUERTO RICO Rio Piedras:** Precision Audio  
**RI N. Providence:** Eastern Audio  
**SC Anderson:** Music Machine • Charleston: Sunrise Electronics • Erie: Studio One • Greenville: Mitchell's Stereo, Music Machine • Greenwood: Stereo Shop • Spartanburg: Stereo Shop  
**SD Aberdeen:** Engel Music • Rapid City: Team Electronics • Sioux Falls: Audio King  
**TN Chattanooga:** R&R TV • Cookeville: Lindsey Ward • Jackson: New Wave Electronics • Kingsport: Audition • Knoxville: Lindsey Ward • McMinnville: Lindsey Ward • Memphis: New Wave Electronics • Nashville: Hi Fi Buys  
**TX Amarillo:** Sound Systems Ltd. • Arlington: Stereo Idea • Austin: Marcum Electronics • College Station: Audio Video • Corpus Christi: Tape Town • Dallas: Hillcrest Hi Fidelity • El Paso: Soundquest • Ft. Worth: Sound Idea • Houston: Sheffield Audio • Hurst: Sound Idea • Laredo: Melix International • Longview: Audio Techniques • Lubbock: Electronics Supercenter • San Antonio: Bill Case Sound • San Marcos: Discovery Audio • Sherman: Worldwide Stereo • Temple: Audio Tech • Texarkana: Sound Towne • Waco: Audio Tech  
**UT Logan:** Stokes Brothers • Ogden: Stokes Brothers • Salt Lake City: Broadway Music • St. George: Boulevard Home Furnishings  
**VA Bristol:** Audition • Charlottesville: Holdens • Sound Machine • Falls Church/Manassas: Audio Buys • Richmond: Gary's Stereo • Roanoke: Holdens • Virginia Beach: Digital Sound  
**VT Brattleboro:** Scientific Stereo • Essex Junction: Creative Sound • Rutland: Mountain Music  
**WA Bellingham:** QC Stereo • Chehalis: Music Store • Oak Harbor: QC Stereo Center • Richland: Tim Ear Stereo • Spokane: Electracraft (Hals) • Wall Appleton: Sound World • Eau Claire: LME Audio Systems • Green Bay: Sound World • Lacrosse: Sound World • Madison: Happy Medium • Milwaukee: Audio Emporium • Wausau: Sound World  
**WV Barboursville:** Beckley, Charleston: Pied Piper • Clarksburg: Audio Visual Concepts • Huntington: Pied Piper • Piedmont: Sound Gallery • Wheeling: Stereo Lab  
**WY Cheyenne:** Electronics Unlimited

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The Vocalizer 1000 synthesizer turns your voice into an instrument.

## Vocalizing

Do you ever catch yourself making weird vocal sounds while trying to imitate real musical instruments—wishing you could actually play a guitar solo the way you can *grunt* it? If you want to explore further any latent talent for musical improvisation and composition—whether or not you're a skilled musician—check out the Vocalizer 1000 synthesizer (\$299).

Here's how it works: Choose one of the 12 built-in songs (more will become available as plug-in cartridges), select one of the 28 instrument sounds (again, more will come) for your solo, and hum your riffs into the supplied microphone. The Vocalizer translates your melody into the instrument you've chosen, even correcting for slightly off-key inputs. Special effects such as harmony, chorus, and echo embellish your renditions. The echo effect is great for blues patterns, as it answers your phrases by repeating them back (kind of like dueling synthesizers). Vocalizers can be linked together for "jam parties," and a built-in multitrack note recorder enables you to compose your own works (one part at a time) on top of existing drum and bass patterns. Blank cartridges will be available for extra storage. Sounds can be heard through the unit's built-in speaker or a connected audio system. The notebook-size Vocalizer runs on batteries or AC and weighs merely three pounds (with six C-cells).

We had a brief (and very fun) demo of a preproduction Vocalizer. Even from a musician's standpoint, it was much more than a fancy toy. Some of the instrument sounds were very lifelike (the chips are

supplied by a well-known synthesizer company), and the voice-tracking ability—how well the output corresponds to the rhythm of your input—was remarkable for the price. What's more, the unit's MIDI output can drive sounds on other synthesizers. There is also a MIDI input, plus an auxiliary mike input for playing other instruments through the unit. The Vocalizer 1000 should hit "finer" department stores in New York, Chicago, San Francisco, and Los Angeles in late November. *Breakaway Music Systems, 1900 Norfolk Ave., Suite 340, San Mateo, Calif. 94403.*

## Portable Projector

Conventional front-projection video monitors employ a trio of red, green, and blue cathode-ray tubes (CRTs) to form a color

picture that's bright enough to be projected onto a distant screen. Adjusting the convergence of the three primary-color beams so that they form a clear image often requires the services of a skilled technician. Furthermore, the tubes run hot and wear out sooner than the single tube in a direct-view set. On the other hand, the Kodak LC-500 portable video projector is as compact and easy to use as a typical slide projector, uses a standard projection bulb to generate the image, and requires no convergence adjustments. Instead of using tubes, the LC-500's single light beam passes through a trio of red, green, and blue liquid-crystal displays whose outputs are matrixed into the full-color image and projected. Inputs are supplied for composite-video signals (such as those from a VCR or TV tuner), digital RGB (computers), and analog RGB (professional video gear such as Kodak's Displaymaker graphics system). With no convergence adjustments to worry about, setup is quick and easy, since there are controls for focus, color level, tint, brightness, and audio level (an integral amp and speaker are included, as are external speaker terminals and a stereo-audio line output). The projected image can be made as large as 12 feet across. Price is \$3,500.

Now, if this sounds too good to be true—that is, a totable, 13-pound projection monitor—you're partly right. The LC-500 is first and foremost a presentation display device for business meetings, training sessions, etc., where portability and flexible setups are a blessing. Kodak, however, suggests that the unit may find its way into home theater systems, taking the place of bulky and sometimes-finicky CRT-based projectors. Certainly the appeal of a portable video projector—say, one that can be hauled out and set up in a



Kodak's liquid-crystal-based professional video projector

couple of minutes at Super Bowl time—is considerable, and perhaps worth some sacrifice in image quality. Kodak gave us a brief demonstration of the LC-500, using an off-air VHS recording. The picture was good enough, at least with about an eight-foot-wide image, for us to wonder how much better it might have been if a Laserdisc program were used instead. Even on a plain white wall with low ambient room lighting, the brightness level was acceptable and colors were reasonably natural. Still, the “pixelated” nature of the LCD image was readily apparent, though not necessarily off-putting. For professional purposes, the LC-500 is nothing short of revolutionary.

One point that makes us hesitate in proclaiming it a legitimate consumer alternative to a tube projector is bulb life. The bulb used in the demo (EXR) has a life span of about 35 hours. A 70-hour bulb (FHS), with roughly 70 percent the brightness, is also available, as is a 20-percent-brighter bulb (EXW) that lasts 15 hours. You could feasibly keep all three on hand, as replacement is a snap. *Eastman Kodak Co., 343 State St., Rochester, N. Y. 14650.*

### Learn About Satellite TV

The American Home Satellite Association has produced a videocassette entitled “Owning a Satellite Dish: All You Need to Know.” Now that scrambling has taken away the “free lunch” aspect of satellite TV—owners must have a descrambler and pay subscription fees to receive HBO, the Disney channel, etc.—the system has lost a considerable amount of its original appeal. Still, satellite TV has a number of other virtues, including reception free of terrestrial interference (namely, “ghosts” caused by multipath). The tape costs \$25 and is available through satellite dealers and some video specialty shops or by writing the association at 500 108th Ave. NE, Suite 800, Bellevue, Wash. 98004.

### Bottom End

Phase Linear has added two subwoofers to its line of low-mass, high-rigidity graphite-cone car speakers. The PL-S1000 10-inch subwoofer (\$100) is rated to handle peak inputs of 450 watts; the 8-inch PL-S800 (\$75) can take peaks of 300 watts. Both

speakers are said to be linear beyond 1 kHz, which would make them suitable in a wide range of component speaker setups. *Phase Linear, Division of International Jensen, 4134 N. United Pkwy., Schiller Park, Ill. 60176.*

### The British Are Back

After a two-year absence from these shores, Wharfedale speakers have returned en masse through a new distributor, Vector Research. The top member of the Delta Series—whose four models range from \$270 to \$700 per pair—is the Delta 90, a three-way speaker with a 10-inch woofer and a soft-dome tweeter. The Diamond Series includes the two-way Active Diamond (\$350 per pair), a mini-speaker powered by a self-contained 20-watt amp. Of the four speakers in the Precision Series, the star is the 512.2 (\$1,900 per pair), a tall, three-way model using a pair of 8-inch bass drivers. The drivers in all Precision models are mounted without screws or fasteners, in a “bayonet” method said to be similar to that used

*(Continued on page 88)*

## Five years ago, the PS-10 got great reviews. It still earns them today, in a store near you.

In 1983, *Rolling Stone* said; “...the PS-10 loudspeakers by Design Acoustics could be the last pair you’ll ever buy.” *High Fidelity* commented; “The overall sound is smooth, clean, and detailed.” *Ovation* noted that the PS-10; “provided a very open and transparent sound with excellent and stable stereo imaging.” And *Stereo Review* concluded that;

“...the PS-10s delivered a smooth, balanced sound... (enabling them) to fit almost anywhere both aesthetically and acoustically.”

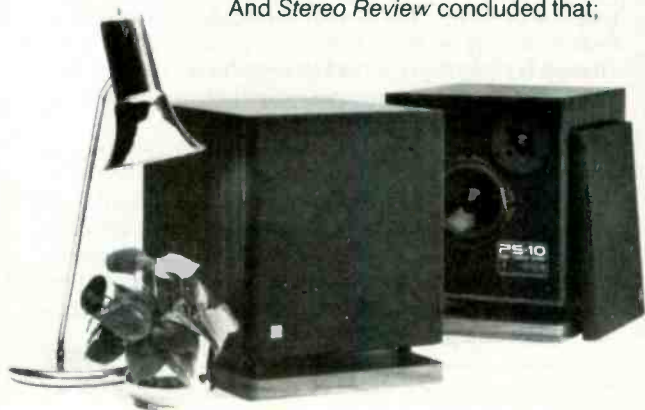
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## Answers to Readers' Questions

By Larry Klein

### Cassette Jamming

*Cassettes are now certainly more reliable than they once were, but is there any way to totally eliminate the possibility of their jamming in my deck?*

*Marvin G. Cohen  
Beaverton, Oreg.*

Jamming can occur because of problems in either the machine or the cassette. If you have a good-quality machine, regularly clean its tape path, and refrain from feeding it bargain-basement or poorly cared for cassettes, jamming should never be a problem. You might also consider the advice offered on a slip of paper packed with a low-cost deck that once passed through my office. It read as follows:

*When the same cassette tape is played several sound trips, pat it some times on both sides and then set into the slot. If the same tape is played several times continuously, some cassette tape (especially a thin tape such as a C-90) might be wound too tightly at the inside of the cassette or be overlapped, and causes an injury on the tape, an uneven rotation and a trouble on winding mechanism.*

Aside from an obvious translation problem, the advice seems sound. "Patting," as illustrated on the slip, means slapping the flat side of the cassette gently, but repeatedly, against a fairly hard surface. The purpose of this is to loosen up a potentially binding tape pack. Such binding can come about through repeated fast winding or shuttling back and forth in search of desired selections.

### Crossover Design

*I would like to build a pair of speaker systems using three-way crossover networks operating at 2,000 and 6,500 Hz. How do I go about designing such a crossover?*

*John Mackenzie  
Ithaca, N.Y.*

You really can't, unless you know far more about the intended drivers for your system than your letter indicates. No engineer would attempt to design a crossover network for a specific speaker system without knowing the resonances, relative efficiencies, power-handling capabilities, dispersion characteristics, and impedance curves for each driver in the speaker. Crossovers are designed with this information as a starting point and then adjusted on the basis of acoustic-output measurements, listening tests of the assembled system, and, more recently, computer simulation of the completed system. In short, you can't design an optimized crossover network without taking into account the electrical and acoustical characteristics of the drivers it is meant to work with.

However, if you still would like to pursue the matter, I can recommend *The Loudspeaker Design Cookbook* by

Vance Dickason. As its title indicates, it tells you virtually all you need to know—and then some—about designing, building, and testing do-it-yourself speaker systems. The 84-page, softbound volume is available for \$19.95 (plus \$1.75 postage) from Old Colony Sound Lab, Dept. HF, P.O. Box 243, Peterborough, N.H. 03458.

### Dual Power Supplies

*What is the advantage of having completely separate power supplies for the right and left channels in an amplifier?*

*Jake Jackson  
Bloomington, Ind.*

Some manufacturers claim that dual power supplies using two separate power transformers prevent "dynamic crosstalk" or "dynamic intermodulation" distortion. These boo-boos presumably occur when a strong signal in one channel modulates the common power supply sufficiently to affect the performance of the other channel. I discussed the matter with an audio lab that has tested hundreds of amplifiers of both types. And, at my request, they ran some special worst-case tests on an excellent dual-supply integrated amplifier.

The two channels were driven simultaneously, one with a 10-kHz sine wave to an output of 0.01 watt and the other with a 20-Hz sine wave to an output of up to 100 watts. The 10-kHz output channel was examined on a spectrum analyzer to determine the level of 20-Hz modulation. The low-frequency "crosstalk" signal was an insignificant -72 dB relative to the high-frequency signal (which itself was already 20 dB below a 1-watt output). The measurement was repeated on a conventional single-supply amplifier and approximately the same figure was obtained.

In my view, you'll get a better index of an amplifier's power-supply quality if you ignore the crosstalk question and simply check the amplifier's ability to feed low-impedance loads at low frequencies and high power with both channels driven. In that connection, an amplifier using a single heavy-duty, low-output-impedance power transformer feeding separate filter/storage sections for each channel is likely to provide a better-sustained low-frequency performance than another amplifier using a pair of transformers of lesser quality.

One final point: I am surprised that the advocates of dual supplies on a single chassis have not considered the fact that both the amplifiers' power supplies are fed from the same AC line cord. Under high-output conditions, there is sure to be measurable voltage drop in the common line cord. Now that I've raised this issue, will any of next year's amplifiers sport separate line cords (of linear-crystal, oxygen-free pure-copper wire) for each channel?

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



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## Understanding Our Linearity Tests

By David Ranada

**O**f all the measurements HIGH FIDELITY publishes in its tests of CD players, the most important are those for frequency response and linearity. While frequency response is (or should be) a quite familiar concept to well-read audiophiles, linearity doesn't have as cozy a ring. Yet linearity is a very critical test of the most crucial link in a CD player—its digital-to-analog converter (DAC) integrated circuit (or circuits, depending on the player construction)—and deserves equal attention.

A DAC's job is to generate voltages under the control of numbers (the digits of "digital audio"). Feed a DAC the right numbers at a fast enough rate, filter its output to remove spurious ultrasonic components, and the result is a smooth, continuous, analog audio signal. The CD system is set up so that increasing or decreasing the number fed to a DAC by 1 will result in a small voltage step of equal size through the complete range of numbers possible in a 16-bit system. For example, the size of the output-voltage change produced by going from a DAC input of 0 to 1 or  $-1$  should be precisely the same as that produced going from 511 to 512 or 510. Such perfection does not exist with real DACs in real CD players, however. The unevenness of the step sizes produced by such devices is measured by linearity tests.

For several reasons, linearity testing is particularly important at the low levels near the "zero crossing," where a waveform switches from positive to negative polarity. A typical audio waveform spends much of its time near the zero crossing, unlike a sine wave or other typical test signals. At such low levels, nonuniform step size can cause an especially nasty-sounding form of distortion (similar to the crossover distortion of Class B amplifier fame) that is made all the worse by not being masked by loud signals. Furthermore, for many types of DACs, this is the most difficult region to reproduce accurately, since in going from a DAC input of  $-1$  to 0, all 16-bits change value at once, with a consequent disruption of the thermal balances on the integrated circuit chip.

Diversified Science Laboratories tests for DAC linearity by rather simple means. The CBS CD-1 test disc it uses has a series of 997-Hz tones recorded at full output (0 dB) and at lower levels spaced approximately 10 dB apart down to  $-100$  dB. In the test, the CD-player output is fed through a 1-kHz bandpass filter and the level measured. Ideally, the results should show no deviation between the recorded level and the reproduced level as the signal steps downward. What typically happens, however, is that the reproduced level will be either too high or too low because the steps produced by the DAC are too large or too small, respectively. Deviations from the expected level are tallied as either  $+X$  dB or  $-X$  dB in our test results. So far, all is perfectly straightforward.

The problem comes in interpreting the results. Consider comparing two players by examining our test results

for them. Player A's test results for the dithered linearity tracks (expressed as expected level, resulting deviation) are:  $-70$  dB,  $+0.1$  dB;  $-80$  dB,  $+1.2$  dB;  $-90$  dB,  $+2$  dB. Player B has:  $-70$  dB,  $-1$  dB;  $-80$  dB,  $+0.2$  dB;  $-90$  dB,  $-1$  dB. Which player has better linearity? At  $-70$  dB, Player A has a better result, but Player B is closer to the mark at lower levels. It's Player B by two out of three, right?

Wrong. Player B's  $-1$ -dB result at  $-70$  will probably be more audible with music than Player A's greater deviations lower down. Signals in the  $-80$  to  $-100$  dB region are so low that they are commonly covered over by noise in either the recording (from mikes and mixers) or in the playback situation (system noise, room noise). Actually, by these results both Players A and B are rather good performers. Linearity deviations at these low levels are usually much worse, commonly exceeding 3 dB at the lowest.

Although the final word about assessing the audible relevance of linearity test results is not yet in, these basic rules will serve as guidelines in reading our reports:

- The smaller the linearity deviations, the better.
- Prefer, in order, the player with better performance at  $-70$ ,  $-80$ , and  $-90$  dB.
- Steer away from the rare players with measurable deviations at levels between 0 and  $-60$  dB.
- Pay no particular attention to the figure at  $-100$  dB, since just what that test is showing is not yet clear.
- Ignore data at the  $-80$ -dB and  $-90$ -dB levels that were obtained with undithered test signals. We will discontinue publishing such data with this issue, but, unfortunately, since the CD-1 test disc was not available for most of our previous CD-player tests, those tests' linearity results for the  $-80$ - and  $-90$ -dB levels may be inaccurate and should be disregarded. The  $-70$ -dB level is the most important one, anyway.

There are also a few caveats to be heeded when comparing linearity-test results. Since a DAC's linearity performance is essentially specific to that DAC alone, results can vary from chip to chip. Linearity can also, therefore, vary slightly from channel to channel if a CD player uses two completely separate DAC chips, from unit to unit of a player, and, of course, from model to model. DACs also typically come in several grades from the manufacturer, the best ones (those with best linearity) costing considerably more than the others. Simply knowing what basic DAC chip is used in a player is no guarantee of good (or bad) performance. And finally, some DAC designs can be trimmed for optimum linearity. Not all manufacturers take advantage of these provisions; it costs time and money to have a machine or person make the adjustment, not to mention the extra parts that may have to be added to the circuit. So, again, don't simply take the DAC part number (or description) for granted. □



## Autosound Products Of the Year

By Christopher J. Esse

**T**his issue marks the third running of HIGH FIDELITY's Product of the Year awards (see page 45), and for the first time autosound equipment is being considered here separate from home audio and video gear. We hope you agree that both fields are better served in this manner. As with the main event, the editors get together to discuss candidates, and eventually a consensus emerges. We do not limit our thinking only to products that we've tested or examined, although the qualities looked for—innovations in technology and design, overall importance, as well as outstanding performance—are also those found in items we have selected for evaluation during the year. In fact, regular readers will notice that all the cited autosound products have at least been mentioned before by the magazine.

Since every month's HIGH FIDELITY is prepared ahead of time, as I write it is not yet October. Therefore—and this is true also for the main awards—we define the eligibility period as roughly from October 1987 through September 1988 (similar to an automobile's model year). Products introduced before October 1987 but not actually on the market until afterward have also been considered.

About the autosound awards themselves. This year, there is no clear-cut winner—nothing on the order of re-inventing the wheel, that is—but rather a bunch of winners in a variety of product categories. We've also singled out some items for special recognition. And now, with the presidential election safely behind us, it's time to talk real issues. . . .

### THE CHAMPIONS

**Sony CDX-A20 CD changer.** We cited Sony's original Disc Jockey, the CDX-A10, as a "runner-up" in our first POY awards in 1986. When that ingenious device first



*Sony's CDX-A20 car CD changer: flexible mounting combined with incredible shock resistance*

appeared, it stood alone, poised to carve out a new market, as have a number of Sony's other innovative audio and video products. Other companies have since embraced the idea of a trunk-mounted multidisc player and developed their own imaginative versions. Sony was ready to counter with the CDX-A20, a system that differs from the original primarily in its use of a new changer mechanism and additional control options. It is the remarkably compact changer that is being recognized here, not only for its size and mounting flexibility (upright or on its side), but for an incredible resistance to shock and vibration. You may recall that in my test drive of a CDX-A20 (this column, April) I was unable to cause a disc to skip, despite driving with no regard for damage to the vehicle. Sony's control options for the CDX-A20 are many and good, but . . . they are edged out by one used for our next champ.

**Pioneer KEX-M700 CD controller head unit.** I think Pioneer was the first company to offer a home CD changer, one using a six-disc cartridge. Earlier this year the company found a mobile home for this cartridge in the form of the CDX-M100 car CD changer. The changer itself performed well during my evaluation (May), but its "master"—the KEX-M700 cassette/tuner—is the real story. It is one of the modern breed of head units where limited front-panel space and a desire for lots of features dictate that primary control functions for the various sources—in this case, tuner, tape, and CD—share buttons. Pioneer distinguishes itself not in the sheer number and usefulness of the 700's features but in the thoughtful way it has arranged the controls, notably the use of three buttons whose special functions in each operating mode are clearly indicated on a large LCD display. Here is one case where the power of the microprocessor has been matched by a skillfully designed user interface (excuse that last term—I got a little carried away).

Of course, a nice control scheme deserves a good home, and the 700 provides one with a top-notch cassette deck and Pioneer's best tuner. Just add the CD changer and you've got it all. I should also point out that the 700's miniature wireless remote sets a standard for design sensibility and ease of use.

**ADS six-channel power amps.** As one of the leaders in the design of multichannel amps and one of the few companies that insists on rating them by stringent home-audio standards, ADS outdid itself this year with the delivery of two self-contained six-channel amps. As of now, the PH-12 and PH-15 are still the only six-channel car amps on the market.

When ADS came out with the PQ-10 in late 1986, it was the first four-channel amp that offered a three-channel mode (in which only one of the two stereo amps is bridged). The new PH-15 follows the same thinking, pro-

*(Continued on page 20)*

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#### THE AUTOPHILE (Continued from page 17)

viding from three to six channels of power. You want numbers? Six channels at 40 watts each; or four channels at 40, plus one at 80 watts; or two each at 40 and 80 watts; or three channels at 80 watts each—all ratings into 4 ohms with less than 0.05-percent distortion. You can see how the PH-15 will tidy up all sorts of system arrangements. The relatively straightforward PH-12 offers 20 watts to each of six channels.

**Canton Mainframe amplifier system.** Canton has evidently seen too many monstrous installations featuring a trunk full of amps and crossovers and miles of cable. And, like ADS, what they saw was an opportunity to advance the cause of multi-amp setups. The Mainframe is aptly named: It is literally a frame that holds three or five (there are two versions) of Canton's 50-watt "programmable" mono amplifiers and distributes audio signals and power to them. A series of switches on each amp configures a built-in electronic crossover, which can activate high- or low-pass filters at 150 Hz and 2.5 kHz. Similar switches select the number of audio inputs fed to each amp. For instance, you can feed all four inputs (front and back pairs) to an amp with its 150-Hz low-pass filter switched in, establishing a subwoofer channel whose output level—adjustable on the amp—is independent of your radio's fader setting. As you can imagine, there are a great number of possibilities, enabling you to start simple and work your way to an exotic triamplified setup using multiple Mainframes.

**Polk SDA car-speaker systems.** Never in the history of autosound have we seen so much emphasis on achieving smooth frequency response and a satisfactory stereo image. Much of the activity has centered on custom equalization and better speaker placement. Now Polk is applying its widely known SDA (Stereo Dimensional Array) technique to car speaker systems, with the goal of electronically removing the physical boundaries of the car's acoustic space. The technique involves minimizing interaural crosstalk by injecting reversed-phase cancellation signals derived from each channel into the opposite channel. Polk had to consider a number of factors in bringing SDA to the car—among them, the matter of creating a realistic front stereo image despite sounds coming from both front and back, as well as the relationship between listener and speaker location. These factors led to applying the cancellation only in the back channels (above 150 Hz), which results in an increase in spaciousness as well as a stereo image anchored firmly in front.

An SDA system consists of front and

back Polk speakers of various types, depending on your car, and the SDA processor, which also contains a subwoofer crossover. While I have not yet had a chance to audition an SDA car system thoroughly, it's clear that the technology attacks a serious limitation in autosound.

#### SPECIAL RECOGNITION

**Pioneer DEH-66 CD player/receiver.** The DEH-66 is the first car CD/tuner to incorporate a stereo amplifier in a single DIN-size chassis. (Some CD/tuners still house the *tuner* in a separate chassis.) As in the KEX-M700, Pioneer makes use of electronic multifunction controls and an informative display panel to keep operation of the DEH-66 simple.

**Technics Flex-Power removables.** Slide-out radios are not exactly new, but Technics's approach adds an extra measure of flexibility. Two cassette/tuners, the CQ-H9320 and CQ-H9310, can be matched with any of three brackets, depending on your needs. One bracket provides two sets of preamp outputs for connecting the radio to external amps; the two others supply built-in amplifiers. Not only are you given more choices, but you get a smaller and lighter head unit.

**Blaupunkt PSA-168 amplifier.** The trick here is custom equalization in the form of plug-in modules for different car models. This new Parametric Sound Amplifier offers more power than its predecessor (the PSA-108) and the same potential for smoothing out the bumps and dips in a car system's frequency response.

**Ford DAT player.** Here we recognize significance on a broad scale. I believe Ford actually delivered the first factory-installed DAT player (Sony-built) in its Lincoln Continental, just edging out General Motors. Does anyone really care? DAT currently can offer little appeal, with only a handful of recordings available (Lincoln owners can buy tapes through Ford). But the DAT player—like Ford's other first, factory-installed CD players—points out the company's serious commitment to autosound. And that commitment continues for the 1989 model year with Ford/JBL systems offered in the Taurus/Sable and the new Thunderbird/Cougar, as well as a CD changer option in the Continental.

Overall, 1988 has been an exciting year for mobile sound. More and more people are looking to get *good* sound in their vehicles, not just sound. The public's level of interest has been raised by autosound competitions, by the premium systems offered in cars from GM, Ford, and Chrysler, by the proliferation of antitheft (removable) radios, and in general by new products that perform better and—not a minor point—*look* better. Congratulations to all our winners! □

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

## Test Reports

### Pioneer CLD-3030 CD-V Combination Player

**T**he CLD-3030 plays all consumer optical media: audio-only CDs of the 3- and 5-inch (actually, nearer to 4 $\frac{1}{4}$ -inch) variety, 5-inch CD-Vs (containing 20 minutes of audio plus 5 minutes of digital-soundtrack video), as well as 8- and 12-inch laser videodiscs (with

You merely have to glance at the supplied remote control, or at the right side of the front panel, to see where many of the 3030's intriguing new capabilities originate. The JOG/SHUTTLE dial/ring assembly finally brings to videodisc the variable-speed playback features that



DAVID A. WAGNER

digital or analog soundtracks or both). Except for the new 3-inch capability, all this is familiar from Pioneer's CLD-1010—the first of the play-everything machines (test report, September 1987). One might have thought from the comprehensive array of features contained in the 1010 that the list of truly useful player capabilities had finally been exhausted. Not so. Pioneer—with its new CLD-3030—has again found several nifty ways to augment user control considerably while maintaining high audio and video playback quality.

long ago became almost standard with professional video recorders and that are available on very few home VCRs. The outer shuttle ring, when turned clockwise or counterclockwise, will produce high-speed playback of the disc, in forward or reverse, respectively. Depending on how far you turn the ring from its "neutral" position, the playback speed will increase through two, five, and ten times normal playback and then to a high-speed scan mode (the latter is not available for the video portion of 5-inch CD-Vs). For CDs and the audio-only

**Dimensions:** 16 $\frac{3}{4}$  by 4 $\frac{1}{2}$  inches (front), 17 $\frac{1}{2}$  inches deep plus clearance for connections.

**Price:** \$1,300.

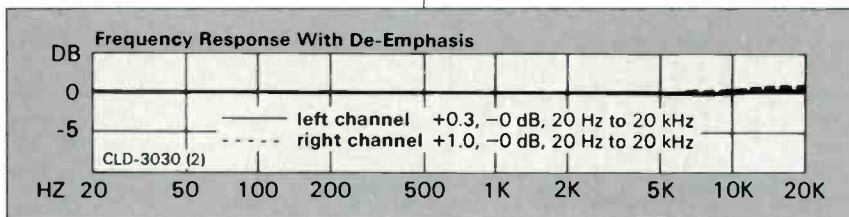
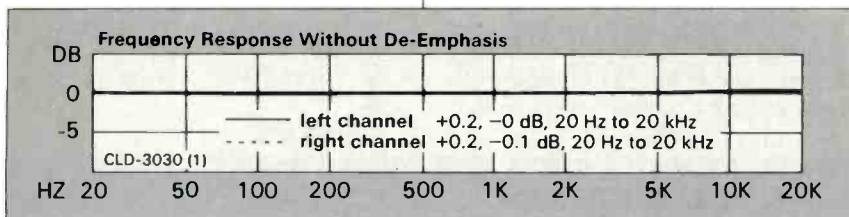
**Warranty:** "Limited," one year parts and labor.

**Manufacturer:** Pioneer Electronics (USA), Inc., P.O. Box 1720, Long Beach, Calif. 90801.

# Test Reports

## Compact Disc Playback

All data were obtained using the CBS CD-1, Sony YEDS-7, Philips 4 10 055-2, and Philips 4 10 056-2 test discs.



Channel Separation (at 1 kHz)	110 1/4 dB
Channel Balance (at 1 kHz)	±0.0 dB
<b>S/N Ratio (re 0 dB; A-weighted)</b>	
without de-emphasis	106 dB
with de-emphasis	111 dB
<b>Harmonic Distortion (THD+N; 40 Hz to 20 kHz)</b>	
at 0 dB	< 0.01%
at -24 dB	≤ 0.048%
<b>IM Distortion (70-Hz difference; 300 Hz to 20 kHz)</b>	
0 to -20 dB	< 0.01%
at -30 dB	0.016%
<b>Linearity (at 1 kHz; dithered below -60 dB)</b>	
-0 to -50 dB	no measurable error
at -60 dB	+0.5 dB
at -70 dB	+1.4 dB
at -80 dB	+4.5 dB
at -90 dB	+8.0 dB
at -100 dB	+17.9 dB
<b>Tracking &amp; Error Correction</b>	
maximum signal-layer gap	≈ 700 μm
maximum surface obstruction	≈ 600 μm
simulated-fingerprint test	pass
<b>Maximum Output Level</b>	
line output	2.11 volts
headphone output	4.20 volts
<b>Output Impedance</b>	
line output	220 ohms
headphone output	43 ohms

portions of CD-Vs, the shuttle ring, regardless of how far away from neutral it is turned, puts the player into fast scan with sound. The ring is spring-loaded, so that when it is released the player returns to the previous operating mode, including still frame (or pause, for CDs).

The inner, continuously rotating jog

dial, complete with finger hole, greatly simplifies frame-by-frame examination of a video program. As you increase the rate of dial rotation while playing a videodisc, playback speed increases from still frame (caused by just a slight turn of the dial from its previous position) through frame-by-frame stepping, to half-speed playback, normal-speed playback, and two times normal speed. Thus, the jog dial and shuttle ring together provide nearly continuous adjustment of playback speed from still frame through very high-speed scan in either forward or reverse. With CDs, the jog dial offers a variable-speed forward and reverse scan capability with sound.

Many of these functions are also provided by the 3030's front-panel and remote-control buttons. And while other videodisc players also provide a wide range of playback effects, the 3030 stands out by making them available with *every* videodisc, not just the "standard play" (CAV) programs. Instead of spending twice as much for a "special edition" videodisc of a favorite movie so that you can thoroughly analyze its various shots, you can buy the less expensive "extended play" (CLV) version and retain all of the playback "tricks."

These multispeed functions come by virtue of the 3030's one-megabit digital video field-store circuit, which is also employed in various other important functions. In the variable-speed playback modes, the memory is used to buffer the video output so that "noise bars" or other spurious signals are eliminated.

When cueing from place to place on a videodisc, the last image seen forms a still frame on the screen until the laser mechanism has cued to the new segment. A "one-shot memory" button on the remote activates a quasi-permanent still frame that does not appear until the still-framed disc stops playing. That frame will then be held on the screen even if you change to CD playback, serving as sort of a "background video."

A front-panel button controls whether the video signal is fed through the digital memory or not, depending on the type of disc (CLV or CAV) and the special playback effect desired. In certain cases, optimum picture quality is preserved if the digital memory is *not* used (for example, in still frames of standard-play videodiscs). The conversion of the video signal to a digital one is performed by circuits with 8-bit resolution. This is the minimum resolution generally considered adequate for professional video use, although many consumer digital-video products use fewer bits. When the digital memory is activated, the field actually stored is shown twice, thus making up a full video frame.



The 3030's remote with jog/shuttle dial/ring

Several special-effects features use the digital field memory as well. One button on the remote activates still frame with sound playback of a videodisc, freezing an image while the audio portion of the program continues. A variable-speed strobe effect freezes the picture every two, four, eight, or sixteen frames, every second, or every three seconds, also while audio playback proceeds. Nowadays, no device containing an image memory would be complete without some sort of "artistic" video processing. The 3030's "digital effect" button fills the screen with a checkerboard pattern, into the squares of which are inserted fragments of strobed video images. One setting of the control will



give a mosaiclike effect. While one quickly tires of these effects, they may be useful in home-video productions incorporating excerpts of videodisc programs.

As a CD player (and as a decoder for digitally encoded videodisc soundtracks), the 3030 offers two separate 16-bit digital-to-analog converters (DACs) fed from the output of a four-times oversampling digital filter. In addition to rear-panel pin jacks for audio and composite-video outputs, there is a fiber-optic output terminal for the digital-audio bit stream. An F-connector RF output switchable between channels 3 and 4 is provided for TV hookup.

For videodiscs, cueing can be by frame number (CAV discs only), chapter number (CAV and certain CLV discs), and program time (CLV discs only). CDs can be cued by track number or time within a track. Functions common to both videodisc and CD playback include the various standard repeat modes (A-B loop, side, chapter/track, programmed sequence) and memory repeat, in which it is possible to mark a certain point on the disc for later replaying. Programmed playback stores a maximum of 20 items: videodisc chapters or CD tracks. An automatic program-editing function helps in programming the maximum number of CD tracks that will fit on a side of an audio tape.

The 3030's discreetly yellow-orange fluorescent display is considerably more informative than the one in the CLD-1010, and in this case the added information is absolutely necessary, given the number of features available. Of greatest use are the front-panel display of chapter/track and frame/time, as well as the "calendar" display of available CD tracks. The display makes it unnecessary to turn on the TV (in order to see the on-screen readouts) when trying to cue a CD. Curiously, the display will show the index numbers on CDs encoded with them, but no way is provided to cue or program by index number! The front-panel controls have also been greatly augmented and include a full numeric keypad as well as many of the special-effects controls formerly available only on the remote. These, too, simplify monitorless operation when playing audio-only programs.

On balance, according to Diversified Science Laboratories' measurements, the CLD-3030 comes out about even with the earlier player in performance. The rolloff in video frequency response at 4.1 MHz might otherwise be cause for concern, were it not for the fact that the 3030, when displaying a resolution test pattern, gave a visible luminance resolu-

tion of about 370 lines, slightly surpassing not only the older model, but also the theoretical NTSC broadcast limit of 330 lines—as well as the resolution performance of some of the Super VHS VCRs this magazine has tested.

Probably as a result of the 8-bit video encoding, the picture quality of the 3030's digital still frame is also better than that provided by any other consumer video device that I've yet encountered, and has an obviously smoother, less "quantized" appearance. While the DAC nonlinearity is higher than I'd prefer to see, it never made itself audible with the CD and videodisc software I tried. The rest of the measurements show good to excellent video and audio performance, fully equivalent to that of other combination videodisc/CD players.

In playing with the 3030, I was primarily struck not by any obvious improvements or deficiencies in its performance but by the versatility of the JOG/SHUTTLE facility. While I can do without the rest of the digital special effects, I will sorely miss the jog and shuttle functions on any future videodisc player that doesn't have them. With these controls, Pioneer has managed to add an important feature I didn't even know I needed to its already impressive collection and has produced in the CLD-3030 the play-everything player for the videophile who desires precision in cueing and accuracy in performance.

David Ranada ▶

## ABOUT THE dBW

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

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

## Videodisc Playback

All data were obtained using the Pioneer M-1 and F-2 test discs

### Audio Frequency Response

digital	+ 1/4, -0 dB, 20 Hz to 20 kHz
AFM (cx off)	+0, -3 dB, 20 Hz to 15 kHz
AFM (cx on)	+ 3/4, -3 dB, 20 Hz to 10 kHz

### Channel Separation (at 1 kHz)

digital	100 3/4 dB
AFM	68 1/4 dB

### Channel Balance (at 1 kHz)

digital	±0.0 dB
AFM	± < 0.1 dB

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

digital (without de-emphasis)	106 dB
digital (with de-emphasis)	111 dB
AFM (CX off)	60 1/4 dB
AFM (CX on)	71 dB

### Harmonic Distortion (THD at 1 kHz, 0 dB)

digital	< 0.01%
AFM	0.43%*

### Linearity (digital; at 1 kHz)

0 to -50 dB no measurable error

### Audio Output Level (at 0 dB)

digital	2.11 volts
AFM	0.43 volt

### Video Frequency Response

at 500 kHz	- 1/2 dB
at 1.25 MHz	-2 1/4 dB
at 2.0 MHz	-3 3/4 dB
at 3.0 MHz	-5 3/4 dB
at 3.58 MHz	-7 1/4 dB
at 4.1 MHz	-11 1/2 dB

Luminance Level	10% high
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### Gray-Scale Nonlinearity (worst case)

≈ 10%

Chroma Level ≈ 10.3/4 dB low

Chroma Differential Gain ≈ 5%

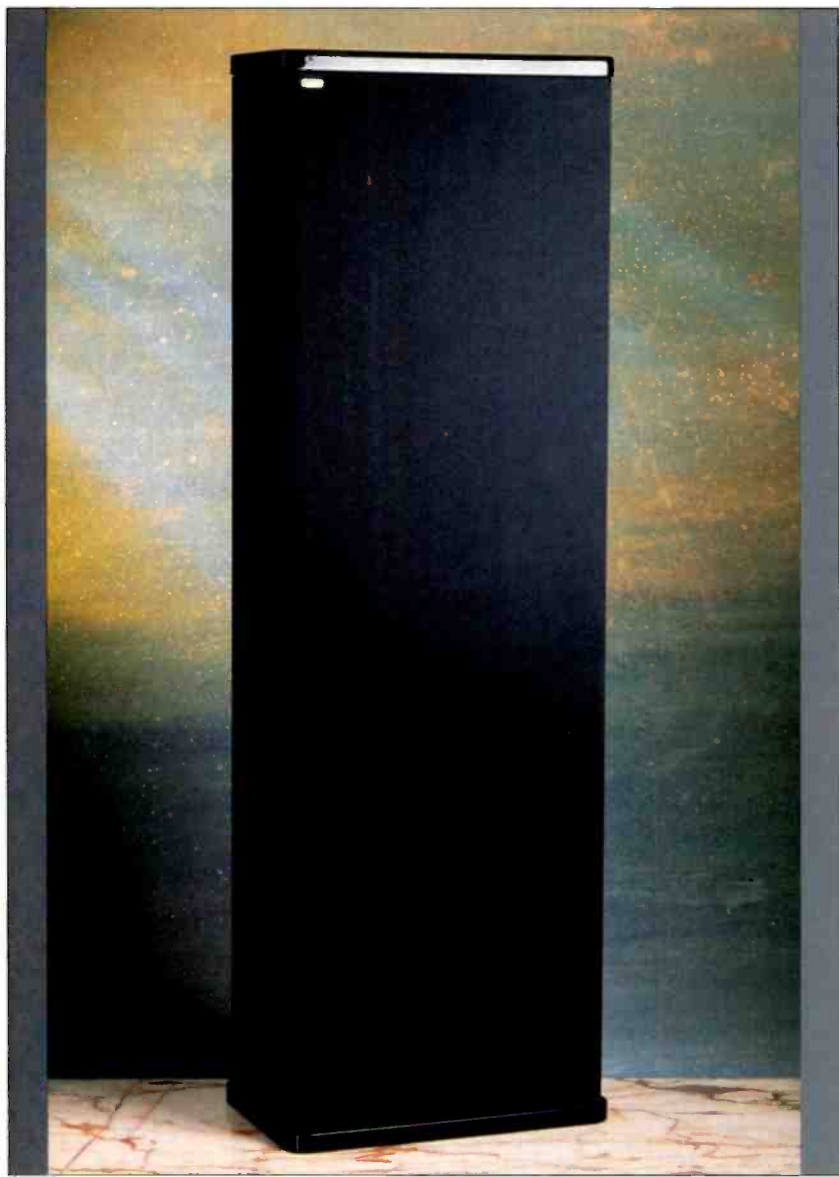
Chroma Differential Phase \*\*

Median Chroma Phase Error +5°

\* Total harmonic distortion plus noise (THD + N)

\*\* Unmeasurable—below noise level

## Mirage M-1 Loudspeaker



DAVID A. WAGNER

**Dimensions:** 59¾ by 19¼ inches (front), 9½ inches deep.

**Price:** \$4,000 per pair.

**Warranty:** "Limited," ten years parts and labor.

**Manufacturer:** Audio Products International, 135 Torbay Rd., Markham, Ont., Canada L3R 1G7.

**A**lthough it bears a striking resemblance to the extraterrestrial monoliths in Stanley Kubrick's film *2001: A Space Odyssey*, the Mirage M-1 loudspeaker has arrived from a bit closer to home: Ontario, Canada. Despite its unusual appearance—and sound quality—the M-1 is a rather conventional vented system using dynamic drivers.

Kubrick's monoliths came one at a time.

The M-1 tweeters are magnetic-fluid-cooled ¾-inch hyperbolic dome units with diaphragms made of pressure-treated cotton that is, as a preliminary product brochure says in a phrase reminiscent of the famous Monty Python crunchy-frog skit, "handcoated several times with a damping compound to bring it to the ideal mass and density." Seriously, this treatment is meant "to eliminate resonant peaks and breakup problems that would otherwise translate into distortion."

A mineral-filled polypropylene material is used in the 4½-inch midrange drivers. These are located in a sealed enclosure within the larger cabinet to isolate them from the woofers. The midrange subenclosure is shaped to reduce possible colorations caused by internal cabinet resonances. The woofers are 8-inch mineral-filled polypropylene cone units with 1½-inch dual-layer voice coils. Each woofer in an M-1 cabinet is housed in its own subenclosure, but both are served by a single port (located near the bottom of the back panel).

The M-1 crossover is said to be a 19-element unit employing high-quality components and 12-gauge oxygen-free copper wire. Crossover points are 300 Hz and 2.3 kHz. However, the front and rear woofers have been given slightly different rolloff points to avoid any mutual-interference effects. Crossover slopes are first order for the rear woofer, second order for the front woofer (which also has the higher rolloff point), second order for the midrange drivers, and fourth order between the midrange and tweeter units. Mirage says the crossover design produces time alignment of the drivers.

To reduce unwanted cabinet vibration, the high-gloss, black-finished speaker has very thick (1¼-inch) wooden front and rear panels. Extensive bracing is used throughout the cabinet interior: Each woofer assembly is braced to the panel opposite the one it is mounted in; the subenclosure for the midrange (which itself braces the front and rear panels) has an internal brace; while a final support divides the woofer compartment so as to eliminate all parallel surfaces. Although I think that the M-1's extraordinarily unboxy sound quality stems from other sources, the heavy construction and all the internal buttressing cannot hurt—unless, of course, one of the 185-pound cabinets happens to tip over on you.

The stretch grille cloth is not removable, so I was not able to verify that the bass-driver and port recesses have rounded edges to reduce diffraction, as

The system's uniqueness originates from the two complete sets of drivers contained in each enclosure, one set of three (woofer, midrange, and tweeter) on the front and an identical set on the back. All the drivers, which are designed and manufactured by Mirage, are aligned vertically and are slightly offset from the center of their baffles. The speakers are therefore sold in mirror-image pairs;

the company says. All the cabinet edges, however, are definitely rounded. Connections are made to a set of multiway binding posts located on the rear side of the small base on which the enclosure stands.

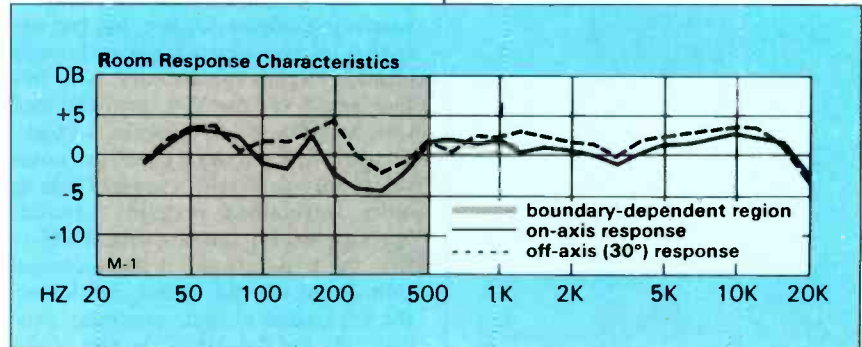
The double-driver complement and the shape of the M-1's enclosure are intended to give much of the sound quality of a flat-panel speaker, without the problems common to such devices. Accordingly, Mirage calls the M-1 a *bipolar* speaker, meaning that it radiates sound equally from front and back and that the rear-directed radiation is *in phase* with that from the front. In contrast, a *dipole* loudspeaker—such as an electrostatic or other flat-panel design—also radiates equally in two directions, but has a “back wave” that is *out of phase* with the front-panel radiation.

Dipole operation has two distinctive characteristics, both resulting from the partial or complete cancellation of the front wave by the back wave. First, throughout much of the audio range, the speaker's overall radiation pattern has a figure-8 shape, with comparatively little sound radiated at 90 degrees off-axis (theoretically, there should be no side radiation at all). Second, at low frequencies, the front and back waves tend to cancel each other completely, so that the low-frequency response is attenuated, sometimes to the point where a dipole requires a supplementary bass driver of conventional design. Neither of these characteristics applies to the M-1. Because the front and back radiation are in phase, the radiation pattern of the Mirage is approximately omnidirectional. Furthermore, the M-1's low-frequency output doesn't cancel itself.

Diversified Science Laboratories found the speaker's on-axis frequency response to be unusually extended. Ignoring the floor-reflection dip at 300 Hz (which is common to nearly all our speaker tests), the on-axis response shown can be described as extending from a very deep 32 Hz up to about 18 kHz,  $\pm 2\frac{1}{2}$  dB. Between 20 and 25 Hz, response is only about 10 dB down from the average upper-midrange level, and this was measured with the speaker 38 inches from the wall behind it—a location that would produce a very rolled-off bass response with most speakers. Also notable is the lack of a hump or rise in the response at midbass frequencies (between, say, 50 and 200 Hz), which makes many other speakers sound muddy or bass heavy. Off-axis, the response is about equally flat, with no discernible treble rolloff caused by “beaming” and with a curve that follows the smoothness

of the on-axis response quite closely from about 1 kHz on up, even to the depth and location of the slight dip at around 3 kHz.

Distortion for the M-1 was consistently on the low side, remaining below 1 percent throughout the audio band at the 85-dB sound-pressure level (SPL). At 90 dB SPL, distortion was less than



1¼ percent below 160 Hz and less than 1 percent above that frequency. Even up through the 100-dB-SPL test, distortion was only 3 percent at 31 Hz and usually less than 1 percent above 250 Hz. At that high level, however, midbass distortion was up at around 7½ percent at 63 Hz and averaged around 3 percent between 80 and 160 Hz. This is still very good performance, considering the ability of the speaker to reach lower frequencies very cleanly.

Much of this low-frequency ability results from a direct tradeoff with speaker efficiency: At 85 dB SPL for a 1-watt input, the M-1's sensitivity is rather low compared to that of typical front-radiating vented systems. It can, on the other hand, withstand quite a bit of amplifier power, and accepted the full 27.9-dBW (613-watt) peak output of the test amplifier in DSL's 300-Hz pulse test, thereby producing a calculated 113-dB sound level at 1 meter. Mirage recommends the use of amplifiers rated from 200 to 400 watts (23 to 26 dBW) per channel, but I was able to cleanly drive the M-1s as loud as I wanted with a 50-watt (17-dBW) amplifier, albeit one with 7.5 dB of dynamic headroom, which enabled it to put out a hefty 280 watts (24.5 dBW) on peaks. The M-1 should be an easy load for any competent amplifier to drive, with a minimum impedance of 5.2 ohms reached at 20 kHz and a maximum figure of 15.8 ohms at 40 Hz. DSL arrived at an average impedance for the M-1 of a little more than 8 ohms. Mirage's ratings are 6 ohms nominal, 4 ohms minimum—which strikes me as a little conservative.

DSL's lab results show a speaker of unusually good performance. However,

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

85 dB SPL

Average Impedance (250 Hz to 6 kHz)

8.3 ohms

since I had conducted my listening before I saw the test data, the measurements merely confirmed what I already knew. From listening to a very wide variety of vocal and instrumental selections, I found the M-1's overall sound quality extremely well balanced, quite neutral, and very extended at the bottom end. Pipe-organ pedal notes in the 20-Hz region that I had observed on  $\frac{1}{3}$ -octave spectrum-analyzer displays, but had despaired of ever hearing, came through clearly. Pitches this low are more felt than heard, and the M-1s provided that sensation. One might think that a speaker capable of reproducing such low notes would have an overly prominent bass in more conventional program material, but such was not the case with the M-1. The relative flatness of the response throughout the bass merely reinforced the impression of sonic neutrality produced by the flatness of the rest of the frequency range.

At higher frequencies that impression remained, orchestral strings sounding especially realistic. In certain brass-instrument passages and in a few recordings of female vocalists I detected a slight coloration, possibly due to the dip in response at 3 kHz. But at the same time the rest of the frequency range was being reproduced so well that whatever that slight effect was from, it was easily ignored in favor of the excellent overall sound quality, abetted by the speakers' most easily heard trait: their imaging.

What DSL's test results do not indicate—and, indeed, what no lab measurements presently made anywhere can show directly—is the sonic image conveyed by the M-1s. And that can be described in a word that comes right out of Kubrick's movie title: space. As the product brochure puts it, "... the speakers just seem to disappear." With some classical program material, a sonic stage of such convincing and realistic depth is produced that you might think an ambience-recovery/generation system were operating. Large orchestras sounded especially good. An outstanding, close-miked classical piano recording (Beethoven sonatas on Denon CO-2203) almost had me believing that the instrument was in the room. The sonic stages for various types of pop music also floated free of the speakers to produce some interesting and very pleasant effects.

Much of this "disembodied" sound quality is common to speakers that project much of their sound away from the listener. But rarely are those types that I have heard so uncolored in their perceived frequency balance, as adept at playing loudly without a sense of strain,

and as capable of reproducing low bass information so cleanly as the M-1.

As far as I can hear, the M-1 has only three sonic drawbacks, none of them very serious. First, the tweeter, being about  $4\frac{1}{2}$  feet above the floor, is above the ear level of a seated listener; even the front-panel woofer is  $2\frac{3}{4}$  feet off the ground. The basic stereo image, therefore, is elevated, and for some types of music and recordings this is simply unrealistic, as is the slight change in image elevation as some instruments change musical registers. Second, the stereo image itself is not as razor-sharp as I have lately been hearing from some conventional front-radiating speakers. Then again, this slight image fuzziness is also typical of omnidirectional and quasi-omnidirectional loudspeakers. The M-1 compensates for image imprecision with image solidity and maintains a properly distributed sonic stage even as you move around the room. Besides, I find the present-day mania over pinpoint imaging itself a bit unrealistic: Most live music doesn't present nearly so precise a soundstage.

The third and last sonic drawback to the M-1 is its sensitivity to room placement. I have been lucky to audition the M-1 in two rather different sonic environments, and both times the sound has struck me as I describe it above. But a proper frequency balance in your listening room may take a little experimentation (which the M-1 manual encourages). In the HIGH FIDELITY listening room I found that the speakers really should be at least 3 feet from the wall behind them to prevent undue bass emphasis by the room and to achieve a pleasant sense of spaciousness in the sound. Mirage suggests placing the speakers 3 feet from the back and side walls, 6 to 8 feet apart, and possibly angling the speakers inward to tighten the central image. With these kinds of recommendations, and from the sheer size of the speakers, you can see that the M-1s are not ideal, say, for a college-dorm-size room. At this price level, you are fully justified in asking your dealer for permission to try out a pair of M-1s in your listening room.

Well placed, and in a large enough room, the Mirage M-1 will provide a spacious yet well-defined sound reminiscent of dipole speakers at their best. Yet, unlike many dipole models, the M-1 will generate large amounts of sound, will reproduce very low frequency material without added subwoofers, and will reproduce a very wide range of musical material cleanly and with very little coloration. What more can one ask of a speaker? David Ranada ►

# "If I Had It To Do All Over Again... And I Do...This Is How I'd Do It."

"Henry Kloss. Member of the Audio Hall of Fame. Creator of Acoustic Research in the 1950's, KLH in the 1960's, and Advent in the 1970's—the dominant speakers of their decades—now brings you Ensemble: the best-sounding speaker system of this era."

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Ensemble is the first of a new generation of stereo loudspeaker systems. It combines two bass units, two mid- to high-frequency satellite units and something you won't find in any hi-fi store on earth:

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The rest of the sound spectrum, from a nominal crossover of 140 Hz, is reproduced by a stereo pair of two-way satellite units. Each incorporates a low-frequency driver, crossing over at 1,900 Hz to a direct-radiator tweeter that goes beyond audibility.

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Every time I came out with a new speaker at AR, KLH, or Advent, my friends would ask me, "Henry, is it worth the extra money for me to trade up?" And every time I would answer, "No, what you've already got is still good enough!"

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## Audio Dynamics CD-2000E Compact Disc Player

**A**udio Dynamics—the original name of ADC, which retains its own, separate product identity—made its debut with a line of U.S.-designed products at essentially the same time as the sale and reorganization of the BSR/DBX group of which it and ADC are both part. The ADC line is more conventional than Audio Dynamics's, while DBX's leans further toward the high end (and pro, reflecting its roots) in its audio equipment.

Of the four products in Audio Dynamics's initial offering, the CD-2000E

system that includes the ADC CA-2000E integrated amp, its bulkier remote will operate all the company's current components.) The CD player's remote also has a repeat feature (which steps between one selection, all selections, and off), a time switch (elapsed within the current track or remaining on the whole disc), fast-scan (cue) controls, PAUSE, and buttons for memory set and clear. To memorize a sequence of as many as 16 tracks, you skip to each track in turn and press the memory button.

The main unit's readout panel shows



DAVID A. WAGNER

**Dimensions:** 17 by 2 inches (front), 12¾ inches deep plus clearance for connections.

**Price:** \$349.

**Warranty:** "Limited," one year parts and labor.

**Manufacturer:** Made in Japan for Audio Dynamics Corp., 851 Traeger, San Bruno, Calif. 94066

is arguably the most impressive. The lean, sleek front panel is most striking. It suggests European styling, though ultimately it is unlike any other CD player I've seen. The shiny, round control buttons contrast nicely with the matte finish of the panel, differentiating the elements elegantly despite the black-on-black color scheme. The operating controls are at the extreme right: PLAY (the large button), STOP, and the two directions of skip. Just to the left is the drawer open/close button; that for power is at the extreme left.

All of these controls except the on/off switch are repeated on the supplied wireless remote (powered by two AAA cells) that is as lean and neat as the main unit. (If you have an Audio Dynamics

track numbers and time, plus symbolic indications for repeat of the current track and of the entire disc or programmed sequence. It also talks to you, in a sense: When you turn the 2000 on, the panel reads "focus" while the mechanism does so; then it asks for a "disc." When you oblige and press the appropriate button, it says "play" and then converts to time display; when playback is done, it says "finished" (or rather, "FINISHED," in the style of such readout elements). While the drawer is open, the 2000 announces the fact, like a dutiful child waiting for its spoonful of tonic.

With controls this sparse, you may think you're getting shortchanged the first time you view the CD-2000E. But let's consider what you are missing ver-

sus a conventional player. Other machines in this price class offer some or all of the following: timer play, a couple more time-display modes (including time remaining during programmed play), direct keypad entry of track numbers, A-B repeat, callout (but not cueing) of the current index number, and possibly one or two other features. Frankly, I would rather see the cost of these limited-value features (most of which require on-board memory as well as access controls) applied to solid performance—as Audio Dynamics evidently has done. But this is a judgment call; decide for yourself how imperative your need is for such amenities.

There is one facet of the design I do regret. When you try to program contiguous bands in sequence, the player inserts a slight pause between them. I use a succession of scenes from the Solti recording of *Das Rheingold* (London/Decca 414 101-2) to test this characteristic, and even though the pause is only about a half-second long, it is musically and dramatically disastrous. If you never use programmed playback for continuous music with internal banding, you won't care. Wagnerites, Mahlerians, Brucknericks—as well as Sgt. Peppers—may want to consider this point.

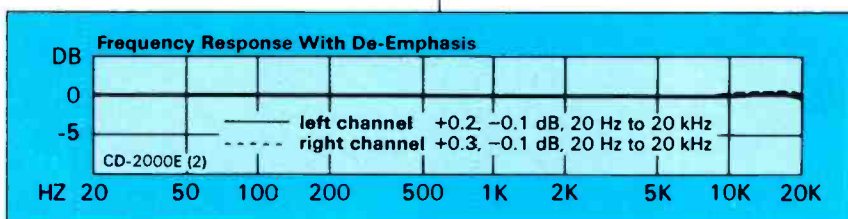
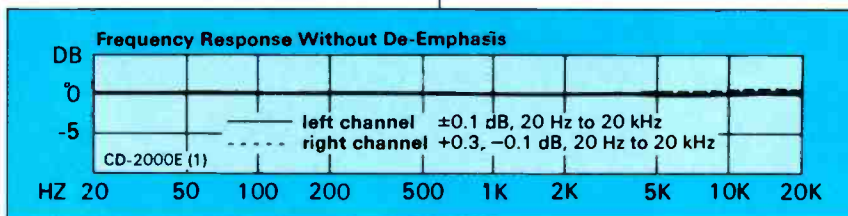
The owner's manual is well above average: sane, clear, and thoughtful. Still, page 6 warns you to remove a nonexistent shipping lock before using the player. In fact, Audio Dynamics's literature makes much of the design's ruggedness and immunity to shock ("... more similar to an automotive [CD player] than is customary [in home models] today") and says that, for this reason, the CD-2000E doesn't even need a shipping lock. I assume the minor glitch in the manual reflects an improvement during the development stage that wasn't reflected in the text.

In the usual investigation of shock resistance, the player justified Audio Dynamics's pride. A sharp rap on the top panel can cause skipping, but playback was unaffected by anything else. The DAC (digital-to-analog converter) is claimed to be unusually linear, keeping distortion at low signal levels to a minimum. The converter system employs four-times oversampling, and the output passes through a third-order analog filter intended to keep consequent phase anomalies and ripple to a minimum.

Diversified Science Laboratories' measurements demonstrate that Audio Dynamics hasn't cut sonic corners in order to keep the price this low. The use of an analog filter barely betrays itself in the frequency response, for example, and

some other models that do all their filtering in the digital domain aren't equally flat. Channel separation, while merely superb at midband (where, in fact, it counts most), remains almost equally so out to the frequency extremes—which is unusual. You will not hear the difference (midband separation of 40 dB or so is more than enough for top-notch imaging), but it's nice to know that not a particle of dust can be found un-

All data were obtained using the CBS CD-1, Sony YEDS-7, and Philips 410 055-2 and Philips 410 056-2 test discs.



der this particular carpet.

Measured nonlinearity begins to appear at a level somewhat higher than is usually the case, but it never becomes severe. Many a pricier model can boast no better figures here; some others are remarkably poorer despite "breakthrough technology" in the digital-filter and DAC sections. The player flowed faultlessly through the admittedly rather undemanding Philips tracking tests. On the much more stringent Pierre Véron disc it still did excellently. It handled dropouts to 2mm (normal pitch; 1.5mm in the minimum-pitch cut or with successive dropouts) and passed the remaining tests without faltering even on the toughest bands.

After you've used the CD-2000E, you are likely to find competing players annoyingly glitzy, to say nothing of the techno-dazzle in the top models. It gives you all the sound quality that we have come to expect from CD players and all of the features and functions that most users will ever really need, and it does so at a modest price and in a way that makes playing CDs more enjoyable than with almost any other player I've encountered. The CD-2000E is, in short, an object lesson in how elegant, creative design can really pay off in an audio product that can be afforded by folks outside the BMW crowd. Welcome, Audio Dynamics, and thank you!

Robert Long ▶

Channel Separation (at 1 kHz)	90 1/2 dB
Channel Balance (at 1 kHz)	± <0.1 dB
<b>S/N Ratio (re 0 dB; A-weighted)</b>	
without de-emphasis	98 3/4 dB
with de-emphasis	103 dB
<b>Harmonic Distortion (THD+N; 40 Hz to 20 kHz)</b>	
at 0 dB	≤ 0.042%
at -24 dB	≤ 0.056%
<b>IM Distortion (70-Hz difference; 300 Hz to 20 kHz)</b>	
0 to -30 dB	< 0.01%
<b>Linearity (at 1 kHz; dithered below -60dB)</b>	
0 to -50 dB	no measurable error
at -60 dB	-0.26 dB
at -70 dB	-0.5 dB
at -80 dB	-0.3 dB
at -90 dB	-2.5 dB
at -100 dB	-0.5 dB
<b>Tracking &amp; Error Correction</b>	
maximum signal-layer gap	> 900 μm
maximum surface obstruction	> 800 μm
simulated-fingerprint test	pass
Maximum Output Level	2.1 volts
Output impedance	600 ohms



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**T**his cassette/receiver, from Audiovox's premium Hi-Comp line, is the first of the company's products we have tested, and it makes me wonder why we've taken this long. It is innovative in a number of ways, delivering functions that I've encountered in testing no other unit. Such refreshing characteristics might tend to make me overenthusiastic, were there not a few facets of the design that, truth be told, I found downright annoying. But these characteristics may not bother you at all; stay with me—and make up your own mind as we go along.

wired individually if you can track down mating connectors.

All of these connectors are built into the supplied harness, which is split into two parts joined by mating nine-pin connectors. You therefore can use just the first half of the harness and attach your power, ground, and speaker wiring to your own mating nine-pin connector, or use the whole harness (with the terminations listed at the head of this report) for about 4½ feet of power wiring and a little less than 2 feet for the ground and speaker wires.

Not included in this harness are the

## Audiovox HCC-2500 Car Stereo Cassette/Receiver



DAVID A. WAGNER

For example, since I have to change my car setup often for these tests, I am always irked when I have to scrounge around to mate nonstandard connectors. But once you, or your dealer, have installed the HCC-2500, that's a closed issue, and its connectors aren't all that peculiar, anyway. Indeed, they offer exceptional flexibility of installation. The flat power and ground studs on the chassis will accept individual wires with standard flat female connectors, if you choose to go that route. The chassis's DIN speaker jacks, of a type seldom used in this country, are a sane choice because of their inherent hot/return polarity coding, which virtually prevents out-of-phase hookups. The jacks also can be

power-antenna wire, the line connections, and the switching connections for any remote units, such as a subwoofer amp or equalizer. The antenna stud comes jumpered to its neighbor, which controls panel lighting. If you are interested only in the power antenna, a supplied wire preserves the jumper while supplying the antenna. If you want to get fancy and make the HCC-2500's panel illumination coordinate with that on the rest of the dash, you can remove the jumper and wire the pin at the other end of it to the car's dimmer connection.

The line and remote connections all work through an eight-pin male DIN chassis jack. Audiovox offers an accessory adapter for this jack, but for line in-

**Dimensions:** 7 by 2 inches (chassis front), 6¼ inches deep; escutcheon 7¼ by 2¼ inches.

**Connections:** Flat male chassis connections for ignition, battery, antenna, and ground; eight-pin DIN male chassis socket for line in and out pairs plus remote switching; coaxial female chassis socket for antenna; DIN speaker sockets for speakers. Extension harness includes flat female for ignition and battery, spade lug for ground, and unterminated wires for speakers.

**Fuses:** 5-amp, accessible via pull-off holder on rear panel.

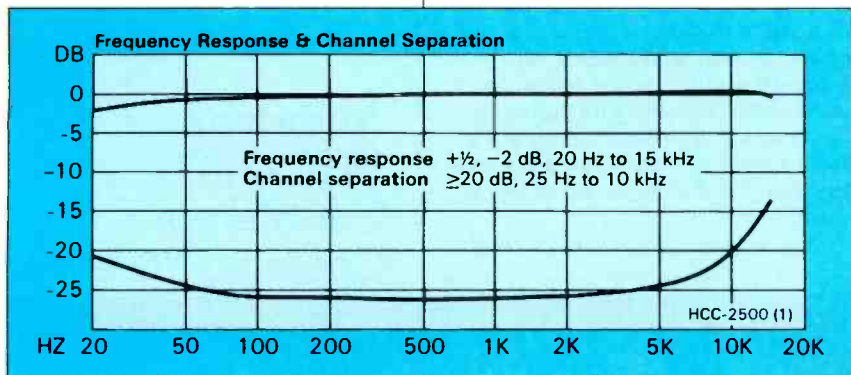
**Price:** \$600.

**Warranty:** "Limited," one year parts and labor.

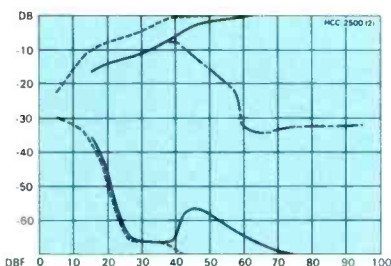
**Manufacturer:** Made in Japan for Audiovox Corp., 150 Marcus Blvd., Hauppauge, N.Y. 11788.

# Test Reports

## FM Tuner Section



## Sensitivity & Quieting



— stereo quieting (noise) & output

- - - mono quieting (noise) & output

- · - channel separation at 1 kHz

Stereo sensitivity (for 50-dB noise suppression)\*

Mono sensitivity (for 50-dB noise suppression)

22 dBf at 98 MHz

Stereo S/N ratio (at 65 dBf) 67 dB

Mono S/N ratio (at 65 dBf) 76 3/4 dB

Capture Ratio 2.5 dB

Selectivity (alternate-channel) 66 1/2 dB

AM Suppression 69 3/4 dB

Harmonic Distortion (THD+N)

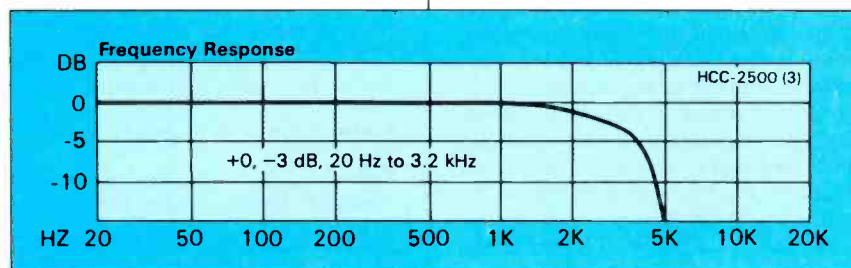
stereo mono

at 100 Hz 4.1% 4.0%

at 1 kHz 1.3% 0.62%

at 6 kHz 1.1% 1.0%

## AM Tuner Section



Sensitivity 7.3 μV

Selectivity 49 1/2 dB

AVC Range 62 dB

puts and outputs alone you can get by with a five-pin adapter of the correct configuration because the extra pins are used only to switch the remote devices (most adapters in my collection have a

As long as battery power remains connected, however, you never need invoke this routine again.

Among the relatively esoteric functions are preset turn-on volume, "best sound" (the combination of treble, bass, fader, balance, and volume settings that best will suit your normal needs), and "sound presets." This last uses the first five station presets to store tone-control settings; the sixth preset incorporates the factory's loudness contour. This is an admirable collection of features. Don't be surprised if you see them cropping up in competing models.

The tuner's default mode is automatic seek. Manual tuning is invoked by pressing a button toward the left end of the front panel, but unless you begin tuning fairly promptly, the unit reverts to the seek mode. Since there are only six presets per tuning band, this can be somewhat annoying for hometown use where more than six interesting stations can be received. For the open road, of course, the scheme is a natural. Manual tuning proceeds by full-channel steps: 0.2 MHz on FM, 10 kHz on AM. Other tuning modes include preset scan and automatic memorization of the first six strong stations encountered on either the AM or FM bands.

AM reception is quite straightforward, with a sharp-cutoff filter above 3 kHz but no other response manipulations or oddities. A bass rolloff may be desirable on the many AM stations that affect a boomy or "chesty" sound, but that's what the HCC-2500's EQ presets are for. Sensitivity is not in the championship league, but AM performance overall is no less than good.

During the fading/multipath test on the road, the FM section exhibited very little of the annoying "spitting" noises characteristic of all FM tuners under those conditions. This isn't all good news, however, as the quieting curves demonstrate. The severe droop at the left end of the output (top) curves indicates how much the overall sound is attenuated as signal strength drops. Although you can't hear the noise, neither can you hear the station very easily under these conditions, and fluctuating signal strength begets fluctuating sound levels. I would rather have the level stay more constant, even at the expense of more "spitting"—but that's a purely subjective call.

The absence of a stereo-sensitivity figure in Diversified Science Laboratories' data means the usual: Even in the "stereo" mode, reception is essentially mono from a signal strength of about 40 dBf down. This, too, helps control

male DIN plug and are thus of the wrong "gender").

The front panel has a lot on it—including an AUX IN mini-phone jack for a portable CD player if you don't want to wire in a player via the line connections. At first glance, the many small buttons are intimidating, but most are easily learned and the layout does a very intelligent job of separating tuner from cassette functions. The tiny buttons remain somewhat off-putting even after continued use, however. Unless you're fairly dainty-fingered, you may have to operate all but the transport controls with your fingernails. With other head units, basic changes—selecting radio presets, for example—barely require you to take your eyes off the road; though the HCC-2500 demands more, fortunately it is equally responsive in that I seldom pressed the wrong button.

Audiovox has cannily saved the most obscure extra uses of some of these buttons for the functions you are least likely to need. For example, initial power-up involves pressing a sequence of seven buttons, including entering a four-digit security code. Six of the digits can be pressed in via the six station presets, but

the remaining four lurk behind unrelated function buttons (thus providing, I suppose, an additional measure of security).

# Test Reports

## Cassette Transport Section

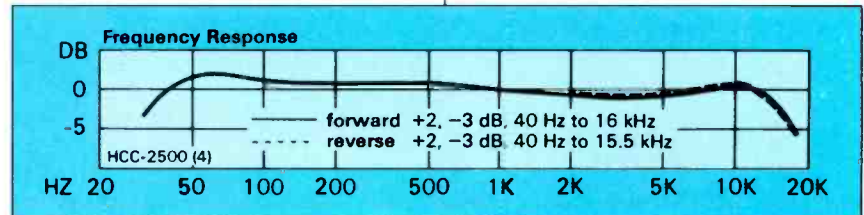
noise—and does so without introducing the wildly fluctuating stereo image that sometimes shows up in the fading test. As in the AM section, FM sensitivity falls notably short of that in the best models we test, but overall behavior is still very good.

Also likeable, despite a typical handicap, is the cassette transport. The droop in high-frequency response shown on our graph is directly attributable to an azimuth match (to DSL's BASF test tape) that the lab characterizes as only fair. To some extent, the deficiency can be made up with the treble control, but this can be audibly problematic for tapes encoded with Dolby C and even Dolby B. Playing with the "standard" (Type 1) EQ for Type 2 and Type 4 tapes is perhaps more successful in compensating for the dulling effect of the azimuth mismatch. The switchable playback EQ allows this via a button labeled "MTL."

All the transport controls are clumped logically beneath the cassette slot, and the main buttons are generous in scale. Among the special features are music-sensor skipping, intro scan, radio "monitor" (which overrides the tape without stopping it), automatic eject on power off, and (of course) automatic reverse. Immunity to road shock is very good, and flutter is low, although speed is a little wide of the mark. We usually take  $\pm 1$  percent as the speed limits of real high fidelity performance, but few

listeners will be bothered by a departure almost twice as great.

The tone controls are well behaved, and the loudness control is fairly conventional in effect, providing volume-relat-



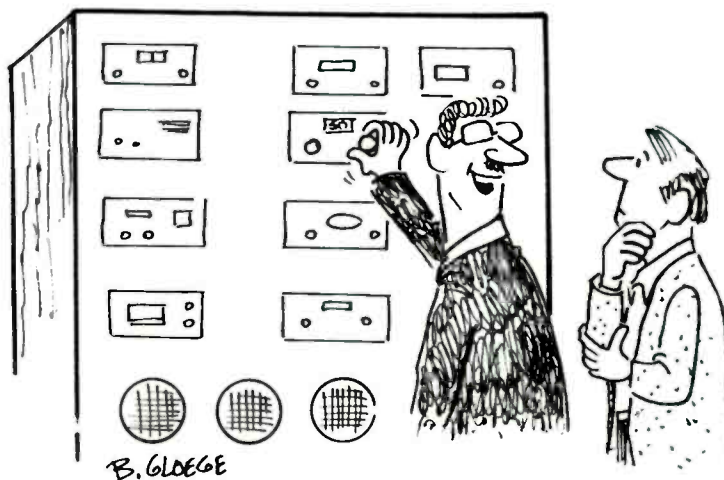
ed boosts at the extreme top frequencies as well as in a broad range of the bass. The power section is designed to drive four speakers with no bridging options, so DSL measured it accordingly. (Our usual practice is to use the two-channel mode for either two-channel or bridgeable four-channel power sections.) A total of 20 watts, assuming that you connect all four speakers, is more than respectable. No conventional car radio will give you that much, though many a deluxe automotive system will give you more.

The Audiovox Hi-Comp HCC-2500 is more than the sum of its specs. It is a carefully conceived car-entertainment system that stands apart from the me-tooism of the majority. I enjoyed using it, even allowing for the way its quirks interacted with mine. *Robert Long* ▶

Wow & Flutter	$\pm 0.14\%$ avg., $\pm 0.20\%$ peak
Speed Accuracy (10.4 to 14.4 volts)	$\leq 1.8\%$ fast
<b>Preamp/Amplifier Section</b>	
Bass Control	$\pm 9$ dB at 100 Hz
Treble Control	$\pm 9$ dB at 10 kHz
Line Output Impedance	115 ohms
<b>Maximum Line Output Level</b>	
from FM (100% modulation)	1.2 volts
from tape (DIN 0-dB)	0.7 volt
Output (per channel into 4 ohms; at 3% THD+N)*	
at 1 kHz	5.0 watts (7.0 dBW)/channel

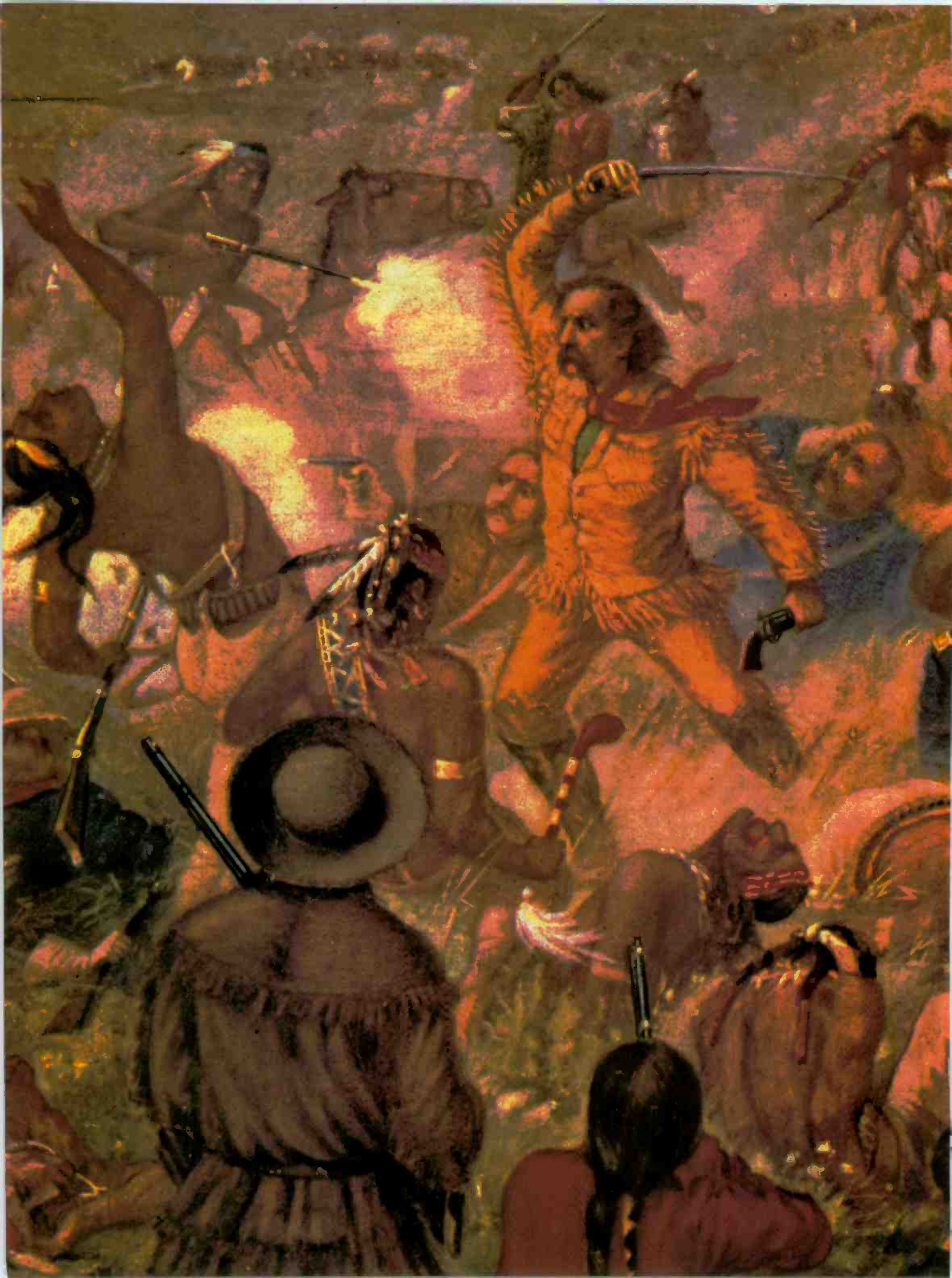
\* See text.

### CAR AUDIO



B. GLOEGE

"AND TO ACTIVATE THE RADAR DETECTOR, YOU PRESS THE PRE-SET AND LOUDNESS BUTTON WHILE PULLING OUT SLIGHTLY ON THE VOLUME CONTROL KNOB..."





Now you can experience surround sound and live to tell about it. Thanks to the technology found in the Technics SA-R530 A/V receiver. A receiver so advanced, it can help you get more out of almost every piece of audio and video equipment in your home.

For example, just hook up four speakers, and your VCR will have the added dimension of Dolby surround sound.\*

Digitally-processed Dolby surround sound, to be exact. Which means the SA-R530 can give movies something even more impressive than the sound of most movie theaters. The sound of real life.

You'll hear footsteps creeping up behind you, cars screeching to a halt right in front of you, gunshots coming at you from every direction. In short, it's the next best thing to being there.

And to enhance the music on your CD player, cassette deck and turntable, there's also a special feature that lets you change your listening environment.

Press a button and the SA-R530 can simulate the acoustics of a small club; a theater; or even a concert hall. So finally, you can hear music in the environment where it was meant to be heard.



But even with sound this realistic — and a full 100 watts of power per channel (at 8 ohms, 20Hz — 20kHz with 0.007% THD) — our A/V receiver won't have you jumping out of your seat. For it comes with a remote control that also operates most other Technics audio components, as well as many brands of remote controllable TVs and VCRs. So no matter how complex the technology behind this receiver may be, operating it is surprisingly simple.

For your own free demonstration, just go to any Technics dealer. We think you'll find surround sound a lot more entertaining today than it was in 1876.

\*Compatible video software required. "Dolby" and the double-D symbol are registered trademarks of Dolby Laboratories Licensing Corporation.

**IN 1876, GEORGE CUSTER HAD  
A FREE DEMONSTRATION  
OF WHAT SURROUND SOUND  
WOULD BE LIKE IN 1989.**



Technics Surround Sound A/V Receiver with Remote Control.

## Tandberg TPT-3031A FM Tuner

**T**andberg's long history of individuality, elegance, and performance is upheld by this tuner, the first of the company's that we have tested in some time and the first to hit the market since distribution of the products in the United States was taken over by Ortofon. The TPT-3031A's round control buttons are a familiar sight, having become a Tandberg trademark in recent years. Internally, the design remains steadfastly committed to discrete, high-

tuning up and down the band. The final two control, respectively, the muting and the mono-only tuning mode. Next to the frequency readout are indicators for stereo reception (which will not light in the mono-only mode even if a stereo sub-carrier is present), center tuning, and carrier detection.

According to the owner's manual, which falls short of Tandberg's formidable best in both verbal clarity and presentational finesse, the carrier light is sup-



DAVID A. WAGNER

**Dimensions:** 17¼ by 3½ inches (front), 14 inches deep plus clearance for connections.

**Price:** \$1,200; optional rack-mount kit \$60, optional rosewood side-panel kit \$75.

**Warranty:** "Limited," one year parts and labor.

**Manufacturer:** Tandberg Audio Products A/S, Norway.

**U.S. Distributor:** Ortofon, Inc., 122 Dupont St., Plainview, N.Y. 11803.

quality components (as opposed to integrated circuits) as the route to audio nirvana. But there have been significant changes, too.

The TPT-3031A is both more stylish and less technologically convoluted than Tandberg's flagship tuner, the TPT-3001A, which we reviewed more than five years ago (July 1983). It is much easier to use, comes in a more compact package, and is, in short, more practical. There are 16 presets instead of the 3001A's eight, and the analog tuning of the earlier model has given way—for good or ill—to half-channel (0.1-MHz) frequency stepping.

Beneath the large window, which displays the tuned frequency, are five buttons that control tuning. One button switches between the automatic (seek) and manual modes. The next pair are for

posed to dim as the received signal weakens, indicating the possibility of noisy reception. On my test sample, the LED began to fade visibly only when reception was significantly below optimum on some of the weakest stations; it was no help at all in differentiating between good and best antenna orientation for the strongest ones. (The 3001A goes to the other extreme by offering outputs to drive an oscilloscope for signal-reception analysis.)

The small display window at the left end of the front panel shows an "F" (for frequency, I presume) at turn-on or whenever the manual controls override a station preset. When you choose a preset—directly from the remote or by using the front panel's UP and DOWN buttons to step through the sequence of 16—the preset's number appears in the

window. To program the presets, you tune the station, press STORE (which locks in the tuning), step the preset number to the one you want, and press STORE once again. The window flashes a "P" to confirm that it has programmed the tuned station.

The supplied RC-3000 wireless remote, powered by four AAA cells, will also control other current Tandberg components and has buttons for a receiver, tuner, cassette deck, CD player, and tape deck. For the 3031A, you press TUNER on the handset, which allows the direct selection of preset numbers via a keypad, as well as the control both of manual or automatic tuning and of muting mode.

Tandberg offers a single antenna input on the back panel: a slip-on 75-ohm coaxial connector with a male hot termi-



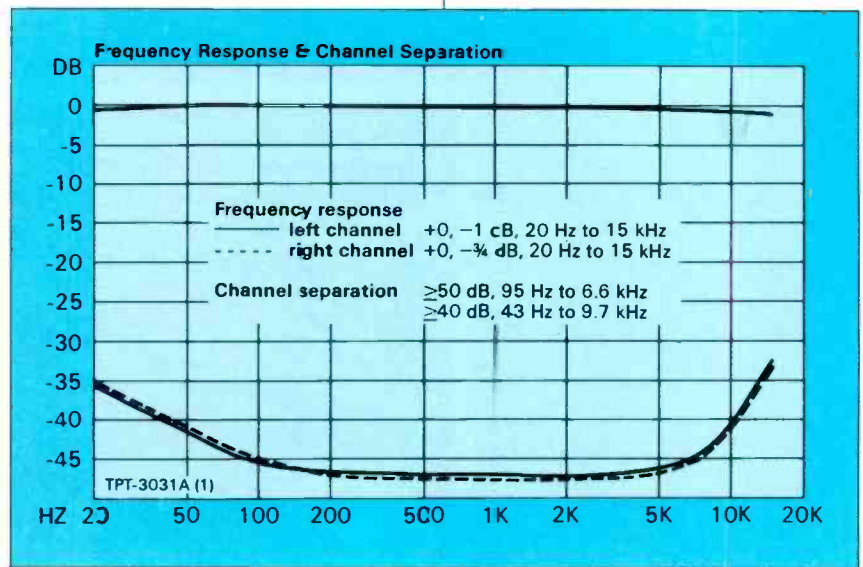
The 3031A's remote also controls other Tandberg components.

nal and an unthreaded shield. (Standard U.S. practice is an F jack with a female hot terminal and a threaded shield.) Two mating adapters come with the tuner. One is a balun that accepts a 300-ohm twinlead input; the other accepts a bared 75-ohm coaxial lead. If you get your FM feed from a cable company that you don't want to alienate, you may have to pay them to attach this adapter to their 75-ohm line in place of the standard F connector.

Despite these eccentricities, performance is very fine. If you compare Diversified Science Laboratories' data with that published for the 3001A, the family resemblance is immediately apparent. Outstanding noise and separation figures are matched by excellent sensitivity and selectivity. Frequency response at the bottom end is flatter than that of most other tuners and at the top end is on par with most of the best (though not quite up to the 3001A standard).

The lab measured output from 100-

percent modulation at 1.27 volts. That's only 2 dB above the nominal 1-volt line level, but it's 8 dB above the 0.5-volt reference against which we measure pre-



amp sensitivity. And, in fact, the tuner delivers somewhat too much of a good thing in that the 3031A plays noticeably louder than most other components, requiring that you adjust your system's volume control to compensate. Output impedance, at 950 ohms, may be a little higher than average but certainly is no cause for concern.

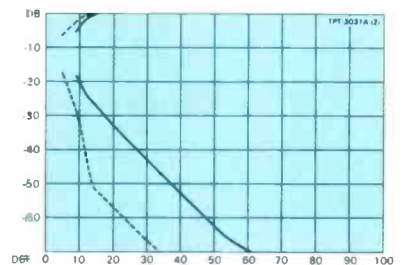
Given a really fine signal—and that is not easy to find on the dial these days—the Tandberg will reproduce it cleanly and with exceptional freshness. Admittedly, I tend to attribute the virtues I hear to the tuner and the shortcomings to the stations, even when there is no unequivocal way of assigning the source of unpleasant artifacts. But the fact remains that, on these same stations, broadcasting comparable material, I do not normally hear the same sonic bloom as with the 3031A. And those performance measurements are mighty impressive.

Robert Long ▶

#### REPORT POLICY

Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data are provided by Diversified Science Laboratories. The choice of equipment to be tested rests with the editors of High Fidelity. Samples normally are supplied on loan from the manufacturer. Manufacturers are not permitted to read reports in advance of publication, and no report or portion thereof may be reproduced for any purpose or in any form without written permission of the publisher. All reports should be construed as applying to the specific samples tested. High Fidelity and Diversified Science Laboratories assume no responsibility for product performance or quality.

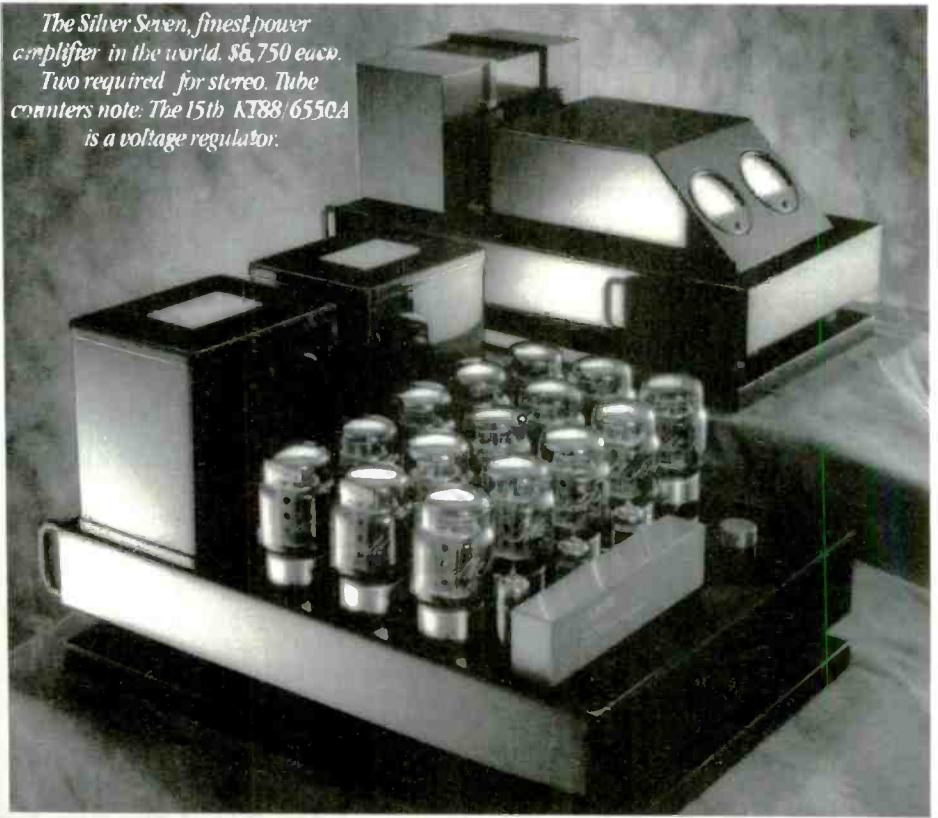
#### Sensitivity & Quietening



	stereo	mono
<b>Stereo sensitivity (for 50-dB noise suppression)</b>	37 1/4 dBf at 98 MHz, with 0.35% THD+N (38 dBf at 90 MHz; 37 1/2 dBf at 106 MHz)	
<b>Mono sensitivity (for 50-dB noise suppression)</b>	14 1/4 dBf at 98 MHz	
<b>Muting threshold</b>	17 1/2 dBf	
<b>Stereo threshold</b>	8 dBf	
<b>Stereo S/N ratio (at 65 dBf)</b>	71 1/2 dB	
<b>Mono S/N ratio (at 65 dBf)</b>	77 1/2 dB	
<b>Capture Ratio</b>	1.0 dB	
<b>Selectivity</b>		
alternate-channel	58 1/2 dB	
adjacent-channel	4 1/4 dB	
<b>Harmonic Distortion (THD+N)</b>		
at 100 Hz	0.12%	0.10%
at 1 kHz	0.06%	0.05%
at 6 kHz	0.11%	0.08%
<b>Stereo Pilot Intermodulation</b>	0.07%	
<b>Intermodulation Distortion (mono)</b>	0.05%	
<b>AM Suppression</b>	65 1/2 dB	
<b>Pilot (19-kHz) Suppression</b>	75 dB	
<b>Subcarrier (38-kHz) Suppression</b>	> 110 dB	
<b>Output Level (from 100% modulation)</b>	1.27 volts	
<b>Output Impedance</b>	950 ohms	

“Because I wanted to have the world’s finest amplifier and the world’s greatest transfer function, I built the astonishing Silver Seven.”

*The Silver Seven, finest power amplifier in the world. \$6,750 each. Two required for stereo. Tube counters note: The 15th KT88/6550A is a voltage regulator.*



*Before you meet the new M-4.9t, Bob Carver wants you to meet his inspiration, the money-is-no-object Silver Seven.*



*Bob Carver*

“One of my important design precepts is that power amplifiers should be easily affordable but last year, when I began designing a powerful new amplifier, I temporarily set aside that precept of affordability. The result is the Carver Silver Seven Mono Power Amplifier.”

Destined to redefine ultra-high-end values forever, the Silver Seven is truly a “money-is-no-object” design. In fact, just a single pair of its fourteen KT88/6550A Beam Power output tubes cost more than some budget amplifiers.

The Silver Seven employs classic, fully balanced circuit topology and the finest components in existence.

A-450 Ultra Linear output transformers with oxygen-free primary leads and pure silver secondaries.

- *Wonder Cap capacitors throughout.*
- *Interconnects are Van den Hul Silver.*
- *Internal wiring is pure silver.*
- *Wonder Solder throughout.*
- *Gold input connectors and high current gold output connectors.*

The Silver Seven’s polished granite anti-vibration base floats on four Simm’s vibration dampers. The separate power supply’s power transformer end-bells are machined from a solid block of high-density aluminum.

Capable of an astonishing 390 joules energy storage, the Silver Seven delivers *a conservatively rated 375 watts into 8 ohms from 20Hz to 20kHz with no more than 0.5% distortion.* On the 1-ohm tap peak current is in excess of 35 amps!

Sonically, a pair (for stereo) of the flawless Silver Sevens almost defies description.

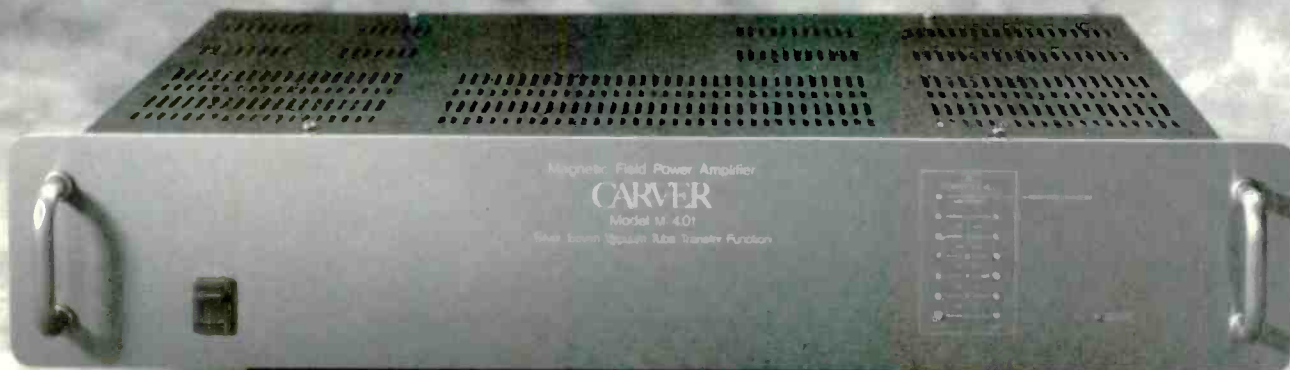
*Powerful*

Distributed in Canada by *evolution technology*



# "Because I wanted to share its magnificent sound with you we built the new Carver M-4.0t."

The M-4.0t, identical transfer function and 375 watts rms/ch. at 8 ohms 20-20kHz with no more than 0.5% thd. Total maximum output current is 60 amperes.



Superlatives are insufficient.

*What does this have to do with the new M-4.0t?*

Everything. Because the M-4.0t precisely duplicates the transfer function of the Silver Seven.

Ever wondered why two amplifiers of identical wattage can sound different? Or why two designs with different output ratings can sound much the same? In many cases, it's because each power amplifier exhibits a unique relationship between its input and output signals. Like human fingerprints, this *transfer function* is subtly distinct, defining much of the sonic character of the design. Bob has not only perfected the art of measuring an amplifier's transfer function, but is able to duplicate it in a completely dissimilar amplifier design! That's how he invested his solid state M-1.0t with the

transfer function of a set of \$5000 esoteric tube amps several years ago.

This time he's gone one better. Or two.

He's used this powerful scientific method to duplicate the transfer function of the Silver Seven in the new M-4.0t (now you know what the "t" signifies). Mind you, we are not saying the M-4.0t is *identical* to a pair of Silver Sevens. An M-4.0t weighs 23 pounds versus the Silver Seven at 300 pounds a pair. The Silver Seven stores 390 joules of energy while the M-4.0t stores none. As a Magnetic Field Power Amplifier the M-4.0t instantly draws the power it needs directly from the AC line.

Though in choosing the M-4.0t you may miss the warm glow of the Silver Seven's silver tipped vacuum tubes reflecting in polished black lacquer, be assured both amplifiers are the most musical, effortless, and open sounding you have

ever heard. Bass is full and tight, midrange is detailed, treble is pure and transparent.

Each can float a full symphony orchestra across the hemisphere of your living room with striking realism.

Bob Carver developed this incredible design for one reason: to bring you the best the world has to offer and the best amplifier value ever, and he has succeeded handsomely.

Listen to the new, incredibly affordable M-4.0t at your nearest Carver dealer. Or write us for more information. We'll even send you data on the Silver Seven. After all, if you ever want to move up from the M-4.0t, there's only one possible alternative.

## CARVER

## JVC HR-S8000U Super VHS Hi-Fi VCR

The JVC name is practically synonymous with VHS recording. The company created the format, was the first to introduce truly long-play recording at the extended-play (EP) speed, and developed VHS Hi-Fi recording for improved audio performance and HQ and Super VHS recording for improved video performance. When JVC introduces a new top-of-the-line VCR, it's time to sit up and take notice. The company's latest is the HR-S8000U, a loaded-for-bear S-VHS Hi-Fi deck with a tre-

The icing on the cake is Multi-Screen Digital Freeze (plus Strobe), with which you can simultaneously display 4, 9, or 16 subscreens in a square array on the monitor. The pictures get pretty small when the screen is divided into 16 segments, but on a decent-sized monitor the quad split and even the nine-way split are great. Going the other way, Digital Zoom enlarges the center quarter of the picture (or any of the four corner quadrants) into a full-screen picture. Of course, Digital Zoom can't create detail



DAVID A. WAGNER

**Dimensions:** 18½ by 4¼ inches (front), 14¾ inches deep plus clearance for connections.

**AC Convenience Outlets:** One, timer-switched (see text). 300 watts max.

**Price:** \$1,599.

**Warranty:** "Limited," one year parts, 90 days labor.

**Manufacturer:** Victor Company of Japan.

**U.S. Distributor:** JVC Company of America, 41 Slater Dr., Elmwood Park, N.J. 07407.

mendous range of digital special effects.

Whereas other companies have applied digital processing to reduce video noise and to provide clean freeze-frame, strobe action, and slow-motion playback, none that we know of has incorporated quite the number of digital special effects as are in the HR-S8000U. Of course, you get perfect still-frames in the pause mode and perfect Digital Freeze to display a frame as the tape (and soundtrack) plays on. There's also Digital Strobe, which refreshes the "frozen" images every 0.6 second, 0.3 second, or 0.1 second. JVC also calls the digital system into action to provide virtually perfect slow- and fast-motion playback at any of five rates.

that isn't there, so the better the clarity of the section you are blowing up, the better the results appear.

Picture-in-picture (PIP) lets you monitor a TV broadcast in any quadrant of the screen while you watch a tape on the main screen. The inset picture is the same size as in the nine-way split and you can "swap" it with the main picture, so that the latter occupies the subscreen. Multi-Screen Channel Scan sequentially displays on the subscreen a still picture from each tuned-in channel, while Multi-Screen Intro Search performs a similar function from the beginning of each index-marked tape segment. Intro Search can proceed automatically to fill all subscreens with a still picture from

each indexed segment; when finished, the deck will rewind and record the composite for ten seconds at the beginning of the tape, thus recording a sort of catalog of the tape's contents.

Also in the way of cataloging, JVC includes the full VHS Index Search system with mark/erase functions and a half-loading mechanism that enables the deck to locate directly any of nine index marks from STOP or PLAY. An Auto Titler automatically records the date, time, and channel at the beginning of each recording, or, at the touch of a button, whenever you desire.

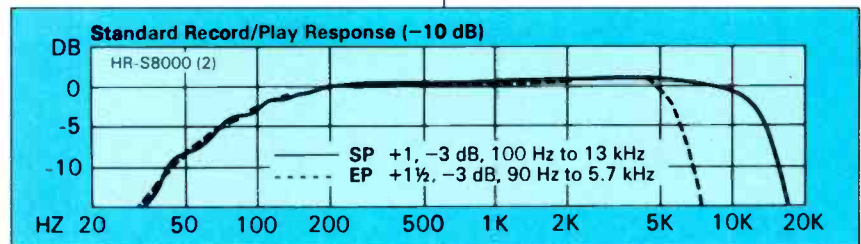
In the fun category are Digital Mosaic and Digital Solarization functions. Mosaic breaks the picture up into one of two different block patterns, creating a sort of "modern art" effect. Solarization manipulates the colors to create a similar effect. In the mundane category (if we dare call Super VHS mundane!) are S-VHS and standard-VHS recording at both SP and EP speeds, VHS Hi-Fi stereo recording (as well as mono edge-track recording), and the full set of HQ circuits to ensure a better picture in the regular VHS mode. An edit switch modifies the HQ circuits for better video dubbing. In addition, a flying erase head permits "professional" insert editing, and an audio dubbing switch enables recording over existing edge-track audio.

The HR-S8000U has a 181-channel cable-compatible frequency-synthesis tuner with an MTS (stereo TV) decoder capable of receiving the SAP subchannel. (If you wish, you can record the SAP channel on the edge track and the stereo broadcast on the Hi-Fi tracks.) A 14-day/8-event program timer (with a 60-minute memory backup in case of a power outage) permits daily or weekly serial recording and—a rare option—timer-programmable FM-simulcast recording. (The HR-S8000U's AC convenience outlet can be set to switch on a connected tuner.) The timer can be set either from the deck's keypad (behind a flip-down door) or from the remote. You can make use of on-screen instructions or load your programs directly into the remote (it has an LCD display) and transmit as many as four sets of instructions to the deck by pressing a single key.

The deck's transport controls are replicated on the remote, and some are a bit unusual. For example, the play button is marked PLAY/x2; the first press enters the play mode and a second press activates double-speed playback. Similarly, the first press of REC/ITR enters the normal recording mode; the second press activates the Instant Timer Recording mode; and each subsequent press adds

30 minutes to the recording time, up to a maximum of 4 hours. The variable-search (in either direction) function provides slow-motion playback at  $\frac{1}{6}$ ,  $\frac{1}{12}$ ,  $\frac{1}{18}$ ,  $\frac{1}{24}$ , and  $\frac{1}{30}$  normal speed and fast-motion search as rapid as 7 times normal speed on an SP recording and 21 times on an EP recording.

Also unusual is the inclusion of two sets of audio output jacks. One set has a fixed output level, the other an output level determined by the VCR volume buttons on the remote. Hence, by remote you can set the volume of any signals passing through the VCR, even if you are not using a JVC TV monitor. (If you are,



the remote supplies separate controls for it, too.) Both S-video and regular pin-jack (composite video) inputs and outputs are provided.

Diversified Science Laboratories reports that the HR-S8000U tuner yields excellent picture resolution. Response is very flat to the color-burst frequency and down only  $\frac{5}{8}$  dB at 4.2 MHz, the limit of the NTSC broadcast system. Luminance level and gray-scale linearity are virtually perfect and, although there is measurable chroma differential gain error, it occurs only at the brightest scene level. Chroma level on broadcasts is closer to the mark than we're used to seeing, but chroma phase shows a little more uncorrectable spread than is typical.

The tuner's audio response is adequate, extending from 70 Hz to 13 kHz. Undoubtedly, the high-frequency response has been purposely limited to eliminate any chance of horizontal-scan whistle—which is down a remarkable (and much more than needed) 99 dB. With normal pictures the tuner's signal-to-noise (S/N) ratio is superb, although the repetitive multiburst pattern did elicit some buzzing. With the ALC (Automatic Level Control) switched off, output level in the Hi-Fi mode is determined by the setting of the recording-level sliders and can reach a more-than-adequate 1.65 volts with the controls fully advanced. Output impedance is a well-chosen 1,000 ohms.

In the S-VHS recording mode at SP, the HR-S8000U is down only 5 dB at 4.2 MHz, therefore providing potential res-

## VCR Section

Except where otherwise indicated, the recording data shown here apply to both speeds: SP and EP. All measurements were made at the direct audio and video outputs, with test signals injected through the direct audio and video inputs. For VHS Hi-Fi, the 0-dB reference input level is the voltage required to produce a 0-dB reading on the VCR's audio level meter; for the standard audio recording mode, it is the voltage at which the automatic level control (ALC) produces 3 dB of compression at 315 Hz. The 0-dB reference output level is the output voltage from a 0-dB input.

### VHS Hi-Fi Record/Play Response (-20 dB)

see text

### Audio S/N Ratio (re 0-dB output; R/P; A-weighted)

	standard	VHS Hi-Fi
SP	53 dB	82 1/4 dB
EP	51 1/2 dB	82 1/4 dB

### Indicator Reading for 3% Distortion (315 Hz)

VHS Hi-Fi	> +8 dB
-----------	---------

### Distortion (THD at -10-dB input; 50 Hz to 5 kHz)

	standard	VHS Hi-Fi
SP	≤ 1.8%	≤ 0.92%
EP	≤ 1.6%	≤ 0.92%

### Channel Separation (315 Hz; VHS Hi-Fi)

	67 1/2 dB
--	-----------

### Indicator "Ballistics"

Response time	34 msec
Decay time	≈ 200 msec
Overshoot	0 dB

### Flutter (ANSI weighted peak; R/P; average)

	standard	VHS Hi-Fi
SP	± 0.24%	± < 0.01%
EP	± 0.50%	± < 0.01%

### Sensitivity (for 0-dB output; 315 Hz)

	mike	line
VHS Hi-Fi	0.08 mV	105 mV
standard	0.69 mV	875 mV

### Audio Output Level (from 0-dB input; 315 Hz)

VHS Hi-Fi	0.40 volt
standard	0.44 volt

### Audio Input Impedance (VHS Hi-Fi)

line input	64k ohms
mike input	10k ohms

### S-VHS Video Record/Play Response

	SP	EP
at 500 kHz	-1/4 dB	+1/2 dB
at 1.5 MHz	+1 dB	-1 dB
at 2.0 MHz	-1/4 dB	-3 dB
at 3.0 MHz	-2 3/4 dB	-5 3/4 dB
at 3.58 MHz	-4 dB	-7 dB
at 4.2 MHz	-5 dB	-7 1/2 dB

### Regular VHS Video Record/Play Response

	SP	EP
at 500 kHz	+1/4 dB	+1/4 dB
at 1.5 MHz	-5 dB	-5 1/4 dB
at 2.0 MHz	-8 1/4 dB	-8 1/2 dB
at 3.0 MHz	-22 dB	-22 dB
at 3.58 MHz	-22 dB	*
at 4.2 MHz	-22 dB	*



**SDA SRS 2.3**  
\$1099.95 ea.

# The Polk Revolution Continues!

*"Polk reinvents the loudspeaker"*

*High Fidelity Magazine*

**N**early six years ago the audio world was stunned by Matthew Polk's introduction of revolutionary SDA technology. While other designers had been concentrating on small refinements to existing loudspeaker technology, Matthew Polk opened the door to new frontiers of exciting realism in sound.

True Stereo SDA technology maintains stereo separation all the way to your ears, something which no conventional speaker can achieve. Conventional speakers make it sound like the musicians are trapped in the speaker boxes or in the small space between them. Polk's patented SDA speakers fill the entire width of your listening room with sonic images so breathtakingly real that it's just like having the musicians in the room with you. They must be experienced to be believed!

## *Introducing the SDA SRS 2.3*

Introduced two years ago, the flagship SDA Signature Reference System (SDA SRS) is the ultimate expression of loudspeaker technology. A two-time winner of the prestigious Audio Video Grand Prix Award, the SDA SRS was recently chosen by the editors of Stereo Review magazine for their ultimate dream system.

Now being introduced, the SDA SRS 2.3 offers all of the benefits of third generation SDA technology in a slightly more modest package. It is the perfect speaker for those listeners who demand the best and most exciting listening experience but who cannot accommodate the larger SDA SRS.

Words can never fully express the thrilling experience of listening to the new SDA SRS 2.3. Effortless reproduction at live concert levels, distortion free, body-tingling bass and room-filling stereo imaging are executed so flawlessly that when you close your eyes you'll forget that you are listening to speakers at all: Visit your local Polk dealer and experience them for yourself.



Matthew Polk's award winning SDA SRS 1.2 and the SDA SRS 2.3.

**polk audio**

The Speaker Specialists®

5601 Metro Drive, Baltimore, Md. 21215

Where to buy Polk Speakers? For your nearest dealer, see page 8.

# Test Reports

## Sharpness Control Range (S-VHS mode)

at 500 kHz	+1 1/4, -3/4 dB
at 1.5 MHz	+2 1/2, -7 3/4 dB
at 2.0 MHz	+3 1/4, -9 dB
at 3.0 MHz	+4 1/2, -8 dB
at 3.58 MHz	+4, -8 1/2 dB
at 4.2 MHz	+3 3/4, -10 dB

## Luminance Level

S-VHS	3% low
VHS	2% low

## Gray-Scale Nonlinearity (worst case)

S-VHS	≈ 11%
VHS	≈ 16%

## Chroma Level

	≈ 2 1/2 dB low
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## Chroma Differential Gain

	≈ 16%
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## Chroma Differential Phase

	none
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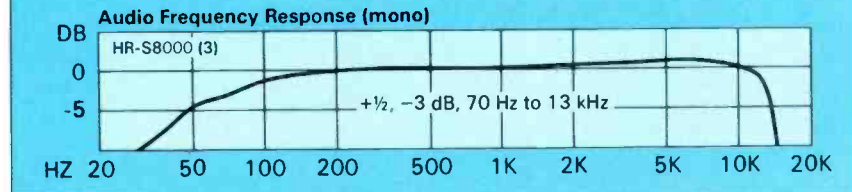
## Median Chroma Phase Error

	0°
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\* Too low to measure

## TV Tuner Section

All measurements were taken at the direct audio and video outputs.



## Audio S/N Ratio (mono; A-weighted)

best case (no color or luminance)	66 1/4 dB
worst case (multiburst signal)	26 1/4 dB

## Residual Horizontal-Scan Component (15.7 kHz)

	-99 dB
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## Maximum Audio Output Level (100% modulation)

VHS Hi-Fi mode	1.65 volts
standard mode	0.40 volt

## Audio Output Impedance

	1,000 ohms
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## Video Frequency Response

at 500 kHz	flat
at 1.5 MHz	+1 1/2 dB
at 2.0 MHz	+1 3/4 dB
at 3.0 MHz	+1/2 dB
at 3.58 MHz	-1/4 dB
at 4.2 MHz	-5 1/4 dB

## Luminance Level

	2% high
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## Gray-Scale Nonlinearity (worst case)

	≈ 5%
--	------

## Chroma Differential Gain

	≈ 22%
--	-------

## Chroma Differential Phase

	≈ ±4°
--	-------

## Chroma Error

	level	phase
red	+1 dB	+3°
magenta	+1 dB	+5°
blue	+1 1/4 dB	+1°
cyan	+1 dB	+10°
green	+1 dB	+7°
yellow	+1 dB	+11°
median error	+1 1/8 dB	+6°
uncorrectable error	±1/8 dB	±5°

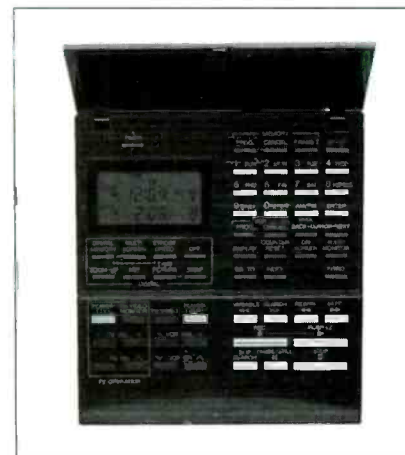
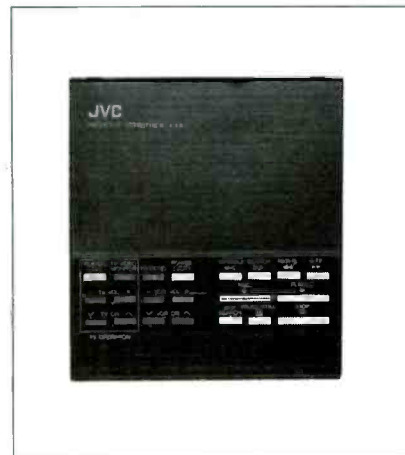
olution in excess of 340 lines—in other words, just enough to match the capability of the NTSC broadcast system. In the EP mode the deck reaches our -6-dB criterion just beyond 3 MHz (240-line resolution); however, the response drops very gradually and is down only 7 1/2 dB at 4.2 MHz, so the perceived resolution at the EP speed is almost as good as that at SP. Indeed, simply turning up the sharpness control (which provides a 3- to 4-dB boost from 2 MHz to 4.2 MHz) would restore full NTSC resolution. In all other S-VHS video measurements, the JVC's performance was never less than good.

The standard VHS recording mode has a bit more gray-scale nonlinearity and a bit more chroma differential gain, but the difference is quite minor. Video frequency response is substantially poorer, as is to be expected: I would judge the resolution to be about 140 lines at both speeds. As far as basic chroma accuracy is concerned, you'll notice little difference between performance with S-VHS and with standard VHS. This, also, is to be expected.

What is not to be expected—and is

all the way up, there is again a tendency (though less severe than in the previous samples) for the treble response to hump up at low input levels.

Since the data taken in the VHS Hi-Fi mode may not be representative of a properly functioning deck, I see no point in reviewing it here. Edge-track performance, on the other hand, is quite admirable, and "head bumps" are very well suppressed. Signal-to-noise ratio is remarkably good for edge-track re-



The 8000's big remote, open and closed

cause for concern—is the HR-S8000U's VHS Hi-Fi response. DSL measures VHS Hi-Fi audio response at four different recording levels at standard speed and at three levels at the alternate speed in order to ascertain how well the VHS Hi-Fi noise reduction (NR) system is tracking. Whereas response at the 0-dB recording level was quite flat (+0, -3 dB from 20 Hz to beyond 20 kHz), response at lower recording levels suggested that the VHS Hi-Fi NR system wasn't functioning properly. For example, response was +2, -3 dB from 100 Hz to 20 kHz at -20 dB, with a broad hump centered at about 5 kHz, and worsened as the level was reduced. When DSL checked a second sample and found similar results, I contacted JVC. This elicited a third sample that behaved the same way. Some time later, however, we received yet another sample that exhibits substantially improved, but still imperfect, performance. With the recording level slider set near its midpoint, the noise reduction system tracks very well, but when the slider is pushed

ording, and distortion is about par for the course. However, flutter—never the strong point of a VCR—is worse than I'd like to see.

If you use the HR-S8000 primarily for off-the-air recording, the high degree of compression applied to most television audio may save you from being bothered much by the VHS Hi-Fi system's misbehavior. On wide-range material, however, you probably won't be so lucky. And that is a shame, because in most other respects—especially in its digital special effects—the JVC HR-S8000U is an outstanding deck.

Edward J. Foster

# JVC

Super Digifine  
Hi-Fi Components

## SUPER DIGIFINE

JVC's line of new-generation digital-ready audio components  
is opening a new age in super-high fidelity.

# The JVC Super Digifine Series — More accurate digital sound and more digital applications.

As super-fidelity digital becomes more and more established in the audio market, we find ourselves entering a new phase of the digital revolution — one in which the quality of sound is determined by much more than just the program source.

At JVC our leading-edge expertise in digital technology has helped us to develop newer, more diverse applications in which digital techniques have enhanced sound reproduction. We call the components that embody these new radical digital applications "Super Digifine." They are the successors to our original "Digifine" series of components that ushered in the first phase of the digital age.

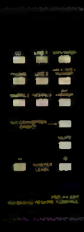
Our "Super Digifine" series includes components from amplifiers to speaker systems, and even features a revolutionary digital acoustics processor designed to recreate a live performance ambience at home.

Enter the new age of digital with JVC.

**SX-911WD**  
3-Way Speaker  
System

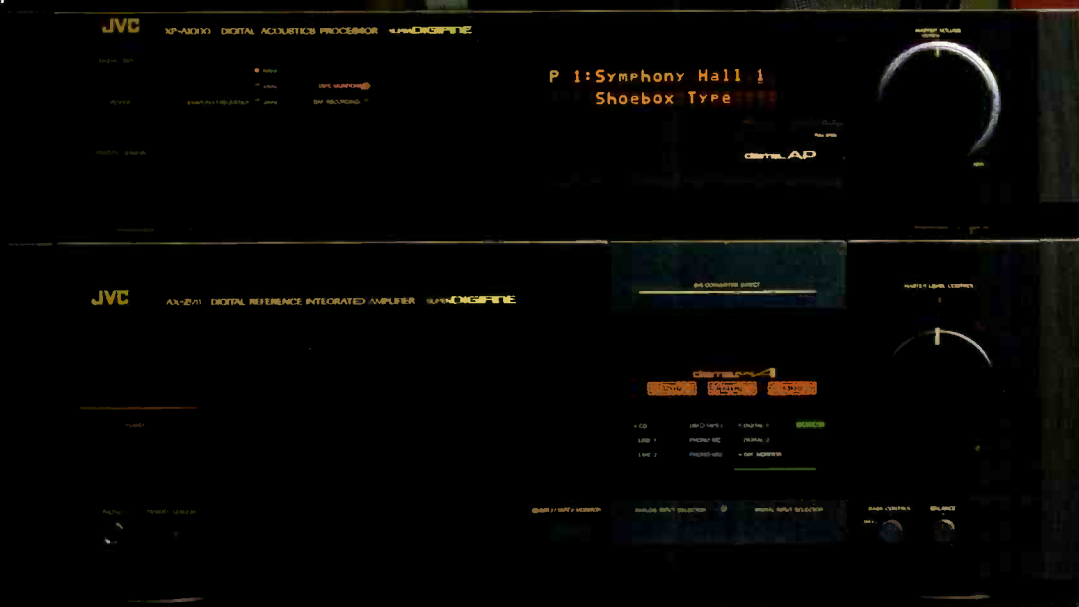


**XP-A1000BK**  
Digital Acoustics Processor



**AX-Z911BK**  
Digital Pure-A  
Integrated Amplifier

JVC





# SUPER DIGIFINE

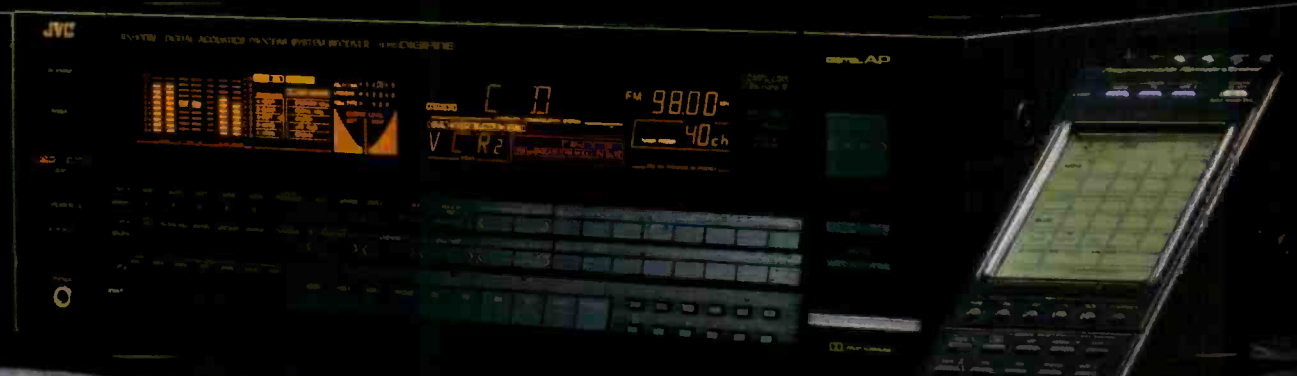
JVC's line of new-generation digital-ready audio components is opening a new age in super-high fidelity.



**XL-Z555BK**  
Compact Disc Player



**TD-V711BK**  
Discrete 3-Head  
Cassette Deck



**RX-1001VBK**  
Programmable  
Remote/Computer-Controlled  
Receiver

# Digital Applications for Higher Sense of Power and Presence

## AX-Z911BK Amplifier — Digital Pure-A for pure and powerful sound



JVC's innovative Digital Pure-A Circuit provides both true class-A operation and a high power of 100 watts\*, thanks to the newly developed digital "signal prediction" circuit. As you may know, class-A amps have long been the serious audiophile's dream because, unlike common class-B amps, they don't allow output transistors to switch on and off, hence pure, low-distortion sound is possible. But because of their high cost, they have been out of reach of most music lovers until now.

\* Per channel, min. RMS, both channels driven into 8 ohms, from 20Hz to 20kHz with no more than 0.003% total harmonic distortion

### High-power class-A operation — that's Digital Pure-A

The new Digital Pure-A Circuit is a class-A amplifier combining pure sound, high power, high efficiency, and compact size. It takes advantage of the fact that digital signals can be stored in memory temporarily, without degrading phase response or frequency response.

During operation, our made-for-digital circuit takes digital signals direct from the output (optical or coaxial) of a CD player, and splits them into two: the main and the "prediction" signals. The main signal is sent to a time base processor where it's stored in memory for about 150msec. before it goes to the D/A converter. The other, the prediction signal, is sent to a prediction circuit where the level of the upcoming main signal is measured, and a prediction output signal is generated by analyzing the level of the D/A-converted main signal and the amplifier's output signal. Based on this prediction, the power-supply voltage control circuit adjusts the voltage supplied to the power amp.

### Programmable power supply for high efficiency

Most of the time, our Digital Pure-A Circuit provides the power amp with low power-supply voltage. But when the "predicted" power output exceeds the threshold of 20 watts, the circuit increases the power-supply voltage to provide higher power — no less than 100 watts.

Switching the power-supply voltage occurs approximately 120msec. before the temporarily stored main signal is read out of memory. In this way, signal prediction gives the power supply time enough for it to switch from low to high before the musical signal reaches the power amplifier.

Thus the power amplifier operates in low-distortion class-A most of the time, but without creating excessive heat. The result: both delicate and dynamic sounds are reproduced with

clarity and an extra sense of power.

Distortion Waveforms: Digital Pure-A and Class-B Operation

Digital Pure-A



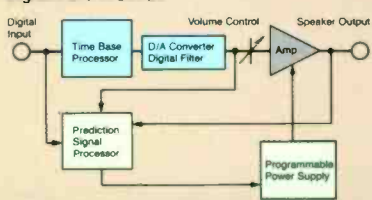
Class-B



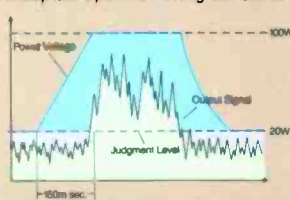
### Customized for digital reproduction

The AX-Z911BK is custom designed for superb digital reproduction. It's complete with a D/A converter featuring a 4X oversampling digital filter. There are terminals for direct connection of digital equipment: an optical input, a coaxial input and an in/output for DAT. A "D/A CONVERTER DIRECT" circuit directly connects the D/A converter to the power amp. And the digital and analog circuitry are completely separated to reduce digital noise.

Digital Pure-A Circuit



Conceptual Operation of Digital Pure-A Circuit



If the level of the output signal is predicted to go beyond the judgment level 150 msec. later, the power voltage is automatically increased to a high level to prevent the signal from clipping.

## AX-Z911BK Digital Pure-A Integrated Amplifier

- 100 watts per channel, min. RMS, both channels driven into 8 ohms, from 20Hz to 20kHz with no more than 0.003% total harmonic distortion
- Digital Pure-A Circuit for class-A operation to provide low-distortion digital sound (For digital signal)
- Dynamic Super-A with Gm Driver for better in-use performance (For analog signal)
- "D/A CONVERTER DIRECT" for direct D/A converter-to-amp connection
- Built-in D/A converter with quadruple oversampling digital filter
- 3 digital connections: one for optical, one for electrical (coaxial) and an in/output for DAT
- Separate layout for digital and analog circuits for reduced interference
- Circuit layout for shortest signal path to ensure "pure" signal transmission
- High-gain phono equalizer for MM/MC-cartridges
- Low-noise motor driven volume control
- Bass response control
- Gold-plated terminals
- "Dimensional" multi-function display
- Wireless remote control

## XP-A1000BK Digital Acoustics Processor — life- like ambience



No matter how faithfully your stereo system reproduces music, there is one thing missing from the sound it plays back: that sensation of "being there." The acoustics of a hall produce certain reverberations that just can't be realistically reproduced with a standard stereo system. The new JVC Digital Acoustics Processor gives you a digital way to simulate the acoustics of a live performance, recreating a realistic "sound field" right in your own listening room. It's a revolutionary engineering concept that gives you all the pleasure of live music.

### The sound field — what makes the sound come alive

A sound field is simply the ambient characteristics of a live music environment. When a sound is generated it disperses in all directions. First you hear the direct sound from the source. That's followed by the early reflections — a group of sounds that are reflected by the walls and

ceiling. Finally, you hear reverberations from random directions over a relatively extended period. Each live music space has its own individual sound field, or pattern of reflections and reverberations. And it's basically this pattern that gives you a clue to the size of a space.

### JVC's Digital Acoustics Processor

Our Digital Acoustics Processor simulates the sound field where live music is performed, by accurately replicating directions and levels of reflections and reverberations in the digital way. To make it possible, JVC even developed the computerized way to measure live music environments: the "symmetrical 6-point sound field analysis method." The processor contains a ROM (Read-Only Memory) where the vast amount of data from actual measurements is stored. A newly-developed digital acoustics processing LSI synthesizes the early reflections with proper direction, timing and reverberation, according to data stored in the ROM. Digital processing is performed in 16-bit quantization at sampling rate of 48kHz, combining a 4X oversampling D/A converter and a 64X oversampling A/D converter. The entire process operates channel by channel, to ensure accurate recreation of sound fields.

### XP-A1000BK Digital Acoustics Processor

- Newly-developed LSI for digital signal processing
- Digital processing using 16-bit quantization and 48kHz sampling
- 4X oversampling D/A converter and 64X oversampling A/D converter
- 20 programmed sound field patterns in ROM and 20 user-programmable sound field patterns
- Adjustable acoustic parameters: Sound field size, liveness, frequency response, etc.
- Accurate compensation for ambience of listening room and source program
- Direct digital inputs and outputs: optical and coaxial
- 4/6-channel system configuration selectable
- 6-ganged motor-driven remote-controlled volume control
- Programmable fluorescent display

**Symmetrical 6-Point Sound Field Analysis Pattern**

In order to develop the XP-A1000BK we first had to develop a computer-aided acoustics measuring system to analyze a variety of sound fields. In this analysis, the center of each circle represents the location of a "virtual image source" relative to the direct sound source, and the size its intensity.

Symmetrical 6-Point Sound Field Measurement Device

Custom-Designed "Digital Acoustics Processing" LSI

### Accurate sound field pattern generation in any environment

Each recording site has its own sound field, and so does your listening room. To accurately reproduce a desired sound field in your room for a particular type of recording, therefore, ambience of the listening room must be "neutralized" when a program is played back. Otherwise, there may be excessive reflections and reverberations, which can totally ruin the sense of realism. Our Digital Acoustics Processor lets you adjust not only the parameters for the source program (size, liveness, etc.) but also those for the listening room and the recording site. As a result, our processor can recreate the ambience of any musical environment in any listening

room and from any kind of musical program — a feat no other similar processor can duplicate.

### 20 memory-resident and 20 user-programmable sound field patterns

Our Digital Acoustics Processor has 20 programmed sound field patterns in memory — patterns for concert hall, recital hall, church, jazz club, stadium, and so forth — so that you can choose the one that best suits the type of music you select. Moreover, you can create and store in memory twenty of your own sound field patterns, the patterns that are customized to the acoustic conditions of your listening room and to your listening habits.

#### 20 Preset Sound Field Patterns

NO.	PROGRAM NAME	TYPE	NO.	PROGRAM NAME	TYPE
1	SYMPHONY HALL 1	SHOEBOX TYPE	11	LIVE CLUB 1	JAZZ CLUB
2	SYMPHONY HALL 2	SHOEBOX TYPE	12	LIVE CLUB 2	DISCOTHEQUE
3	SYMPHONY HALL 3	SHOEBOX TYPE	13	PAVILION	LIVE CONCERT
4	SYMPHONY HALL 4	VINEYARD TYPE	14	GYMNASIUM	HARD-FLOORED HALL
5	SYMPHONY HALL 5	VINEYARD TYPE	15	STADIUM	OUTDOOR LIVE CONCERT
6	SYMPHONY HALL 6	VINEYARD TYPE	16	MOVIE THEATER 1	SMALL SPACE
7	RECITAL HALL	SMALL MUSICAL SPACE	17	MOVIE THEATER 2	MEDIUM-SIZED SPACE
8	OPERA HOUSE	WITH TIERED SEATING	18	MOVIE THEATER 3	LARGE SPACE
9	CATHEDRAL	GOTHIC STYLE	19	MOVIE THEATER 4	EXTRA LARGE SPACE
10	CHURCH	HIGH-CEILINGED SPACE	20	MOVIE THEATER 5	STANDARD

#### Adjustable Parameters

PARAMETER	ADJUSTABLE RANGE	PARAMETER	ADJUSTABLE RANGE
1 ROOM SIZE	0.5-2	7 REAR DELAY	15-30 ms
2 LIVENESS	0.5-2	8 SPREAD/POINT	SPREAD/POINT
3 LOW PASS FILTER	1-16kHz, THRU	9 LISTENING ROOM REVERB	0.2-0.8 ms
4 REVERB LEVEL	0-2	10 LISTENING ROOM SIZE	10m <sup>2</sup> or less, 10-16m <sup>2</sup> , 16m <sup>2</sup> or more
5 HIGH-FREQUENCY REVERB	0.1-1	11 SOURCE REVERB	0-5 sec
6 OFFSET DELAY	0-200 ms		

## **XL-Z555BK CD Player — high-tech features for better digital sound**

Some people seem to think that today's CD players have reached the limits of digital technology: after all, they say, digital is digital — so there's no difference in sound quality between players. We've found, however, that there is a difference between models, and it is intimately related with the digital and analog technologies built into the players. With our advanced engineering in audio behind, JVC has come up with a series of technologies to provide even better digital sound. And the XL-Z555BK is proof.

### **New high-precision 3-beam laser pickup design**

Our newly designed pickup combines high sensitivity, precision, stability and immunity to resonance and vibration.



New High-Precision 3-Beam Laser Pickup

### **XL-Z555BK Compact Disc Player**

- Quadruple oversampling digital filter for smooth, precise response
- Twin high-speed D/A converters for precise imaging
- JVC high-precision 3-beam laser pickup
- New Y Servo System for superior tracking ability
- JVC "Opticalink" system for low digital noise
- Digital outputs: one optical and one coaxial
- Double-floating Independent

Stability and resistance to vibration and resonance are improved thanks to a new suspended actuator. The pickup is also compact and lightweight, improving tracking accuracy and reducing "servo noise."

### **4X oversampling digital filter**

Our 4X oversampling digital filter uses a sampling frequency that's four times higher than normal (176.4kHz instead of 44.1kHz). Used in combination with a gentle-attenuation quality analog filter, it reduces noise and phase distortion to give you clear, well-defined digital sound.

### **"New Y Servo System" for superior tracking ability**

Our new servo system uses two special tracking beams — one leading and one trailing the main beam. The difference between the two signals is compensated for, and they are compared so as to cancel each other out. The result: The pickup remains locked on the correct track, even when the disc is dirty or scratched.

### **Disc/track indication and multi-disc editing**

Two special features make the XL-Z555BK easier to use. You can give a name up to 10 characters long to a disc or a track, and store as many as 512 of them in memory for display on playback. And you can program up to 48 tracks chosen from six different discs so you can easily transfer them to tape.

- Suspension System
- Disc/track title indication to name tracks and discs
- Remote control with volume control and numeric keypad
- Ready to play 3-inch (8cm) "CD singles"
- Random access programming of up to 32 tracks
- Auto/multi-disc editing key for cassette recording
- Random play, intro-scan, 5-way repeat, index play

## **RX-1001VBK Receiver — exquisite ease of use with computer control**

The JVC RX-1001VBK is a supreme example of how computers make your life easier. From remote operation to graphic equalizer, a computer takes charge to provide you with the exceptional operating versatility and flexibility that simply defy your imagination.

### **"Programmable" A/V remote control**

Our "programmable" A/V remote control means that you can operate not only the receiver itself but also other JVC audio components and video components from a single remote. What's more, it has capacities to learn more functions of any audio and video component, whatever its make. And the RX-1001VBK's remote even comes equipped with a touch-panel LCD (Liquid Crystal Display) that serves as a multi-page menu and convenient touch panel.



To Program, Place Our Remote End-to-End with Other Remote.

**JVC's Digital Acoustics Processor**  
The receiver features the Digital

### **RX-1001VBK Programmable Remote/Computer-Controlled Receiver**

- 4-channel amplifier for front/rear speaker operation
- 120 watts per channel, min. RMS, both channels driven into 8 ohms, from 20Hz to 20kHz with no more than 0.007% total harmonic distortion (2-channel operation)
- "Programmable" remote control with touch-panel LCD
- Digital Acoustics Processor for precise sound field control
- Digital-delay Dolby Surround with adjustable delay
- Ready to control 3 video inputs, with dubbing and "Sound Selector"
- Computer-controlled 7-band S.E.A. graphic equalizer with 5 user-created and 5 "namable" programmed preset equalizations
- Computer-controlled digital synthesizer tuner, with 40 FM/AM presets, auto memory, more
- Dynamic Super-A with Gm Driver
- Interactive CCS (COMPU LINK Communications System)



Acoustics Processor, the kind found in our

XP-A1000BK. The

realistic sound field it creates puts you where music is performed live — right in your own home. Conveniently, five types of sound fields (SYMPHONY HALL, RECITAL HALL, CHURCH, LIVE CLUB and STADIUM) are preset for instant recall.

### **Computerized S.E.A. graphic equalizer**

With a computer at command, our S.E.A. graphic equalizer is more versatile and easier to use than ever. You can equalize the sound from the remote, recall any from five "programmed" equalization curves, and create and put into memory the equalizations you've created, along with custom names.

### **Computerized digital tuner**

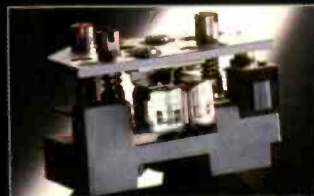
Again, by using a computer, we've improved ease of tuning and added new tuning conveniences. Up to 40 FM and AM stations may be preset and recalled instantly. Preset scan lets you "sample" stations. A signal strength indicator is dB-calibrated for accurate direct readout. It's even possible to give each station the name of your choice.

## TD-V711BK Cassette Deck — wider dynamic range, flatter response and purer sound

With extremely wide dynamic range and low distortion, digital sound has been a single program source that conventional cassette decks cannot compete in terms of specifications. The TD-V711BK, however, is the cassette deck expressly designed for recording digital sounds whole and complete.

### Closed-loop dual-capstan drive

With a sophisticated closed-loop dual-capstan drive, the portion of tape that runs across the heads is constantly held taut, pinched by two capstans/rollers. This



Discrete 3-Head Design Featuring SA Head and Amorphous Head



Two-Motor Full-Logic "Silent" Mechanism

### TD-V711BK Discrete 3-Head Cassette Deck

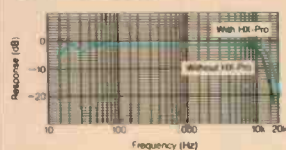
- Monitor-capable 3-head configuration: SA head for record and amorphous head for play
- Computer-controlled two-motor full-logic mechanism
- Closed-loop dual-capstan drive with direct-drive motor
- 2 "DIRECT" inputs for direct connection with CD players, etc.
- PCOCC coil and lead wired in heads, and OFC plating on circuit boards for higher purity
- Straightforward circuit layout for clean signal transmission
- Separate circuit construction for low interference
- Low-impedance voltage-tracking regulated power supply
- High-rigidity chassis and large insulators for low resonance and vibration
- Dolby HX-Pro and double-Dolby B/C noise reduction

design improves the head-to-tape contact for better response, and also shuts out external disturbances from vibrating the tape. This results in reduced intermodulation noise. It's thanks to our solid tape drive (and the 3-head design) that you can enjoy pure and clean taped sound.

### Designs for purer sound

Another way we've ensured higher sonic purity is using a direct and straightforward circuit design, to reduce the chance of noise and distortion pickup. That's why input selector switches and the volume potentiometer are located at the back of the chassis, and operated by "remote shafts." For the same purpose, we also use PCOCC (copper of highest purity) wire and OFC (Oxygen-Free Copper) in the heads and in the circuit board, and provide two direct inputs to accept outputs from source programs like a CD player. Dolby HX-Pro contributes to purer sound, too, by expanding the high-frequency dynamic range.

Frequency Responses With and Without HX-Pro



The Dolby HX-Pro circuit improves the tape's MOL (Maximum Output Level) at high frequencies. It lets you enjoy wider dynamic range at high frequencies as well as at others.

## SX-911WD Speaker System — designed for high purity and transparency

JVC has designed the SX-911WD from the ground up, with the sole purpose of making a speaker system matched with digital programs in every way. Now you can enjoy pure, clean and transparent sound, completely stripped of any trace of muddiness and fuzziness of conventional systems.

### Cloth carbon woofer and midrange

Light weight, high rigidity, high speed of sound and optimized internal loss — our new cloth carbon diaphragm for the woofer combines the most ideal properties demanded of a diaphragm material. The result is the bass sound that's extended, crisp and rich. The midrange uses a similar material called "fine" cloth carbon to provide clear and natural mids.



Rigid Pure-Aluminum Frame for SX-911WD Woofer

### Amorphous-diamond coated tweeter

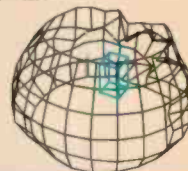
Much of the reason for high

transparency of the SX-911WD lies in the high-tech tweeter design. It uses a dome diaphragm with a titanium base on which a thin layer of amorphous diamond is coated by chemical vapor deposition. Featuring uniform thickness, high purity and smooth surface this coating increases the diaphragm's speed of sound to almost that of natural diamond. So the transient response is dramatically improved, as are purity and transparency.

### Unresonating, solid frames and enclosure

Every speaker unit is housed inside a solid, unresonating die-cast aluminum frame cylindrical in shape to disperse vibrations efficiently. The enclosure is constructed by solid 1-inch (25mm) particle boards. The panels are conifer-based to provide superb musical sonority. Front and rear baffles are mounted with additional cleats to increase the rigidity of the cabinet and make it resistant to resonance and vibration. And the front baffle has rounded corners to reduce diffraction and provide better definition.

Sound Radiation Response of the SX-911WD



### SX-911WD 3-Way Speaker System

- 12-3/8-inch (31.5cm) cloth carbon woofer for the bass sound that's crisp, extended and rich
- 5-inch (12cm) "fine" cloth carbon midrange for rich and natural midrange sound
- 1-3/16-inch (3cm) amorphous-diamond coated tweeter — transparency and superior transient response
- Low-resonance/vibration die-cast aluminum speaker frames
- High-density conifer-based particleboard enclosure for musical sonority
- Round-cornered front baffle to provide razor-sharp definition
- 3-part crossover network to prevent interference
- Computer-optimized speaker layout for natural sound field reproduction and clear sonic imaging
- High power handling capacity: 150 watts/30C watts (music)

# SPECIFICATIONS

## AX-Z911BK Digital Pure-A Integrated Amplifier

### OVERALL CHARACTERISTICS

Output Power	<b>100 watts per channel, min. RMS, both channels driven into 8 ohms from 20Hz to 20kHz, with no more than 0.003% total harmonic distortion</b> 105 watts per channel, min. RMS, into 8 ohms at 1kHz, with no more than 0.0005%* total harmonic distortion
Total Harmonic Distortion AUX to SP OUT	0.003% at 100 watt output, 8 ohms, 20Hz to 20kHz 0.0005%* at 105 watt output, 8 ohms, 1kHz
PHONO to SP OUT	0.007% at 100 watt output, 8 ohms, 20Hz to 20kHz, -20dB volume
Power Bandwidth	7Hz to 60kHz (IHF, both channels driven, 8 ohms, 0.02% total harmonic distortion)
Frequency Response (8 ohms)	TUNER/AUX/CD/TAPE DC to 200kHz +0dB, -3dB
REC Output Level/Impedance	400mV/400 ohms (ANALOG) 2.0V/550 ohms (DIGITAL)
Input Sensitivity/Impedance (1kHz)	PHONO MM 2.5mV/47k ohms (+6dB) PHONO MC 200µV/470 ohms (+6dB) TUNER/AUX/CD/TAPE 400mV/30k ohms
Signal-to-Noise Ratio (*66 IHF/78 IHF)	PHONO MM 90dB/80dB (REC OUT) PHONO MC 74dB (250µV input)/73dB (REC OUT) TUNER/AUX/CD/TAPE 112dB/85dB
PHONO EQUALIZER SECTION	Phono Overload (1kHz): MM 100mV (0.007% total harmonic distortion) MC 7mV (0.007% total harmonic distortion)
RIAA Phono Equalization: MM	±0.2dB (20Hz to 20kHz)
MC	±0.2dB (20Hz to 20kHz)
D/A CONVERTER SECTION	Sampling Frequencies (Auto Selection) 32k, 44.1k, 48kHz
Total Harmonic Distortion	0.0035% (1kHz)
Dynamic Range (1kHz)	97dB
Signal-to-Noise Ratio	102dB
Dimensions (W×H×D)	18-3/4×6-9/16×17-7/16 inches 475×166×442mm
Weight	44.1 lbs. (20kg)

\* Measured by JVC Audio Analysis System.

## XP-A1000BK Digital Acoustics Processor

Level/Impedance: Input	2V/47k ohms
Output	2V/500 ohms
Total Harmonic Distortion:	
MAIN OUT	0.002% (1kHz, 2V output)
D.A.P. OUT	0.005% (1kHz, 2V output)
Frequency Response:	
MAIN OUT	5Hz — 100kHz (+0, -3dB)
D.A.P. OUT	5Hz — 20kHz (±0.5dB)
Dynamic Range: MAIN OUT	110dB
D.A.P. OUT	94dB
Signal-to-Noise Ratio:	
MAIN OUT	110dB
D.A.P. OUT	94dB
Dimensions (W×H×D)	18-3/4×4×14-3/16 inches 475×101×360mm

## RX-1001VBK Programmable Remote/Computer-Controlled Receiver

### AMPLIFIER SECTION

Output Power:	2-Channel Operation	<b>120 watts per channel, min. RMS, both channels driven into 8 ohms from 20Hz to 20kHz, with no more than 0.007% total harmonic distortion</b> (Front Channels)
	4-Channel Operation	<b>110 watts per channel, min. RMS, both channels driven into 8 ohms from 20Hz to 20kHz, with no more than 0.07%* total harmonic distortion</b> (Rear Channels)
		15 watts per channel, min. RMS, into 8 ohms at 1kHz, with no more than 0.07%* total harmonic distortion
Total Harmonic Distortion (8 ohms, 1kHz)		0.003%* at 125 watt output
Input Sensitivity/Impedance		
PHONO MM		2.5mV/47k ohms
PHONO MC		250µV/100 ohms
VIDEO SOUND/AUX/CD/TAPE		230mV/47k ohms
Signal-to-Noise Ratio (*66 IHF/78 IHF)		
PHONO		80dB/80dB (REC OUT)
VIDEO SOUND/AUX/CD/TAPE		100dB/85dB
Frequency Response		
PHONO		20Hz — 20kHz (±0.5dB)
VIDEO SOUND/AUX/CD/TAPE		5Hz — 50kHz (+0, -1dB)
S.E.A. SECTION		
Center Frequencies		63, 160, 400, 1k, 2.5k, 6.3k, 16kHz
Control Range		±10dB
FM TUNER SECTION (IHF)		
Usable Sensitivity		10.3dBf (0.9µV/75 ohms)
50dB Quieting Sensitivity:		
MONO		14.8dBf (1.5µV/75 ohms)
STEREO		38.3dBf (22.5µV/75 ohms)
Distortion (1kHz)		0.08%/0.08%
MONO/STEREO		
Signal-to-Noise Ratio (IHF-A Weighted)		
MONO/STEREO		84dB/78dB (at 85dBf)
Selectivity (±400kHz)		70dB
Capture Ratio		1.5dB (10mV/300 ohms)
Frequency Response		30Hz — 15kHz (+0.5, -0.8dB)
AM TUNER SECTION		
Usable Sensitivity		250µV/m (Loop antenna) 30µV (External antenna)
Signal-to-Noise Ratio (100mV/m)		50dB
Selectivity (±10kHz)		38dB
VIDEO INPUTS/OUTPUTS		
Output Signal Level		1Vp-p (at 1Vp-p input)
Impedance		75 ohms unbalanced
Synchronization		Negative
Signal-to-Noise Ratio		45dB
Crosstalk		45dB (3.58MHz)
Dimensions (W×H×D)		18-3/4×6-3/16×15-1/8 inches 475×156×383mm
Weight		29.8 lbs. (13.5kg)

\* Measured by JVC Audio Analysis System.

## XL-Z555BK Compact Disc Player

Frequency Response	2Hz — 20kHz
Total Harmonic Distortion (1kHz)	0.0035%
Dynamic Range (1kHz)	97dB
Signal-to-Noise Ratio	100dB
Channel Separation (1kHz)	92dB
Wow and Flutter	Unmeasurable
Output Level	2.0V RMS
Dimensions (W×H×D)	18-3/4×4-9/16×11-1/2 inches 475×115×291mm
Weight	12.6 lbs. (5.7kg)

## TD-V711BK Discrete Three-Head Cassette Deck

Frequency Response (at -20 VU)	
Metal Tape	10 — 22,000Hz (15 — 20,000Hz ± 3dB)
SA/Chrome Tape	10 — 20,000Hz (15 — 18,000Hz ± 3dB)
Normal Tape	10 — 20,000Hz (15 — 18,000Hz ± 3dB)
Signal-to-Noise Ratio	59dB (Metal)
Wow and Flutter	0.022% (WRMS)
Crosstalk (1kHz)	65dB
Channel Separation (1kHz)	40dB
Harmonic Distortion	
Total (0VU, 1kHz)	1.0% (Metal)
K3 (0VU, 1kHz)	0.5% (Metal)
Input Sensitivity/Impedance	
Line Input×2	80mV/50k ohms
Output Level/Impedance	
Line Output×2	300mV/600 ohms
Headphones	0 — 1mW/8 ohms (Matching Impedance: 8—1k ohms)
Dimensions (W×H×D)	18-3/4×5-1/4×13-1/4 inches 475×132×336mm
Weight	18.3 lbs. (8.3kg)

● Measured from peak level, weighted, without NR. The S/N is improved by about 15dB at 500Hz and by about 20dB above 1kHz with Dolby-C NR on, and by 5dB at 1kHz and by 10dB above 5kHz with ANRS/Dolby-B NR on.

## SX-911WD 3-Way Speaker System

Type	3-way, acoustic suspension
Speakers:	
Woofer	12" (30.5cm), cloth carbon cone
Midrange	4-1/2" (11.5cm), cloth carbon cone
Tweeter	1" (2.5cm), amorphous-diamond coated dome
Power Handling Capacity	150 watts 300 watts (Music)
Impedance	6 ohms
Sensitivity (1m on axis)	91dB/W · m
Frequency Range	40 — 50,000Hz
Crossover Frequencies	500Hz, 4kHz
Dimensions (W×H×D)	15×26-3/16×13-7/8 inches 380×665×351mm
Weight	62.8 lbs. (28.5kg)



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*Product  
of the Year  
Awards*

## **Exploring the Final Frontiers**

**B**y and large, most of the major problems of audio and video technology have been solved. On the audio side, the introduction of the digital Compact Disc has finally provided a low-distortion, noise-resistant, wide-dynamic-range program medium matching the capabilities of modern amplifiers and speakers. Music can now be played at realistic levels with essentially inaudible distortion and noise. Home video, with its high-resolution monitors, laser videodiscs, and advanced new (S-VHS, ED-Beta) and upcoming (Hi-Band 8mm) videocassette systems, now provides picture quality sometimes rivaling that obtainable in TV studios. With present-day equipment operating at such high levels, further progress will be made only by products that explore boldly what I consider the final frontiers of high fidelity audio and video. Our Products of the Year for 1988 do precisely that. ▸

BY DAVID RANADA

Product  
of the Year  
Awards

**A**ny video system is bound to be a collection of compromises, because absolutely perfect, you-could-have-fooled-me image reproduction is totally impractical: It requires, at the very least, a workable 360-degree, full-color, 3-D viewing system. The series of compromises that most HIGH FIDELITY readers have been living with is called the NTSC system, which is the color-TV standard for the United States established by the National Television System Committee in the late 1950s. Rumors and innuendo to the contrary, NTSC is actually an excellently conceived method of encoding color in a way compatible with the black-and-white sets that were then in use. It has taken until this year for the limits of NTSC performance to be successfully approached and, at times, surpassed by the improved-definition monitor/receivers (IDTVs) that are our first Products of the Year.

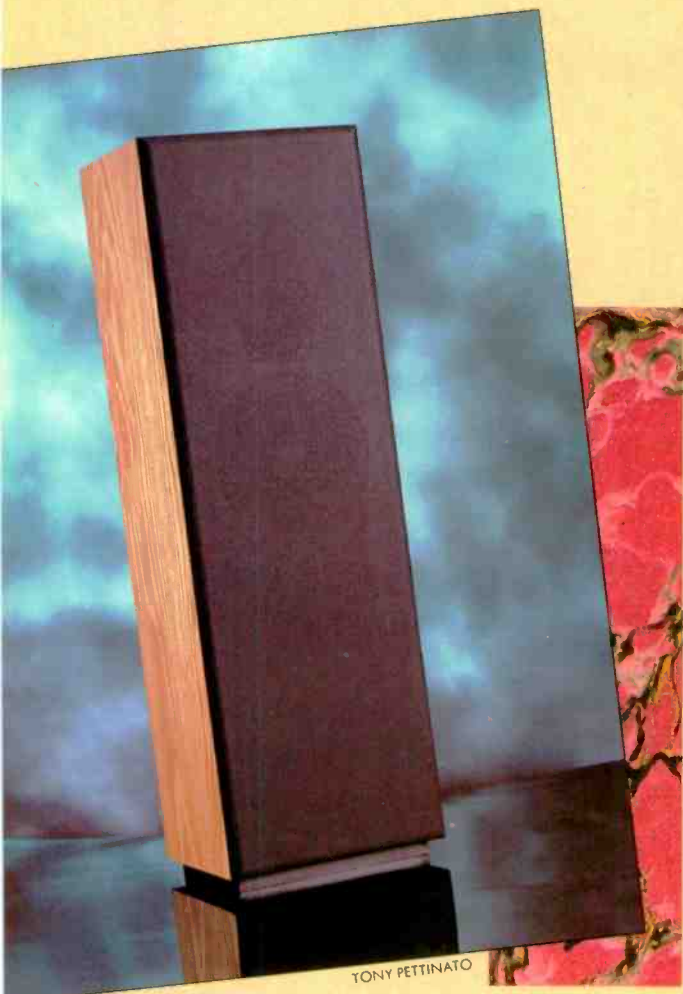
Using the extensive digital signal processing made possible by integrated-circuit technology, the first two **Philips IDTV sets**—a 27-inch unit, the 27J245-SB (\$1,500), and the 31J460-SA (\$2,600), a 31-inch console model (shown above)—mount a three-pronged

attack on several visible problems, some of which are inherent in the NTSC format. First, flickering of horizontal lines is reduced, the visibility of separate scanning lines is eliminated, and picture smoothness and resolution in the vertical direction are improved by the use of noninterlaced scanning techniques. Second, a digital comb filter greatly improves the separation of luminance (brightness) and chrominance (color) signals that could otherwise interfere, causing such phenomena as “hanging dots,” “dot crawl,” and various sorts of moiré patterns. The third prong of Philips’s attack is a video noise-reduction system that, even in its lowest setting, provides a noticeable diminution of picture graininess without significant losses in sharpness.

Unlike television, audio has never had a single, overarching technical standard to live up to, let alone surpass. Indeed, rapid progress in high fidelity audio has been greatly hindered by lack of knowledge about what precisely needs to be done to attain “perfect” sound reproduction. Over the years, many significant barriers to high audio fidelity have collapsed, but despite several revolutionary breakthroughs, reproduced music still sounds “canned.” Only rarely can you close your eyes and convince yourself that you could be hearing live music. That experience is more dependably achieved by use of the **Lexicon CP-1 Digital Audio Environment Processor** (next page, top), our first audio Product of the Year (test report, August).

The CP-1 explores the first of three remaining areas left for revolutionary progress in sound quality: the generation, around the listener’s head, of a sound field that more effectively mimics the properties of a live-concert sound field. Two of the CP-1’s operating modes attack this problem in different ways. The first, called Panorama, uses digital processing to perform very high-quality interaural-crosstalk cancellation, using only two speakers. This effectively removes the ears’ ability to “triangulate” the loudspeakers as the sources of sound. The resulting stereo image seems to float free of any visible anchors—which is as good a way as any to make the sound less artificial. The second way the CP-1 helps create a realistic sound field is by generating artificial ambience and reverberation, which can do a great deal to create that pleasant sense of sonic envelopment that occurs at a live concert. The ambience signals the CP-1 feeds to auxiliary speakers placed to the sides and rear of the listener are optimized for what listeners prefer to hear in real concert halls.

Digital signal processing also makes the CP-1 the definitive Dolby Pro Logic unit for decoding the soundtracks of Dolby Surround mov-





ies. The CP-1's digital calculations produce results that are more stable and of lower distortion than analog methods of Pro Logic decoding, and additionally provide several useful and unique functions, such as azimuth compensation to minimize decoding errors.

Not all progress in home entertainment requires products incorporating digital processing. Sometimes a good idea and a lot of hard work will suffice, with perhaps a

smidgen of digital computation thrown in to make sure everything comes out right. At least that seems to have been the recipe for **Snell Acoustics's C/II loudspeaker** (previous page, bottom), one of two speakers receiving an award this year.

Snell's good idea was to explore the second frontier of audio progress: the understanding and control of the complex acoustical and psychoacoustical interactions that take place between a speaker, the listening room, and the listener. Snell's designer, aware of how important off-axis frequency response can be to the perceived sound of a speaker in a room, decided to make one whose off-axis response at several different angles is as flat as possible. This contrasts with many speaker designs, the responses of which are optimized only on-axis, the off-axis behavior left relatively uncontrolled. The resulting C/II, as shown in our test report last month, is a speaker with an incredibly flat response both on- and off-axis, which produces a neutral sound quality and precise imaging.

All this was achieved in a standard vented system with ordinary (though carefully selected and tested) cones and domes as drivers and a simple rectangular tower as an enclosure. Digital technology played only a supporting role. Computers designed the crossover network and helped specify the driver characteristics and their placement on the front panel. The extensive computerized test systems at Canada's National Research Council gave important data on the performance of the prototypes.

The NRC also helped in the same fashion with our last award winner for this year: the **Mirage M-1 loudspeaker** (at left; see test report, page 24). In some ways it resembles the Snell C/II: It, too, is a vented system using conventional means to obtain un conventionally good results—and incorporates no breakthrough material or construction technology. The M-1's claim to fame is its nearly omnidirectional radiation pattern, achieved by having identical sets of drivers on the front and back of each panel-like enclosure. NRC testing assured that the off-axis responses were controlled to closely follow the on-axis behavior.

The M-1 shares many of the basic sonic traits of speakers that direct much of their radiation away from the listener and into the listening room: a free-floating image of great potential depth and a tremendous sense of space. But these characteristics are produced with low coloration, tremendous power-handling ability, and a well-balanced, low-reaching deep-bass response—none of which are common among multidirectional loudspeakers. The M-1 and the C/II together show the results that can be produced once a designer seizes upon and controls a design parameter—here, off-axis response—that, unlike minor diffraction and driver-material effects, can greatly alter sound quality.

And what is the *third* frontier of audio progress? I believe it is the development of studio recording techniques that will "close the loop" by helping such devices as the CP-1, C/II, and M-1 to create realistic sound fields at home. Little research is being conducted to fundamentally improve the recording end of the audio chain; studio recording will be the last link to undergo a technological revolution. But who knows? One of the designers of Lexicon's CP-1 has done work in this area, and one of these years I may be pleased to report progress toward audio's final frontier.



TONY PETTINATO

## Bright Ideas of 1988

*Innovative electronic products appear regularly every year—which may be as much a tribute to the industriousness of their manufacturers as it is to our voracious appetite for tasty new toys. We have turned our editorial telescope around to look at some of the past year's most intriguing offerings—as it happens, mainly video—and, taken as a whole, they give clues to what could be hot in 1989. So here's to 1988, in no particular order:*

**Sony D-88 Pocket Discman.** The engineers at Sony think big by thinking small. The D-88 is the smallest-ever portable CD player, designed especially for playing 3-inch CDs.

**Akai VS-A77U VHS Hi-Fi VCR.** Take a VCR with the right stuff—Hi-Fi recording, a stereo-TV tuner, a "Quick Start" transport, and a learning remote—and add a built-in Dolby Surround decoder with stereo amplifier . . . and you've got the main ingredients for a home theater system. Not bad at \$780.

**NEC AVA-505 power amp.** From one of the most aggressive promoters of surround sound comes a five-channel power amp ideal for Dolby Surround setups. Instead of using separate stereo amps for front and back channels, plus a mono amp for the center channel, you can simply fire up the AVA-505.

And if you already have one stereo amp—say, built into the decoder—the 505 can be bridged for three-channel operation. **Pioneer VSX-9300S A-V receiver.** For a couple of years, Pioneer has offered a wide range of surround-sound receivers, and its latest is a real powerhouse. The 9300S is the first receiver to incorporate Dolby Pro Logic enhanced-separation decoding. What's more, you get front- and back-channel amplification (125 and 30 watts, respectively) and enough audio and video features to keep you happy if the rental store is all out of good tapes.

**Pioneer LD-W1 Laserdisc player.** One shortcoming of Laserdisc movies is that they occupy two sides of a disc, or two sides of two CAV-type discs (the ones making possible special effects), so a flip is always necessary. The LD-W1 solves this problem by handling two discs at once. The intricate laser assembly rides up and down and rotates to gain access to either side of either disc—which means you'll have to impose your own intermissions.

**Hitachi VT-3050 VHS VCR.** Speaking of VCRs, Hitachi is not the first to realize that many people have trouble learning how to use them, especially the program timers. Confusion is caused by thoughtless control layouts and incomprehensible owner's manuals as much as it is by technophobia. Hitachi's solution is to provide 16 detailed on-screen operating and troubleshooting instructions, permanently stored in the VCR's memory circuits. All you do in a time of crisis is push a button on the remote control, and your TV screen fills with good, clear instructions.

**Tera 629 TV monitor.** We plan to test this high-end TV receiver in a future issue, but here we're more interested in the remote control. It is the first remote into which you can plug a headphone for private TV listening. Audio signals are transmitted via infrared from the TV to the remote, where you can tap in with the "phones.

**Toshiba/Carver TV sound systems.** Some of Toshiba's new large-screen direct-view TV sets and projection models will wrap you in sound by virtue of Carver's Sonic Holography process. Carver's technology has been around awhile in

its audio products, but this is the first direct video application. The process widens and deepens the soundstage, providing a three-dimensional effect on stereo material.

**NEC DS-8000U Super VHS Hi-Fi VCR.** We have been impressed by the video noise-reduction (NR) system in NEC's regular-VHS VCRs, but were even more impressed by the again-improved version in this S-VHS model, NEC's first (test report, August). A source of disappointment with the S-VHS system is that it offers little, if any, improvement in video noise level. NEC's digital NR achieves its purpose with little picture blur and is a welcome enhancement to Super VHS.

**Sony GV-8 Video Walkman.** You knew this was coming back when Sony introduced the ultrasmall Handycam 8mm camcorder. But perhaps the biggest surprise in this all-in-one TV/VCR system is the quality of the three-inch color LCD display. It's bright and sharp—and looks as much like a tube picture as any LCD TV we have ever seen.

**Panasonic PV-460 EIS VHS camcorder.** EIS stands for "electronic image stabilization," and it makes the full-size PV-460 the most unusual camcorder of the year (except for similar models made by Panasonic for other companies, such as Magnavox). The 460's prominent lens housing contains motors that act in response to vertical and horizontal motion sensors to compensate for camera bounce and jitter. In demonstrations of EIS, Panasonic straps the 460 to a vibrating table alongside a regular camcorder. The image captured by the 460 shows no jitter, but just floats ever so subtly; the image from the other camcorder just plain shshqaaakes. We hope Panasonic applies EIS to a Super VHS model in the future.

### IN OTHER NEWS . . .

**Any day now, aaaannny day:** DAT, which seeks to find out whether a revolutionary and highly desirable product can become yesterday's news today. . . . **Timing is everything:** Tandy's THOR CD, a recordable Compact Disc system announced as excitement about DAT waned, but which won't be market-ready until (at least, we suspect) mid-1990. . . . **Where are they now?** American TV makers, nearing extinction just as we enter the era of improved- and high-definition TV. Last year GE/RCA's consumer electronics division was sold to France's International Thomson. The only remaining all-American is Zenith, which has been urging the government to help fund U.S. development of HDTV technologies. But without the lobbying power gained by having a strong base of home-market manufacturers, Zenith and the various engineering labs working on HDTV stand little chance of shaking loose research funds. It thus appears that America's main role in the lucrative HDTV business will be an all-too-familiar one: consumption. . . . **Better late than never:** Sony, which this year did what everyone knew it should do but few ever thought would happen. Yes, Sony is selling VHS VCRs. The company has not abandoned Beta—that format is still tended to while it dies a natural death in the consumer market. Psychologically, Sony's decision to offer VHS machines must have felt like high infidelity. . . . **Better sooner than later:** Again Sony, which has worked on Hi-Band 8mm, an improved 8mm VCR format offering resolution perhaps greater than that of Super VHS. Rumor suggests products will become available next year. *Christopher J. Esse*

# Nothing comes remotely close.



## Introducing "The System" by Proton.



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**B**uying is an emotional experience for most of us, comprising more than the simple anxiety of being parted from our money. When you utter those fateful words—"I'll take it"—you feel other sentiments ranging from relief ("Finally!") to glee ("Can't wait to get this home!") to fright ("What if I don't make it home?") to doubt ("Did I buy the right thing?"). Challenges abound for "me decade" shoppers: In our retail paradise, it's hard to decide what to buy, where to buy it, how much to spend, and whether you really need the item at all.

These decisions are even more difficult to make if you are unfamiliar with the products or services you desire. My only

speakers and for checking out a player's operation. And dress nicely: The aura of money tends to heighten a salesperson's interest. (I know that sounds cynical, but try escaping unsolicited from a car showroom while dressed in a three-piece suit.)

Make sure a dealer will exchange a "dead" product for a new, factory-fresh unit, rather than tell you it must be repaired under warranty (the latter policy is extremely rare). Many stores permit exchanges for a generous time period (say, 30 days), providing you return the original box and packing materials. This goes for speakers, especially, because you may find that they don't sound as good in your home as

# Buying an Audio System

trouble with audio equipment is choosing from the vast selection of products I know will do the job. That kind of problem is fun to solve. But when it comes time to buy an electric oven or hire a contractor or—gasp—throw money at the stock market, I need help. Maybe someday we will be able to load our budget, our needs, and our don't-needs into a computer and have it spit out a nice list from which we can make selections arbitrarily. Until then, we'll rely on "how to buy" articles. Funny you should ask, but we just happen to have one here that deals with audio systems.

The ground rules for shopping and buying are not carved in stone, but it seems sensible to discuss money first. Since you are not the Federal Government, you obviously can't spend more than you can afford. But spending too little can invite future woes, as well. Consider the possibility of upgrades, perhaps involving video equipment and a Dolby surround-sound decoder: You don't want to be stuck with a bare-bones system that cannot accommodate expansion.

If you're a little queazy about which brands to consider, consult magazines like this one. We tend to report on and review equipment from reputable manufacturers whose products are widely available. However, you should not limit your search to the specific models being written about; take a positive review as an indication that a given company's other products also merit consideration. The good news is that today's mainstream audio gear is more alike than different in basic performance. While this may make it more difficult to arrive at a buying decision, it suggests that you shouldn't agonize over competing products with very similar capabilities. Of course, you need not restrict yourself to well-known brands. Small companies—many of them American—specializing in amplifiers, loudspeakers, and accessories should not be dismissed because they don't have a billboard in Times Square. But make sure the dealer stands behind such products. While the cachet of owning an uncommon brand is attractive—as may be its particular features, styling, and performance—first-time buyers may want to stick with familiar names if simply to avoid unnecessary angst.

Shopping on a weekday, when store "traffic" is low, affords you a better chance of getting patient attention from a salesperson (see sidebar, "Brief Life of a Salesman,"). Bring along favorite Compact Discs, LPs, and tapes for listening to

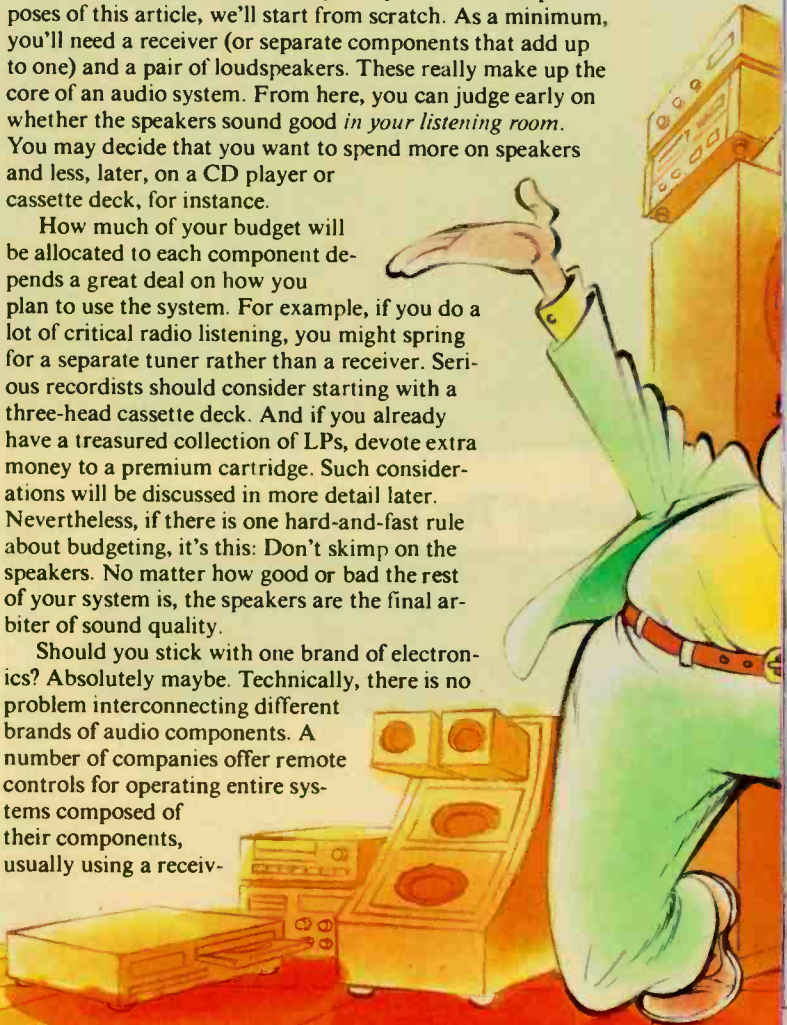
they did in the store. Besides, some audio dealers offer speaker trade-ups effective for a year or longer.

An audio system is now a tricky thing to define. The word "video" keeps creeping into the picture, inevitably joined by "surround sound." You don't need to decide, initially, whether an audio-video surround-sound system is what you're ultimately after; nearly any receiver (or integrated amp or preamp) will supply the necessary connections for adding these capabilities later.

Now—what do you want in your system? For the purposes of this article, we'll start from scratch. As a minimum, you'll need a receiver (or separate components that add up to one) and a pair of loudspeakers. These really make up the core of an audio system. From here, you can judge early on whether the speakers sound good *in your listening room*. You may decide that you want to spend more on speakers and less, later, on a CD player or cassette deck, for instance.

How much of your budget will be allocated to each component depends a great deal on how you plan to use the system. For example, if you do a lot of critical radio listening, you might spring for a separate tuner rather than a receiver. Serious recordists should consider starting with a three-head cassette deck. And if you already have a treasured collection of LPs, devote extra money to a premium cartridge. Such considerations will be discussed in more detail later. Nevertheless, if there is one hard-and-fast rule about budgeting, it's this: Don't skimp on the speakers. No matter how good or bad the rest of your system is, the speakers are the final arbiter of sound quality.

Should you stick with one brand of electronics? Absolutely maybe. Technically, there is no problem interconnecting different brands of audio components. A number of companies offer remote controls for operating entire systems composed of their components, usually using a receiver-



**BY CHRISTOPHER J. ESSE**



er as the central link. Such components are perfectly suitable for use apart from their brethren, however (I'm not talking about some of the prepackaged "rack" systems found in department stores). Though system-wide remote control can be an inducement for sticking with a single brand, my advice is to not let it unduly influence your buying decision. (Think about how often you'd really use the remote.) Besides, the new breed of programmable remotes can take the place of multiple remotes in a mixed-brand system.

### RECEIVERS, ETC.

Perhaps the first question here is whether to purchase a receiver—which is a power amp, preamp, and tuner on a single chassis—or separate components for each job. At one time, audiophiles would have little to do with receivers, noting that such integrated products necessarily entailed compromises in performance. That's no longer always true. Highly miniaturized circuitry and improved design and manufacturing techniques today make it entirely possible to match a receiver's performance against that of similarly priced separates. However, as you go up the price and performance scale, the one-piece form of a receiver—and its primary mission as a high-value product—imposes restrictions. Conversely, below a certain price, separates become uneconomical.

Consider a \$600 receiver with modest FM performance but with a healthy 100 watts of power. For roughly the same price, you could buy a lower-power integrated amp (combination preamp and power amp) and a slightly better tuner. That's a good trade-off if you live in an area where FM reception is difficult. Consider a \$1,000 integrated amp and tuner package: An alternative might be to swap that integrated amp for a smaller power amp and a more refined preamp for around the same price. In this case, you may be giving up a few watts in exchange for a preamp with an outstanding phono-input section. These are the sorts of choices that can be hard to make. One definite benefit to owning separates is added flexibility in upgrading.

The separates issue may resolve itself as you shop for features. For now, we'll refer to a receiver's features, since that should cover it all. First, make certain that the receiver has all the connections and switching options you need. Even basic models provide enough connections for a turntable, CD player, and at least one cassette deck (tape inputs can alternately be used for any line-level source, such as the audio from a VCR). And some receivers provide a "recording out" selector, which enables you to listen to one source (say, FM) while making a tape recording from another (say, a CD player). An integrated amp or a preamp, however, is far more likely to offer this capability than is a receiver. Most receivers permit two pairs of speakers to be connected, but not all allow you to turn both pairs on at once.

Don't be misled by inputs labeled "video." Most often, these are simply auxiliary inputs for audio signals, whether they come from a TV set, a VCR, or a CD player. There are, indeed, receivers with *real* video inputs—as well as TV-antenna terminals—that route audio *and* video signals. This may come in handy if you plan to build an integrated audio-video system. Generally speaking, the benefit of running video signals through a receiver is to facilitate video dubbing: In other words, the receiver takes on the added function of a video switchbox.

The question of amplifier power is often foremost in a buyer's mind, and is a difficult one to answer. The relationship between watts and volume level is not linear: It takes about double the power to gain a noticeable increase in loud-

ness. Keep this in mind when deciding whether to dole out extra bucks for a few extra watts. All other things being equal, a 50-watt receiver will give you just as much perceived loudness as a 75-watt receiver. The main advantage of extra power comes when you play music at very loud levels. A lower-power amp will clip, or distort, the music signal at a lower volume level than will a higher-power amp (if the speakers don't give out first). But with most speakers in average-size rooms, an amp rated at more than 30 watts per channel will probably produce enough volume to keep you well below its clipping point, except on brief signal peaks or at extremely high volumes.

As you go up in power and price, you reach the point of diminishing returns, where the extra power simply isn't worth the extra money. And that point is defined not just by watts and dollars but also by the characteristics of your loudspeakers, the size of your listening room, how loud you play music, and what types of music you prefer.

### CD PLAYERS

It is hard to pick a truly bad CD player, though such units exist. The sonic differences between the worst and best players HIGH FIDELITY has tested this year have been minimal, even when there were easily *measurable* distinctions. Furthermore, basic features such as programming, repeat, and audible scan are included on nearly all current models, and remote control is increasingly common. These days, CD players are most readily distinguished by exotic features, operating smoothness, and ruggedness of construction.

Step one is to decide whether you want a traditional single-disc player, a CD changer, or a portable. There are two basic types of CD changers: those that use a cartridge (or, magazine) and the "carousel" models from Sony, which hold five discs in a large, integral tray. Cartridge-based players range in capacity from five to ten discs, and a couple of recent models hold two magazines of six discs each. You can buy additional cartridges and load each with a preferred mix of music. For instance, you might fill one cartridge with chamber music or '70s rock or new-age background music, and simply store your CDs in that fashion. On the other hand, Sony's carousel changers tend to cue discs more quickly and do not require a separate cartridge.

Some people choose a portable CD player simply because they don't have room for a full-size model. While portables may not offer quite the same level of performance as—and certainly not all the frills of—table models costing the same, a few do offer optional remote controls. If you are buying a portable for use strictly with your home system, there's no reason to buy one with a built-in tuner.

If you plan to make a lot of tapes from your CDs, take a look at the tape-editing features offered on many recent players. These are designed to help you match the length of a blank tape to the total time of the CD tracks you want to record. If you're picky about the sequence of tracks on a CD, consider one of the players that enables you to store and instantly recall program information for hundreds of discs. The list of capabilities goes on. So . . . although it may at first appear that CD players are more alike than different, in all likelihood you'll be able to narrow your choice based on those few features you find particularly useful.

A final note, about bits and about sampling rate. We haven't yet found any reason to spend extra money expressly for an 18-bit player or one that uses an eight-times "oversampling" digital filter; a conventional 16-bit player is technically capable of the same sonic performance if it is well designed and carefully manufactured. Even a non-oversamp-

ling (analog-filter) CD player can sound great. So if you find the features and quality of construction you want in a 16-bit player, don't assume that a similar, 18-bit player will necessarily sound better. Remember, CDs are made using a 16-bit format. (See "Golden Rulers," May, and "The Overselling of Oversampling," October.)

#### PHONO EQUIPMENT

It's hard to imagine an audio system without a turntable, although that is obviously possible if you play nothing but

tapes and CDs. Still, for serious music collectors a turntable is an absolute necessity, if only because some obscure works and artists may never make it to CD. A turntable's platter is driven either directly by a motor (direct drive) or by means of a rubber belt connected to a motor (belt drive). The only disadvantage of the latter method—having to replace a worn or broken belt after a few years, an inexpensive do-it-yourself procedure—is made up for by the belt's tendency to absorb motor vibrations that can be transmitted to the stylus. Deejay's will prefer direct-drive models because those tend

### BRIEF LIFE OF A SALESMAN



I sold audio and video equipment for as long as I could stand it—about eight months. Selling was something I imagined I would quickly grow tired of, but I'm glad for the experience. Having visited the two fronts—buyer and discount retailer—I can now report on both sides.

The stereotypical retail salesman—talks good, dresses bad, can't be trusted—has his consumer equivalent, like the guy who earnestly asked me whether the TV set he was looking at was black-and-white or color. It was a microwave oven. Really.

I believe the relationship between buyer and retailer has become more strained in the past 20 years, partly because of societal changes. Just take a look at sales scenes played out in old films or old TV shows: The customer is always right, no matter how wrong, and the salesperson is the subservient sort (who quietly prevails in the end, anyway). Today, customers are often eyed with great suspicion, thought guilty of being stupid or of not intending to buy anything—until proven innocent. Nowhere is this more prevalent than in the typical discount audio-video store, where slim profit margins and tough competition have bred a more resilient—self-centered, indifferent—strain of seller. Buyer beware, not of bad products, but of impatient

and unknowledgable cashiers posing as salespeople.

Naturally, if a store is making only a small profit on each sale, it may hire unqualified workers or risk paying good workers bad money. And this is what happens all too often in the discount-electronics world. You may find yourself asking advice of someone who either has no answers or doesn't feel it's worth the time to give them. When I was selling, I had to remind myself constantly of the customer's basic innocence: that he or she could not possibly understand that my store wasn't making a 40-percent margin on a \$400 VCR—no, we were typically making a dismal 10 percent, not the kind of profit that breeds helpful salespeople.

I have no sympathy for cutthroat discounters or for the manufacturers who have helped to create and sustain them. But I do have some sympathy for the salespeople, and a lot for consumers. The likelihood of getting courteous sales help is greater in a non-discount store, and you pay some for that privilege. If you must shop discount—and most of us do, especially for electronics—try to go prepared with some basic knowledge of the types of products available. In that manner, you'll be able to sell yourself as a good investment of a salesperson's time.

C.J.E.

to start faster and can be stopped and spun back and forth by hand, without concern for a belt. For home use, though, either style will do. However, I would shy away from tangential (or linear) tracking turntables. Some will accept only a limited range of cartridges, and by reason of their mechanical complexity they present a greater potential for breakdown.

The cartridge is the most critical part of a turntable. While you may do most of your component shopping at a discount store, take your cartridge (and loudspeaker) business to an audio store with a listening room. The dealer should be able to point out cartridges suitable for your turntable. If you're unclear as to how much you should spend, ask to compare, say, a \$40 cartridge with a \$150 one. After listening, you should have a better idea about what your cartridge dollar will get you. Most dealers will offer to install the cartridge and balance the tonearm, but you may have to pay for that if you've purchased the turntable elsewhere. That's fair. Test reports on cartridges are very reliable gauges of quality, and a loudspeaker review can help you decide whether a particular model merits your attention; you may therefore want to "shop" test reports published in audio magazines.

### CASSETTE DECKS

Dual cassette decks, or dubbing decks, are extremely popular, but unless you are willing to spend a lot for a top model, your ears will be better served by a single-well deck. If you have a pressing need to make not-so-good second-generation tape copies or to play two tapes back-to-back without interruption, then by all means buy a dubbing deck. But know that for less money you'll get superior performance from a regular deck.

That said, a similar argument can be waged against autoreverse models. If you want out and out performance and can manage to flip a tape manually during recording or playback, look to unidirectional decks. The problem with most autoreverse machines is a tendency to play back better in one direction than the other. The culprit is the azimuth angle (alignment) between the tape-head gap and the tape, ideally 90 degrees. Very few autoreverse decks maintain identical azimuth in both directions. Azimuth errors cause a loss of high frequencies, muffling the sound.

Now that that's out of my system, let's talk performance features. The majority of decks today have both Dolbys: B and C. A few include DBX noise reduction, whose additional suppression of tape hiss is noticeable only on very quiet music passages. Also, tapes made with DBX absolutely must be played back with DBX, while Dolby-B-encoded tapes can yield listenable (if not ideal) sound when played back without Dolby—say, in a Walkman or in a car player. Many decks now offer Dolby HX Pro "headroom extension." This process lets tapes store a little extra high-frequency energy without distorting, which is of particular benefit when recording from CDs.

Another feature important for making high-quality recordings is separate recording and playback heads. Conventional, two-head decks contain a combination recording/playback head (and a separate head for erasure). Three-head models have heads optimized for each function. More important, however, they enable you to compare the original signal directly with the signal on the tape as you record. In this manner, for instance, you can quickly discover whether you've set the recording levels too high or too low. And since virtually all three-head decks have bias fine-tuning controls, you can use the monitoring capability to adjust the

bias for accurate frequency response. A three-head deck makes it easy to find out which brands and formulations of tapes perform best on your particular deck.

### LOUDSPEAKERS

If practical, I think you should buy speakers before any other components—for two reasons. First, the matter of your budget then becomes less important—since you haven't bought anything else yet—and you are free to spend whatever it takes to get a speaker that you can live with happily. In other words, it's okay, within reason, to steal from the rest of your budget to buy better speakers. The second reason has to do with matching the speaker and amplifier.

Speakers differ in sensitivity, or in how loud they will play with the same power input. For example, given speakers of similar design, the one with the larger enclosure usually will have higher sensitivity, requiring less amplifier power to perform at its best. This relationship can affect your choice of a receiver or amplifier. A speaker's impedance rating is also important, especially if you plan on running two pairs of speakers from your amp at the same time. While few amplifiers will have difficulty driving one pair of speakers rated at less than 8 ohms, two such pairs run in parallel may present a problem, since the combined impedance will be lower still, drawing more current from the amp. Again, this can be a factor in your subsequent selection of an amp. If you are going to use low-impedance speakers (rated at 4 ohms or less) or more than one pair at once, make sure the amp or receiver you get is designed to work well into such a load.

Beyond matters of sensitivity and impedance, you'll find an almost overwhelming variety of loudspeakers to choose from. You can easily narrow this down by considering the size and configuration of speaker most appropriate for your listening room. If space is tight but you still demand the bass performance of a large speaker, you might buy a pair of bookshelf models and a separate subwoofer, or one of several three- or four-piece packaged systems of that ilk. Some loudspeakers are designed to make your room sound bigger by using the surrounding walls to reflect a portion of the sound. Others present a less diffuse soundstage with a more sharply defined stereo image. The majority, however, tend to provide some of each, with varying degrees of success.

Remember that no matter how good a speaker sounds in the store's soundroom, it will inevitably perform differently in *your* listening room. It is difficult to predict exactly how a given room's acoustics will affect a speaker's sound. Therefore, make absolutely certain you can exchange the speakers after you try them at home. A dealer may also be able to recommend ways to change the acoustics of your listening room to achieve a desired result.

### THE AUDIO-VIDEO BUG

That pinch you feel as you fire up your new system is the audio-video bug biting. Pretty soon you'll be thinking of ways to upgrade your system and, to that end, reading *HIGH FIDELITY* to stay abreast of the latest developments in audio and video. If you own a VCR or monitor TV, for instance, the first thing you might consider is running its audio output through an extra input on your receiver or amp (if your audio and video equipment is in the same room). Many people are taking better advantage of the high-quality sound from Hi-Fi VCRs and stereo TV in this way, while deciding whether to invest in a complete surround-sound setup. Given the unceasing flow of titillating new products, it is unlikely you'll be able to resist buying *more*. □



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Edited by Ted Libbey  
and Ken Richardson

## Playing the Game

**T**hey dared me to write about the World Series again, which will be long over by the time you read this. . . . But there *is* something about the Series that appeals to the chronicler in me: an epic dimension that can be compared with Wagner's *Ring*, Beethoven's *Nine* (now *there's* a good name for a ball club), or anything by Handel. In a sense, the Series is a rite of passage. It marks the passing of summer. (Ask your average fan what *The Rite of Spring* is, and he'll probably tell you it's Opening Day.) For those of us who love both music *and* baseball, the Fall Classic heralds the end of the season of hits, runs, and errors, and the beginning of another one devoted to symphonies, operas, and recitals.

If I wax rhapsodic here, it's partly because a gentleman who was once a professor of mine, and a mentor, A. Bartlett Giamatti, just became Commissioner of Baseball. In those years, his job was to fill students' heads with as many correct notions of history, the arts, and letters as they were capable of absorbing. He probably didn't suspect that my two favorite places in the world were the ballpark and the opera house. I *certainly* didn't suspect that he would one day be the commissioner. What were we *doing* at Yale, anyway?

Learning, of course. And a love of learning—about music, art, literature, or any other subject—should never be incompatible with a love of the game. Giamatti's success in combining the two convinces me that my own similar blend of interests is no fluke. Indeed, it is probably much closer to a necessity that, having had the good fortune to be exposed to such things, I should have responded to the brilliance of a Jim Palmer or the virtuosity of a Brooks Robinson with the same delight I felt every time I witnessed the exceptional control of a Pavarotti or the power of a Rostropovich. It's all part of loving the game. And it fits right in with the fact—surely no coincidence—that music is *played*, just as baseball is.

For me, the World Series also means that it is time once again to go on my annual road trip auditioning ensembles for the United States Information Agency. Although I was never in the musical big leagues, I get to be a scout each autumn for a one-of-a-kind program that sends American musicians on overseas tours. It is called the Artistic Ambassador program, and it has compiled quite a record during the past five years.

How good a record? Well, if you figure that a batting average of .333, which is considered outstanding, means you get a hit once every three trips to the plate, the musicians this program sends out have been batting about .997 for the past five seasons. That's not bad for a team average. In fact, it's a winning statistic if I ever heard one.

Ted Libbey

## Rock 'n' Soul, Part 2

**T**hey're something kin to the last surviving cowboys. But never, *never* call them roadies. "That's like calling us *chicks*," says one of the 17 behind-the-scenes road technicians who help make the magic of a Daryl Hall and John Oates concert happen. "We don't just appear, set up gear, then slug down beer. It's a lot more sophisticated these days."

Indeed. With more than a million dollars worth of equipment—including invaluable instruments like Hall's two Mandars, custom-made electric-mandolin guitars—a mistake can be deadly. "Sometimes I have 25,000 to 30,000 pounds of equipment hanging over the musicians' heads," explains Ed Wannebo, Hall and Oates's production manager and a shark efficiency expert. "From the moment Daryl and John walk onstage, they gotta know they can trust us."

Trust comes from expertise. Wannebo is a 15-year road vet; lighting/set designer Steve Cohen worked 12 years for Billy Joel; soundman Randy Siegmester paid heavy dues with Anita Baker. Running 16-hour days, three to four days nonstop, they deal with wildly varying hall acoustics, blown-up speakers, lost parts, power shortages, and stages too small for the set. Add to that unruly, if not enigmatic, local labor and you have very interesting days. "In Japan," moans Wannebo, "if you set it up wrong the first day, the Japanese crew will set it up *perfectly* wrong every day thereafter."

But best job on tour—last to show, first to go—is that of instrument technician. Guys like Pete Moshay, Robbie Eagle, Tom Ganoung, and Dallas Schoo, savvy musicians themselves, not only set up guitars, drums, and keyboards but also soundcheck them, repair them, and often play extra instruments (or program computers) backstage during the concert. Their nightmares include bum strings, sticky keys, loose screws, and—during the Stateside swing this past summer [see last month's "Rock 'n' Soul, Part 1"]—the kind of heat that can trigger synthesized backbeats and choruses way out of sync.

"But no matter what happens, Daryl and John are great," says Moshay. "They never get upset onstage, and if they do get upset later, they never take it out on us."

Still, it's an exhausting life: high pressure, very little glamour. Even the backstage passes these days are given out more to couples than to the proverbial pretty girls. So where's the beef?

"We make a lot of money in a short time," replies Wannebo. "And there's great camaraderie here. But the real joy is the challenge of adapting to a million different circumstances in a hundred different cities. And when the lights go down and the fans are on their feet, it's a scream."

Pamela Bloom

# REBUILDING

in

# BALTIMORE



During a recent session, Zinman (right) confers with cellist Yo-Yo Ma.

**I**n a world where big-time music-making is synonymous with politics and the hard sell, David Zinman, who is currently music director of the Baltimore Symphony Orchestra, remains a purist. Despite thousands of appearances with leading international ensembles and a reputation as a builder of orchestras, with numerous conducting and recording awards to his credit, Zinman has never sought a post with one of the "Big Five" American orchestras, nor has he hired a press agent. Consequently, many insiders do not consider him a luminary, which is just fine with Zinman.

"Being 'David Zinman—superstar' is not my program. It's simply not what I'm after," he said recently. "I've had people say, 'You should be more mean' or 'You should be more aggressive about your career.' The career will happen or it won't happen. Everybody's trying to get somewhere. I'm not trying to *get* anywhere. I am trying to do certain things: things that

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## *The Zinman era resounds with recordings of Berlioz, Britten, and Rouse.*

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I find rewarding, things that I hope make good music. If something I do brings me a certain amount of glory, or if people know me in any way because of it, well, that's good, because maybe that will give me the opportunity to do other things I want to do. But I would never do anything just for the sake of being famous, or rich. It's not who I am."

While musicians have praised Zinman's artistic vision, his talent has elicited both cheers from a rapidly growing audience and skepticism from some who distrust his lack of careerism. Unlike today's rather typical American maestro, who

fuels a career with money and publicity as he or she leapfrogs from one orchestra to the next, Zinman's aim is to build, rather than exploit, orchestras—and in so doing to establish a performance legacy that will remain with the ensembles long after he has gone. It is, ironically, a much loftier goal than the acquisition of fame, and one that Zinman has pursued all of his professional life.

A Brooklyn native reared in the Bronx, Zinman began conducting as a student at New York's High School of Music and Art and by 1958 had become a protégé of French conductor Pierre Monteux (1875–1964). His association with Monteux afforded him the opportunity to establish himself in Europe, where he thrived in an artistic environment that fostered his independent spirit and allowed him to hone his skills through long-term relationships with a few choice orchestras. He remained in Europe for two decades, serving as music director of the Nether-

By Randy Banner

# REBUILDING BALTIMORE

lands Chamber Orchestra and the Rotterdam Philharmonic and winning two Grand Prix du Disque awards and an Edison award for his recordings.

Zinman made his American debut in 1967 with the Philadelphia Orchestra and returned to the United States permanently in 1973 to conduct the Rochester Philharmonic, an orchestra then on the brink of collapse. Seizing the opportunity offered, Zinman revived the orchestra's spirit and rebuilt its technical foundations. Eleven years later, when he had "taken the orchestra as far as it would go," he left to become music director of the Baltimore Symphony.

As had been the case in Rochester, the Baltimore orchestra was in serious financial straits, even if, artistically, it was on more solid footing. This time, Zinman's aim was not merely to bolster the group's reputation and help it weather a budget crisis, but to achieve a level of artistic excellence that would bring Baltimore into the ranks of the country's top orchestras. Last year, the conductor signed a new six-year contract with the orchestra, shortly

after the successful completion of a \$40-million endowment drive in which he had taken an active role. During his tenure in Baltimore—which already has seen tours of Europe, the Soviet Union, and the United States with the orchestra—Zinman intends to introduce a substantial repertoire of new American works and to reinterpret and record all of Beethoven's symphonies.

Zinman's first recording with the Baltimore, of an all-Berlioz program, has been released by Telarc and is reviewed below. Scheduled for release in January by CBS Masterworks is Zinman's second recording with the orchestra, a disc of Britten's *Symphony for Cello and Orchestra*, Op. 68, and Barber's *Concerto for Cello and Orchestra*, Op. 22, both with Yo-Yo Ma as soloist. For Nonesuch, Zinman and the orchestra have also recorded works by Christopher Rouse, a Baltimore native who is currently the orchestra's composer-in-residence; the release is slated for next spring.

Beyond immediate business, Zinman, at 52, is doing what he has always done: making music according to his own ethics

and tastes. Whether his career will eventually lead to a position with one of the so-called "Big Five" remains to be seen; it would certainly be a mistake to rule him out at this point. He has been a regular guest conductor for several years with the Philadelphia Orchestra, and he frequently leads other ensembles in the top echelon, both in scheduled performances and as a substitute. While Zinman acknowledges the possibility of someday taking over one of these orchestras, he regards such a step as merely a component, rather than the fulfillment, of a larger career-mosaic.

"When I signed this contract [in Baltimore], a reporter asked, 'Isn't this awful, because you won't be free if someone asks you to go to Chicago or Philadelphia?' And I said quite simply, 'If they want me, they'll have to wait for me.' The big orchestras are wonderful groups and their quality is obvious. But they do not have a monopoly on talent or beauty. Right now, I am doing what I want. And if you do what you want, if you have talent, and if you are true to that talent, the mountain will come to Mohammed." □

## BERLIOZ: *Orchestral and Choral Works*.

McNair\*, Leech\*; *Boys Choirs of St. David's Episcopal Church and St. Michael and All Angels\**, Baltimore Symphony Chorus\*, Baltimore Symphony Orchestra, Zinman. Robert Woods, prod. Telarc CD 80164 (D).

*Overture to "Benvenuto Cellini"; Love Scene from "Roméo et Juliette"; Minuet of the Will-o'-the-Wisps, Dance of the Sylphs, and "Rákóczy" March from "La Damnation de Faust"; Le Corsaire; Trojan March and Royal Hunt and Storm from "Les Troyens"; Hymne des Marseillais\**

The exploration of style is David Zinman's métier, and he pursues it with typical passion on this new Telarc CD featuring an assortment of works by Hector Berlioz. The disc, Zinman's inaugural recording as music director of the Baltimore Symphony Orchestra, is also the first recording to be made in Baltimore's Joseph Meyerhoff Hall, which opened in 1982. It is a well-programmed, sensitively performed, yet acoustically problematic offering.

Approaching Berlioz as a "period" stylist is natural for Zinman, who is currently striking a blow for the authentic interpretation of Beethoven's symphonies—albeit on modern instruments—by sticking to the composer's metronome markings in performance

and adopting late-18th-century conventions about articulation and other elements of expression. In these readings of Berlioz, the emphasis is on disciplined elegance and sweeping line. The apparent goal is to present the music as it might have been heard in its own time and place.

The love scene from *Roméo et Juliette* is intensely romantic yet "contained" in its emotion; it has none of the anachronistic *Weltschmerz* common to many recordings of the music. The more declamatory pieces—which include the *Overture to Benvenuto Cellini*, three excerpts from *La Damnation de Faust*, the "Trojan March" and "Royal Hunt and Storm" from *Les Troyens*, and the overture *Le Corsaire*—are played with thrust and power, though not abandon. Despite the brilliant textures and passionate themes encountered in these pieces, Zinman and the orchestra maintain a stylish sobriety in their accounts. The ethereal, whimsical "Minuet of the Will-o'-the-Wisps" and "Dance of the Sylphs" from *La Damnation de Faust* are presented more playfully, but with no less control. The most interesting treatment here is of the *Rákóczy* March, a composition that pays homage to the Classical period; the performance successfully blends Berlioz's sensibilities with the more measured

manner of his musical predecessors.

The disc concludes with the French composer's arrangement of "The Marseillaise," successfully presented as a blaring, driving anthem. There is a clear understanding on the part of conductor and orchestra—one that is shared, apparently, by soloists Sylvia McNair and Richard Leech and the Baltimore Symphony Chorus—that the work's goal is to stir emotionally rather than pique intellectually. It is played with the heartfelt energy of the streets rather than the rarefied sentiment of the concert hall.

The performances overall are distinguished by good ensemble and by cleanness of line: Zinman appears to be succeeding in teaching what has always been a very musical orchestra to be an expert one as well. Unfortunately, the recorded sound is generally dull and occasionally muffled. Even in the most strident works, a sonic haze compromises what should be clear. It is difficult to know whether the problem lies with Telarc and its engineering or with Meyerhoff Hall, which, while it is one of the country's most consistent and comfortable concert venues, is not among its most vibrant. Future recordings by the orchestra—in other locations and for other labels—should give a clearer indication of the problem's cause. Playing time: 73:52. R.B.

# Great BRITTEN

Benjamin Britten (seated)  
and Peter Pears



yan was roundly panned by the critics after its premiere performances in New York. Dissatisfied with Auden's wordy, self-consciously clever libretto and disappointed by the unsympathetic notices, Britten withdrew the work. During his final illness, however, he decided that *Paul Bunyan* was worth preserving and, after making minor revisions, he released it for performances on the BBC and at the Aldeburgh Festival in 1976. The operetta has since been produced with great success by the Opera Theatre of Saint Louis and performed in a semistaged version by the Plymouth Music Series, a St. Paul-based choral and orchestral society.

A recording of the Plymouth Music Series production on Virgin Classics, the ambitious new British label, leaves no doubt as to why the New York critics found *Paul Bunyan* puzzling. What Britten and Auden were trying to do was to create a convincingly vernacular American operetta style out of thin air—much the

same thing Rodgers and Hammerstein would do on a far more modest scale two years later in *Oklahoma!* The stylistic challenge these two transplanted Englishmen set themselves was enormous, and Auden's high-flown poetic diction and shaky grasp of operatic structure (this was his first libretto) were not yet equal to the task. Britten, however, handled his end with typical virtuosity, moving easily and idiomatically from guitar-accompanied

**B**enjamin Britten preferred whenever possible to compose for a select group of distinguished singers and instrumentalists with highly personal performing styles, among them Peter Pears, Kathleen Ferrier, Dietrich Fischer-Dieskau, Janet Baker, Galina Vishnevskaya, Mstislav Rostropovich, Dennis Brain, and Julian Bream. Britten himself was an extraordinarily gifted pianist and conductor, who usually took part in the first performances and recordings of his major works. At the time of his death in 1976, Britten and his chosen collaborators had recorded most of his music for Decca (known in this country as London). These recordings, many of them produced by John Culshaw, were invariably of the finest artistic and technical quality, and record reviewers—even those who had little taste for Britten's music—customarily hailed them as "definitive."

A truly definitive recording, of course, cannot be bettered, and far too many record companies, taking the reviewers at their word, stayed as far away as possible from Britten's music during his lifetime. After his death, though, Decca gradually deleted most of the composer's recordings, and while some of them have since been reissued on cassette and Compact Disc, their temporary absence from the catalog cleared the way for a new generation of in-

An impressive array of recent releases includes two premiere recordings.

terpreters to enter the studios. As a result, the last few years have seen a welcome resurgence of interest in Britten's music on the part of record labels—as well as the release of a number of works, some of them major, that Britten and his colleagues did not record.

By far the most ambitious of these latter efforts is the first recording of *Paul Bunyan*, an operetta Britten composed in 1941 to a libretto by W. H. Auden. *Bun-*

BY TERRY TEACHOUT

balladry to elaborate choral strophes to an elegantly mournful eight-bar blues.

Virgil Thomson, writing in 1941, dismissed the music for *Paul Bunyan* as "sort of witty at its best. Otherwise it is undistinguished." Listening to this superb recording, it is difficult to see what Thomson, who never had much use for Britten's music, could possibly have had in mind. *Bunyan* has all the freshness and high spirits of a brilliant young composer at the top of his form, and it is a pleasure to have it on disc at last. The performance, conducted by Philip Brunelle, is crisply confident, and although some of the singers lay on the popular mannerisms a trifle too heavily, the manifold beauties of this charming operetta come through unscathed. The fat accompanying booklet contains the complete libretto, a short essay written by Auden for *The New York Times* on the occasion of the work's premiere, and a lengthy appreciation and analysis by Donald Mitchell, Britten's authorized biographer. Producer Steve Barnett's digital sound is clear and close.

Also new from Virgin Classics is a CD of Britten's unaccompanied choral music that includes the first recording of *A.M.D.G.*, a cycle of seven part-songs on texts by the Jesuit poet Gerard Manley Hopkins. (The title, a motto of the Jesuit order, stands for "Ad majorem Dei gloriam," Latin for "To the greater glory of God.") Britten withdrew *A.M.D.G.* prior to publication, for unknown reasons, and it does not seem to have been publicly performed until 1984. Composed in 1939, the work is not as immediately attractive as *A Ceremony of Carols* or *Hymn to St. Cecilia*, both written three years later, but it is nonetheless a substantial and satisfying musical discovery in its own right.

Terry Edwards, artistic director of the British avant-garde vocal ensemble Electric Phoenix and conductor of the London Sinfonietta Chorus (among others), leads the latter group and the Choristers of St. Paul's Cathedral in shapely performances of *A.M.D.G.*; the 1944 a cappella work *A Shepherd's Carol*, on a text by Auden; and *A Boy Was Born*, an ingeniously scored set of "choral variations" that Britten composed when he was only nineteen years old. Edwards also sings bass in a lovely *Hymn to St. Cecilia* performed by five solo singers dubbed the London Sinfonietta Voices. Those who wish to hear Britten's most exquisite piece of unaccompanied choral writing sung madrigal-style will find this account thoroughly engaging, but *Hymn to St. Cecilia* gains immeasurably from the intended contrast between solo voices and full ensemble, and Edwards missed a bet by not recording it with

the entire London Sinfonietta Chorus.

Angel EMI has recently added two new CDs to its Britten catalog. The first, featuring Felicity Palmer and Jill Gomez, is a coupling of *Phaedra*, a solo cantata for mezzo-soprano and chamber orchestra composed in 1975 for Janet Baker, and *Les Illuminations*, a 1939 cycle for high voice and strings on Symbolist poems by Arthur Rimbaud. The competition here is fierce, for Baker recorded *Phaedra* shortly after its premiere, and Peter Pears recorded *Les Illuminations* twice—once in mono with Sir Eugene Goossens conducting, the second time in stereo with Britten.

Although Palmer gives an excellent performance of *Phaedra*, she adds few interpretive insights to those already enshrined in Baker's remarkable recording.

Gomez's characterful *Les Illuminations* is another matter entirely, for this cycle was composed specifically for a soprano, the only kind of voice that can ride above Britten's bold string writing with ease. Her wonderfully pungent singing is full of intelligence and intensity. *Les Illuminations* ideally requires a slightly larger body of strings than that provided by the Endymion Ensemble, but John Whitfield is an outstanding conductor, and both works are played beautifully. The filler is a fine performance by Palmer of the orchestral versions of five of Britten's French folksong arrangements.

Angel's other new Britten CD is a long-overdue midprice transfer of Uri Segal's 1982 recording with the Bournemouth Symphony Orchestra of orchestral suites from *Gloriana*, Britten's only unrecorded opera, and from *The Prince of the Pagodas*, the ballet score he composed in 1956 for John Cranko and the Royal Ballet. While *The Prince of the Pagodas* is not quite top-drawer Britten, *Gloriana* is a marvelously theatrical retelling of the story of Elizabeth and Essex, and this handsome suite whets one's appetite for a recording of the complete opera. The Bournemouth Symphony may be a second-tier ensemble, but the playing and conducting on this well-made CD are in no way provincial.

Hyperion, Great Britain's most imaginative small label, offers an integral recording by Timothy Hugh of the three unaccompanied cello suites that Britten composed for Mstislav Rostropovich. The Russian-born cellist/conductor recorded the first two suites for Decca, and his performances are as close to perfection as can be imagined, but Hugh is a top-notch player who gives full value in all three works. Until Rostropovich finally gets around to recording Opus 87, this CD will serve quite nicely. . . .

Which leads to an all-important question: How did Decca's Britten CD series get sidetracked? The only CD reissues that have appeared to date are *Peter Grimes*, the *War Requiem*, a disc of orchestral song cycles sung by Pears, and another of orchestral music. Britten's rich recorded legacy is comparable in historical importance to those of Elgar, Strauss, Rachmaninoff, Stravinsky, and Copland. His recordings belong on CD—all of them, and as soon as possible. Fortunately, Decca has just announced plans to issue *Albert Herring*, *Billy Budd*, the piano and violin concertos, the *Spring Symphony*, and the complete *Prince of the Pagodas* on CD in 1989, with "the greater part of Decca's recordings of works by Britten" appearing in England in the next two years. Let's hope London promptly follows suit here. □

**BRITTEN: Paul Bunyan, Op. 17.**

Wagner, Lawless, Dressen, Nelson,  
 ① Ware, various artists; Orchestra and Chorus of the Plymouth Music Series, Brunelle. Steve Barnett, prod. Virgin Classics VCD 7 90710-2 (D, 2). © (2). □ (2).

**BRITTEN: A Boy Was Born, Op. 3\*;**

Hymn to St. Cecilia, Op. 27†;  
 A.M.D.G.‡; A Shepherd's Carol\*\*.  
 ① Miller\*, Jones\*\*, Hall\*\*, Bickley\*\*, Leonard\*\*; London Sinfonietta Chorus\*\*\*, London Sinfonietta Voices†, Choristers of St. Paul's Cathedral\*, Edwards. Terry Edwards, prod. Virgin Classics VC 7 90728-2 (D). © □

**BRITTEN: Les Illuminations, Op. 18†;**  
 Phaedra, Op. 93\*†; French  
 Folksongs (5)‡.

① Palmer\*†, Gomez†; Endymion Ensemble, Whitfield. Andrew Keener, prod. Angel EMI CDC 49259 (D).  
 Folksongs: La Belle est au jardin d'amour; Éhol Éhol; Fileuse; Quand j'étais chez mon père; Le Roi s'en va-t'en chasse.

**BRITTEN: Gloriana (Symphonic Suite), Op. 53a; Prelude and Dances from "The Prince of the Pagodas" (arr. Del Mar).**

① Bournemouth Symphony Orchestra, Segal. John Willan, prod. Angel EMI CDM 69422 (D).

**BRITTEN: Suites for Cello: No. 1, Op. 72; No. 2, Op. 80; No. 3, Op. 87.**

① Hugh. Thomas Daye, prod. Hyperion CDA 66274 (D). □ (Distributed by Harmonia Mundi, U.S.A.)



## MINI-REVIEWS OF THE LATEST COMPACT DISCS

By David Hurwitz, Christopher Rothko, Terry Teachout, and James Wierzbicki

### **COPLAND CHAMBER WORKS: BOSTON SYMPHONY PLAYERS**

The Boston Symphony Chamber Players are in outstanding form for these recordings of two of Copland's very best pieces of chamber music: the 1950 Piano Quartet and the Sextet, a 1937 arrangement for clarinet, piano, and strings of the *Short Symphony*. The Sextet was prepared because American orchestras found the original version too rhythmically complex to play. Now that groups like Orpheus are capable of waltzing through the *Short Symphony* without benefit of conductor, the sextet version makes less sense, but it is still a pleasure to hear in its own right, and anyone who prefers *Appalachian Spring* in its original 13-instrument version will delight in the vigorous small-group sonorities that Copland conjures up here.

Also included is a thoughtful solo performance of Copland's 1930 *Piano Variations* by Gilbert Kalish, who treats this masterpiece quite freely, adding nearly two minutes to the usual running time. The results are quite persuasive but noticeably short on grit. Michael Steinberg's liner notes are superb. Playing time: 47:56. (Nonesuch 79168.) *T.T.*

### **BACH VIOLIN SONATAS AND PARTITAS: KUIJKEN**

Sigiswald Kuijken's recording of the Bach sonatas and partitas for solo violin is the only period-instrument performance of these works currently available on CD, and it is certainly worthy of having the field to itself. Tempos are generally brisk, though never uncomfortably so; the slow movements in particular benefit from this steady pulse, which refuses to let them wander and helps to emphasize the shape of their lines. Phrasing is the key to these often enigmatic works, and Kuijken's is always purposeful and forward-thrusting yet never combative. He handily replaces the Romantic flourishes of many other accounts with a light touch and certainty of direction.

Kuijken makes his instrument sing through the sonatas and dance through the partitas, with sprightly rhythms and impressive technique, and his full, rich tone is without a trace of the anemic character that sometimes plagues Baroque strings. The recorded sound on the two discs is quite natural and captures the violinist up close in a reverberant acoustic.

These works allow for an infinite variety of approaches: Kuijken's belongs near the top of the list. Playing time: 128:47. (Angel EMI/Deutsche Harmonia Mundi CDCB 49290.) *C.R.*

### **ALBÉNIZ "IBERIA": DE LARROCHA**

Instead of remastering her celebrated analog recording of Isaac Albéniz's *Iberia*, London elected to send Alicia de Larrocha into the studios to do a digital remake. The results, as one can hear from the very first bars of "Evocación," are more rhythmically willful than either of the pianist's earlier recordings of this suite. The playing remains extraordinary in its technical command, however, and Paul Myers's digital sound is a considerable improvement on the old analog versions. Whatever the recording, you can't miss with De Larrocha's *Iberia*. Her playing reeks of guitars and castanets and rich red blood. The generous fillers on this two-disc set are equally compelling performances of *Navarra* and the *Suite española*. Playing time: 125:30. (London 417 887-2.) *T.T.*

### **BOULEZ "DOMAINES": ENSEMBLE MUSIQUE VIVANTE**

Pierre Boulez's *Domaines*, originally designed in 1968 as a work for solo clarinet, found its way onto vinyl rather quickly after it was revised and expanded later that year, and again in 1970, for clarinet and 21-piece chamber orchestra. However long Harmonia Mundi's 1971 recording—featuring the Ensemble Musique Vivante under the direction of Diego Masson—has been out of print, it's been long enough to make this CD reissue seem like a godsend. The breath noise in Michel Portal's clarinet playing is, unfortunately, exaggerated here, and distortion clouds the peaks of some of the loudest unaccompanied passages. Still, this remains an extraordinarily fresh and vibrant performance of one of the landmarks of post-World War II music. Playing time: 30:19. (Harmonia Mundi HMA 190930. Distributed by Harmonia Mundi, U.S.A.) *J.W.*

### **SCHÜTZ, PRAETORIUS CHORAL WORKS: TAVERNER, PARROTT**

Andrew Parrott's recording of Schütz's *Weihnachtshistorie* (*Die Geburt unsers Herren Jesu Christi*, S.W.V. 435) is by no means the first, but there is little question

that it is the best. This deceptively simple piece is in fact quite dramatic, with multi-textured choral and instrumental writing and poignant recitative. Nigel Rogers, as the Evangelist, highlights these aspects of the oratory, demonstrating once again that he is unmatched in the declamatory singing of this period (witness his Monteverdi). Parrott has an excellent sense of the work's overall shape; he makes the most of the instrumental parts, blending and contrasting them with the choir and infusing the music with an undeniable dynamism. The choral singing is bright and clear.

Four large, colorful motets by Praetorius complete the disc in majestic fashion. These are full-scored, celebratory pieces with multiple choirs of voices, strings, and brass that intermingle to produce a rich sonic tapestry. Parrott performs them quite effectively, with the exception of *In dulci jubilo*, which he makes a rather bombastic affair. The recorded sound is clean and atmospheric. Playing time: 60:01. (Angel EMI CDC 47633.) *C.R.*

### **FLUTE WORKS: GRAF, URSULA HOLLIGER**

Swiss flutist Peter-Lukas Graf is one of the many European musicians who have been able to maintain impressive careers without ever bothering to set foot in the United States. We know Graf's work chiefly through the dozen or so recordings he has made for the Swiss label Claves, some of which have lately been reissued on Compact Disc. On Claves CD 50-808, for example, he can now be heard in concertos by J. J. Quantz (1697–1773) and Karl Stamitz (1745–1801), recorded in 1978 with the Zurich Chamber Orchestra, and in the Concerto in B flat of Joseph Stalder (1725–1765), recorded with the Württemberg Chamber Orchestra of Heilbronn five years later. Graf teams up with harpist Ursula Holliger on CD 50-708, a longish 1977 recital program of transcriptions of works by Rossini, Donizetti, Spohr, Fauré, and Paganini plus the *Four Medieval Dances*, Opus 45, of the little-known early-20th-century Swiss composer Joseph Lauber. As if that weren't enough of the sweet stuff, Holliger on her own performs Fauré's Opus 86 *Impromptu*. In all of these pieces, Graf's playing (and Holliger's too) is the very essence of propriety: His musicianship and technique are reliably excellent, and his interpretive stance

is solidly in the middle of the proverbial road. Playing times: 62:09 (Claves CD 50-808); 67:16 (Claves CD 50-708). Distributed by Qualiton Imports, Ltd.) *J. W.*

### **BARTÓK, HINDEMITH ORCHESTRAL WORKS: BERLIN, KARAJAN**

Here's an interesting bit of recording history: When Wilhelm Furtwängler died in 1954, leaving the Berlin Philharmonic without a conductor, Herbert von Karajan left England's Philharmonia Orchestra and dashed to Germany to take over the post, which long had been denied him by the elder conductor's hostility. This 1957 recording of Hindemith's *Mathis der Maler* Symphony, a piece premiered by Furtwängler with the same orchestra, was one of the first products of the Karajan/Berlin partnership, and the choice was surely no coincidence. It is not an especially good performance, however, and Karajan has recorded very little Hindemith since. This composer's total lack of concern for the more sensuous aspects of sound seems to baffle Karajan, who here is efficient as usual, but little else.

Bartók's *Music for Strings, Percussion, and Celesta* has been recorded twice by Karajan and the Berlin; though this account is the better of the two, neither is competitive with Fritz Reiner's Chicago Symphony version (RCA 5604-2). Moreover, both the Bartók and the Hindemith sound faded: The strings are thin and scrappy, the flutes hollow, and the timpani and percussion simply unspeakable. Oddly enough, critics have recommended this coupling for years, probably because of a lack of competing *Mathis* recordings. Never mind—now that Reiner's Bartók and Jascha Horenstein's London Symphony performance (Chandos CHAN 8533) have been reissued, Karajan's accounts just aren't worth it. Playing time: 55:29. (Angel EMI CDM 69242.) *D. H.*

### **WALTON VIOLA, VIOLIN CONCERTOS: KENNEDY**

The perfect Walton coupling in a performance as close to perfection as anyone could want. Nigel Kennedy sails through the technical obstacles of these virtuoso showpieces (the Violin Concerto was written for and edited by Jascha Heifetz) with the kind of aplomb that permits the listener to focus exclusively on their countless musical charms. André Previn and the Royal Philharmonic Orchestra, old Walton hands both, leave nothing to be desired as collaborators. Excellent sound by Andrew Keener, excellent liner notes by Christopher Palmer. The Viola Concerto is heard in Walton's revised 1961 orchestration. If this CD doesn't convince you that Walton was a first-rate composer, nothing will. Playing time: 56:47. (Angel EMI CDC 49628.) *T. T.*

### **VERDI REQUIEM: ATLANTA, SHAW**

Robert Shaw, who stepped down as music director of the Atlanta Symphony Orchestra in June, has capped his tenure with a sensational recording of Verdi's *Messa da Requiem*. Shaw's utterly straightforward interpretation is clearly cast in the Toscanini mold. (Shaw prepared the choruses for all of Toscanini's postwar Verdi Requiem performances.) The choral work is thrilling. Susan Dunn, Diane Curry, Jerry Hadley, and Paul Plishka may not be the greatest solo quartet ever assembled, but within the context of Shaw's conducting they sound like exactly what the composer ordered. Recorded in Telarc's very best all-digital sound, this performance beats every other studio recording of the work hands down. Five of Verdi's operatic choruses, including "Va, pensiero," fill up the second disc. The Requiem's "Dies irae" and "Liberate me" are indexed in the booklet; only the "Dies irae," however, is indexed on the disc itself. Playing time: 113:24. (Telarc CD 80152.) *T. T.*

### **LULLY "PETITS" MOTETS: LES ARTS FLORISSANTS, CHRISTIE**

We know Jean-Baptiste Lully primarily for his pioneering work in opera, but on the evidence of this new Harmonia Mundi disc of his "petits" motets, he was no mean composer of sacred music either. The 11 motets presented here vary from the buoyant *Omnes gentes* and *Regina coeli* to the more plaintive *Salve Regina* and *O sapientia*, and the program as a whole makes for a thoroughly uplifting listening experience. In these works, the Italian-born Lully has combined the long-spun lines and structure of the Italian sacred style with rhythms and harmony more characteristic of French writing.

William Christie and Les Arts Florissants turn in strong performances. The singing is very accomplished; only tenor Jean-Paul Fouchecourt shows an occasional technical weakness. Of special note are sopranos Monique Zanetti, Arlette Steyer, and Marie Boyer, several of whose trios are distinguished by positively angelic delivery. The sound on the disc is clear and well balanced. Listeners who enjoy these pieces should also seek out the Philippe Herreweghe/Chapelle Royale recording of Lully's "grands" motets, on the same label. Playing time: 64:30. (Harmonia Mundi HMC 901274. Distributed by Harmonia Mundi, U.S.A.) *C. R.*

### **BRITISH BAND MUSIC: ROYAL AIR FORCE, BANKS**

Wing Commander Eric Banks leads the Central Band of the Royal Air Force in a well-filled CD devoted to Holst's two suites for band, Vaughan Williams's *English Folk Song Suite*, and Grainger's *Lin-*

*colnshire Posy*, a miracle of imaginative scoring that makes everything else ever written for band sound square and lumpy by comparison. A Vaughan Williams march and four Grainger miniatures fill out the disc. These performances lack the crisp brilliance of Frederick Fennell's old Mercury recordings of this repertory with the Eastman Wind Ensemble, but they are perfectly satisfying all the same. Very good notes by Imogen Holst (the composer's daughter), Geoffrey Crankshaw, and Wing Commander Banks himself. Playing time: 71:30. (Angel EMI CDC 49608.) *T. T.*

### **"FRITZ KREISLER PLAYS ENCORES"**

This Pearl CD contains 19 of Fritz Kreisler's early electrical recordings of his celebrated encore pieces and transcriptions together with an acoustic recording of his *Dittersdorf Scherzo*. The overlap with RCA's 1987 CD *The Immortal Fritz Kreisler: Legendary Performances* (5910-2) is minimal. Although the pianists are not listed, Carl Lamson, who accompanied Kreisler on his North American tours, is heard on all but two tracks. The transfers are noisy, but the playing is the thing, and anyone who knows Kreisler only from the performances he recorded for HMV in the late 1930s will find the technical security of, say, his 1926 *Caprice viennois* to be revelatory. A sequel is in order, as are CD versions of Kreisler's indispensable early electrical recordings of the Beethoven, Brahms, and Mendelssohn concertos. Playing time: 68:26. (Pearl GEMM CD 9324. Distributed by Qualiton Imports, Ltd.) *T. T.*

### **"ANDRÉS SEGOVIA: 1927-1939 RECORDINGS"**

These recordings prove that the young Andrés Segovia was every bit as good as his reputation. He remained before the public too long, and RCA did him a disservice by recording him in extreme old age. This recent reissue erases unhappy memories of Segovia's later performances and replaces them with the unforgettable sound of a phenomenal virtuoso at work. The fare is typical Segovia: Bach and Mendelssohn arrangements; early guitar music by Sor and De Visée; Latin lollipops by Albéniz, Torroba, Turina, Granados, and Ponce. Like Pablo Casals, his great contemporary, Segovia was all but deaf to the music of the 20th century, and he never recorded any of the major works his artistry inspired. Still, he remains the paragon of Spanish guitar playing, and these recordings capture him at his early peak. The two discs, packaged separately, contain identical notes by John Duarte. Playing times: 61:04, 58:44. (Angel EMI CDH 61048, CDH 61049.) *T. T.*





Superb singing—and some striking likenesses—from (left to right) Sanford Sylvan, James Maddalena, Thomas Hammons, and Carolann Page

## “NIXON” GOES ON RECORD

ADAMS: *Nixon in China*.

① Sylvan, Maddalena, Hammons, Page, Duykers, Craney, various artists; Orchestra of St. Luke's, De Waart. Wilhelm Hellweg, prod. Nonesuch 79177 (D, 3). (3). □ (2).

Opinion was varied after John Adams's first opera, *Nixon in China*, was given its world premiere by the Houston Grand Opera in October 1987. Some partisan reviewers attested that this quasi-Minimalist treatment of former president Richard M. Nixon's historic 1972 rendezvous with Mao Tse-tung—conceived and directed by Peter Sellars, with a libretto by Alice Goodman—was the greatest invention since air-conditioning. Others, equally partisan, claimed that *Nixon in China* was just one more proof that the Minimalist genre is wholly incompatible with an art form so maximally complex as opera. The array of opinions included those of skeptics who went into the performance doubting that Adams could pull it off but left it feeling convinced that, to a certain extent, he had; it also included the opinions of Adams admirers who regarded the work as in one way or another disappointing.

I belonged to the last-mentioned group. Judging only from that single exposure on opening night in Houston, I found

myself far more impressed with the opera's concept and text than with its music. For an opera to be based on the deeds of still-living persons was in itself highly unusual; that it should focus on so controversial a figure as Nixon, in a way that sympathetically limned the perpetrator of the Watergate caper as a romantic hero, seemed preposterous. Yet, surprisingly, it worked. This was indeed a richly intimate portrait of a politician most of us remember only from his questionable public words and actions. The portrayal may or may not have been accurate, but that was beside the point. This was opera, not biography, and the character of Nixon was generously endowed with many of the qualities—among them ambition, pride, idealism, vulnerability, naiveté—that make for a viable operatic protagonist.

Nixon at least had those qualities, on paper, in the plot outline and stage action designed by Sellars, and in the wonderfully literate libretto—in half-rhymed octosyllabic couplets—penned by Goodman. It was only in Adams's score, unfortunately, that Nixon and the other principal *dramatis personae* (Nixon's wife Pat, Henry Kissinger, Chairman Mao, Chou En-lai, Madame Mao) seemed two-dimensional. The problem lay not with the music's re-

petitiveness or harmonic simplicity—Philip Glass had already demonstrated, in *Satyagraha* (1980) and *Akhmaten* (1984), that the Minimalist vein is actually a mother lode of opportunity for characterization, mood setting, and theatrical tension and release. Rather, the problem had to do with Adams's lapsing into “expressive” formulas that barely broke the surface of the deep pools of emotion provided him by Sellars and Goodman. There was music for elation, music for self-doubt, music for reflection, and so on, and it was trotted out for scene after scene, regardless of how probingly these emotions were explored by the librettist.

On the small scale, Adams's score had a great deal of sonic and rhythmic variety, much more so than is contained in Glass's major operas; in the long run, though, it came across as unchanging and flat, as music that never really took flight, as a steady stream of *parlando* speechifying fairly devoid of the large-scale dynamics crucial to any dramatic work. That's the way it seemed in Houston last year, and that's why—regretfully, because my enthusiasm for Adams's work goes back more than a decade—*Nixon in China* from me elicited a negative vote.

Now there is a recording, the result of

studio sessions that overlapped with the opera's December 1987 run at the Brooklyn Academy of Music. The principals are the same who were heard in Houston. Nixon is sung by suave baritone James Madalena, a veteran Sellars collaborator whose uncanny physical resemblance to the former president causes one to wonder if it were not the seed from which the whole project grew. The stunning lyric soprano Carolann Page has the role of Pat Nixon, and burly-voiced baritone Thomas Hammons is Henry Kissinger. The Chinese contingent is portrayed by baritone Sanford Sylvan as Chou En-lai, tenor John Duykers as Mao Tse-tung, and soprano Trudy Ellen Craney as Mao's wife, Chiang Ch'ing. Instead of John DeMain, who led the premiere performances, the conductor is longtime Adams champion Edo de Waart. The chorus parts are taken by a group of 23 New York free-lancers, and the accompanying ensemble is the Manhattan-based Orchestra of St. Luke's.

Exposure to the three-disc CD version of *Nixon in China* has not converted me entirely from my original position, and I certainly do not agree with Andrew Porter's assessment, expressed in *The New Yorker*, that the opera is "a successful and stirring musical drama." I do go along with Porter, however, when he says that "... the music of *Nixon* becomes more, not less, interesting on repeated hearings."

Probably because they no longer have to compete with visual spectacle, Adams's little references to well-known snippets of others' music now stand out in high relief. Take, for example, the arpeggiated suggestions of "The Star-Spangled Banner" in Nixon's first recitative—à la Puccini, who identifies Pinkerton the same way in *Madama Butterfly*—and the allusion to the prelude of Wagner's *Das Rheingold* in the calm that follows the "storm" sequence in Act II. More significant, the finesse of Adams's orchestration seems truly remarkable on the recording: The pickup illuminates provocative low-register woodwind sonorities and colorful splashes of brass and percussion that were hardly noticeable in the live performance in Houston, and it gives a sharp edge to the incisive rhythms and cross-rhythms that form the music's primary means of propulsion. In the area of harmony, too, the recording reveals that there is more to *Nixon in China* than first meets the ear. Listening to the CD, it is easier to pinpoint the many introductory vamps that Adams seems to have borrowed directly from Glass. At the

same time—literally—it is easier to catch the notes added or subtracted here and there that in subtle ways alter the chord progressions and make them seem not so predictable, after all.

And then there is the substantial "music" of the text. The Houston cast was amplified, in an effort, Adams said, to make Goodman's poetry more intelligible to the audience, but to this listener the resulting artificiality of sound seemed a dear price to pay for what was probably very little gain. There's nothing at all artificial-sounding about the voices on this recording, and even in the ensemble numbers there are relatively few instances in which one must first see the words in the printed libretto in order to understand what's being sung.

The opera does indeed sound more interesting after one has spent time with it. The increased interest lies in its details, however, not in the big picture that stretches from one end to the other of a two-and-a-half-hour time span. Goodman's libretto is a masterpiece, and it cries out for music that projects the rise and fall of human emotions; Adams's music more often than not traffics in emotional stereotypes. The poet understates the issue when she writes, in her liner-note essay, that "... my Nixon is not quite the same character as John Adams's Nixon."

I realize that this opinion represents the minority, especially now that *Nixon in China*—after performances in Washington, D.C., and Amsterdam, and a nationwide broadcast on American public television—has received enough publicity to make Adams's name a household word. But the opera was controversial at its premiere. Why should it be any different just

over a year later? In any case, what is not controversial is the quality of the None-such recording. The performances of soloists, chorus, and orchestra are uniformly energetic and impeccable. The focus of the instrumental music is as sharp as that of the vocal lines, and the balances seem designed solely for the purposes of immediate communication.

Along with Goodman's essay on the writing of *Nixon in China*, the documentary material includes a cogent analysis by Michael Steinberg of *Nixon* and earlier Adams compositions. The libretto is provided intact; those lines that Adams chose not to use are properly surrounded by brackets, although ensemble passages are not clearly marked, and there is nothing to indicate the occasional line of sung text that strays from the printed arrangement. The libretto also restores the opera's original division into three acts.

It is only the apparently problematic third act (Act II, Scene 3 in the Houston production) that is not specifically "set" in the printed synopsis. Goodman placed it in a banquet hall on the Nixons' last night in Peking, but Sellars saw it as something more intimate and opted to relocate it in the private bedchambers of the various principal characters. In an almost vulgar snatch of dialogue, Kissinger suddenly asks Chou En-lai for directions to the toilet. Persons who listen to the recording can do with this scene what they please, but the audience in Houston was left to ponder how it was that the American national security advisor and the Chinese premier happened to be in the same bedroom. Playing time: 144:45.

James Wierzbicki

## FORMAT KEY

- Ⓛ LP
- Ⓢ Cassette
- ⓐ Compact Disc
- Ⓥ Videocassette
- ⓓ Videodisc

### RECORDING INFORMATION

(A) Analog original (D) Digital original

Large symbol at left margin indicates reviewed format. Small symbols following catalog number of reviewed format indicate other available formats (if any). Catalog numbers of formats other than the reviewed format are printed only if their basic numbers differ substantially from that of the reviewed format.

Arabic numeral in parentheses indicates number of items in multi-item set.

**BRITTEN: A Ceremony of Carols\*.**

**POULENC: Quatre Motets pour le temps de Noël.**

**RESPIGHI: Lauda per la Natività del Signore†.**

Ⓛ *Lehwalder\*, Valente†, Forrester†, Gordont; Philadelphia Singers, Concerto Soloists Instrumental Ensemble†, Korn. John Pfeiffer, prod. RCA 7787-2 (D).* Ⓢ

This is a marvelous collection of Christmas music, although the music is of such quality that it can be enjoyed in any season. Britten's *A Ceremony of Carols*, for chorus and harp, has long been regarded as a masterpiece. The two other offerings on this disc are equally fine. Poulenc's *Four Christmas Motets*, for unaccompanied chorus, must be among the most beautiful pieces of its kind, and Respighi's

Lauda, his only sacred choral work, will delight anyone who loves the *Trittico botticelliano* and the *Ancient Airs and Dances*.

The Philadelphia Singers, led by Michael Korn, perform all three works with a freshness and joy entirely appropriate to the sentiments being expressed. Some listeners may miss hearing boy trebles in the Britten, but at worst this is a small liability.



CHRISTIAN STEINER

Maureen Forrester lends her voice to *Lauda*.

ity. The recording, excellent in the Britten and Poulenc, places the soloists and instruments very close to the microphones in the Respighi. This makes for some rather odd oboe and English horn sounds, but it hardly lessens one's overall enjoyment. There won't be many Christmas discs issued in any year that will be as well planned and executed as this one. So, minor reservations aside (since this is a time of cheer), enliven your holiday season with this lovely music. Playing time: 58:20.

David Hurwitz

**HOLST: The Planets; The Perfect Fool (Ballet Music).**

Philharmonia Orchestra, Boughton. Nimbus NI 5117 (D).

This is the sort of thing a critic dreams about: a recording and performance so miserable that it justifies the wildest excesses of vituperative hyperbole. That said, I'll stick to the facts—which are sufficiently damning in themselves. First, the orchestra.

The playing of the Philharmonia is slovenly in the extreme. The very first bassoon entrances in "Mars" sound tentative—it's impossible to hear when the sound starts. The brass muff their quiet entrance in the slow chorale that forms the

centerpiece of "Saturn." Worst of all, the cymbal player double-strikes every clash at the climax of "Uranus." Seriously, this is kid stuff, and unbelievable in an orchestra of this caliber.

There is no point in enumerating other technical faults, because William Boughton's interpretation—to the extent one could call it that—draws attention to itself chiefly through miscalculation. "Mars," for example, manages to sound almost jolly, at a totally unconvincing jog-trot tempo. "Jupiter" lacks rhythmic lift, while "Venus" offers the peace of the grave. "Uranus" demands more bravura at a less hectic pace, and "Neptune" isn't just timeless but seemingly endless, more than two minutes slower than on Sir Adrian Boult's last recording of the score for EMI. As filler, *The Perfect Fool* ballet gets a perfunctory run-through, pointlessly rushed.

The Royal Albert Hall's notoriously uneven acoustics play havoc with Nimbus's famed "natural" recording philosophy. Trumpets sound artificially close, as do violins. Trombones and winds blow in from the outfield. The triple-forte tamtam stroke at the climax of "Mars" is inaudible, as is the glockenspiel in most of "Jupiter"—something I would have thought a sonic impossibility until now. Cymbals are similarly recessed, indeed inaudible in the ballet music, while the bass drum sounds close but too dry. The organ comes and goes at random. No mention is made anywhere as to the identity of the women's chorus. Did they insist on having their anonymity preserved for fear of being associated with this enterprise?

But why go on, when Nimbus's own jacket blurb says it best: "Of the many recordings of Holst's brilliantly orchestrated showpiece, this provides a particularly devastating combination of players, conductor, and recording technique." I couldn't agree more. Playing time: 60:03.

David Hurwitz

**IVES: Holidays\*; The Unanswered Question (Original and revised versions)†; Central Park in the Dark.**

Spector\*. Herseht†; Chicago Symphony Chorus\*. Chicago Symphony Orchestra, Thomas. Steven Epstein, prod. CBS Masterworks MK 42381 (D). ⊕ ⊞

Recording Charles Ives's almost infinitely polyphonic big orchestral works presents a problem, and to judge from most of the *Holidays* Symphony here, CBS Masterworks has not found an adequate solution. Rarely have I heard such a murky recording per se—particularly in contrast with what other companies (notably, Deutsche Grammophon and London) have accomplished with the same orchestra in the same hall, Chicago's Medinah Temple. Especially in this hellishly intricate music, the lack of crystalline transparency be-

comes a serious impediment.

With that bad news out of the way, let us welcome these performances, the first made from the scores of the Ives Society Critical Edition, a vast project now in progress. Anyone who ever saw an original Ives manuscript—particularly one in pencil—knows that the undertaking of that edition ranked close behind Hercules' tidying up the Augean stables.

Although the four *Holiday* movements appeared individually, Ives's writings prove he originally thought of them as forming a sort of symphony. As Paul C. Echols (co-editor of the score of *The Unanswered Question*) points out, they make up "what in effect is a uniquely American *Four Seasons*": "Winter" (Washington's Birthday), "Spring" (Decoration Day), "Summer" (Fourth of July), and "Autumn" (Thanksgiving and Forefathers' Day). Many years ago I heard Virgil Thomson say on the radio that he considered *The Stars and Stripes Forever* the most American piece of music ever written. I wonder whether he would stand by that today, in the face of this extraordinary symphony of Ives.

Michael Tilson Thomas maintains steady tension between the contemplative and the rowdy; the orchestra takes the fiendishly difficult music completely in its stride; and Margaret Hillis's splendid chorus joins in to give the symphony a rousing finish. CBS deserves particular thanks for providing *The Unanswered Question* in two versions, the original from 1906 and Ives's revision made about 25 years later. Playing time 63:18.

Paul Moor

**MOZART: Piano Concertos: No. 25, in C, K. 503; No. 26, in D, K. 537.**

Bilson; English Baroque Soloists, Gardiner. Andreas Holschneider, prod. Deutsche Grammophon 423 119-2 (D). ⊕ ⊞

We are now up to the seventh issue in the Deutsche Grammophon Archiv series of Mozart piano concertos with Malcolm Bilson and John Eliot Gardiner. This one, featuring Concertos Nos. 25 and 26, is certainly one of the more successful installments to date. Both concertos are conducted in dramatic fashion by Gardiner, the gestures alternately bold and tender as required, with the dynamic contrasts emphasized throughout. Gardiner's are emphatically shaped readings, never merely genteel or pretty; those authenticists seeking "conductorless" Mozart should look elsewhere, despite the period forces employed here.

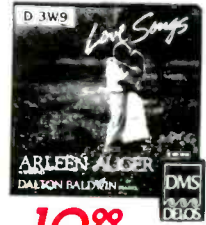
Bilson shines perhaps more brightly this time out than previously. His playing on the fortepiano is precise and articulate as usual, but there seems to be a greater sense of direction and declamation in his

(Continued on page 68)



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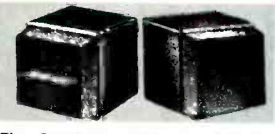
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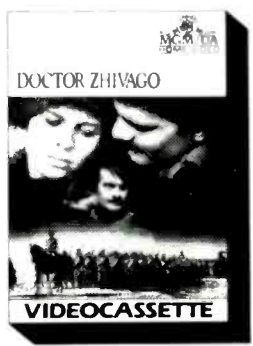


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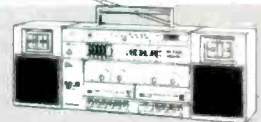


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(Continued from page 65)

approach than in the past. He is particularly emphatic in the third movement of Concerto No. 25, where he refuses to flinch before the full orchestra. His inspired cadenza for the first movement of Concerto No. 26, which cleverly recombines themes from the movement without letting the momentum flag, is also noteworthy. A very clean-sounding forte-piano, with a rich, gruff bass register, helps Bilson in his endeavors; only occasionally is it swamped by the orchestral tide. The recorded sound is big and a little tubby on the bottom, but otherwise quite good. Playing time: 60:37.

Christopher Rothko

**NIELSEN: Symphonies: No. 1, in G minor, Op. 7; No. 4, Op. 29 ("The Inextinguishable").**

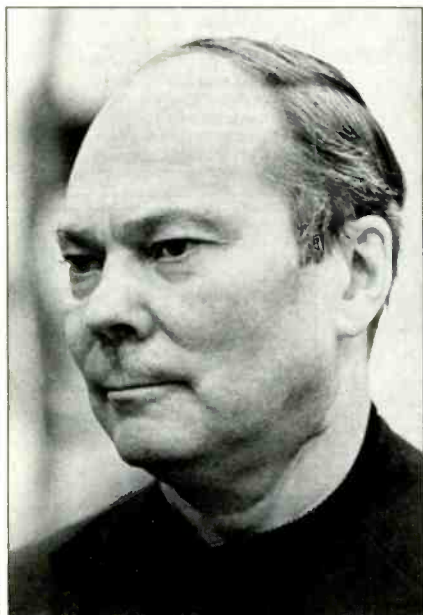
Royal Danish Orchestra, Berglund.  
① Brian B. Culverhouse, prod. RCA 7701-2 (D). □

**NIELSEN: Symphonies: No. 4, Op. 29 ("The Inextinguishable"); No. 5, Op. 50.**

San Francisco Symphony, Blomstedt.  
① Andrew Cornall, prod. London 421 524-2 (D). □

**NIELSEN: Symphony No. 5, Op. 50; Overture, Prelude to Act II, and Dance of the Cockerels from "Maskarade."**

Swedish Radio Symphony Orchestra.  
① Salonen. David Mottley, prod. CBS Masterworks MK 44547 (D). □ □



CLIVE BARDA

Paavo Berglund: powerful Nielsen performances

Just a few years ago, it was virtually impossible to put together a collection of Nielsen symphonies on domestic labels. No one could have predicted three major companies virtually tripping over themselves to get all the symphonies out on Compact Disc, to say nothing of Uni-

corn's CD reissue of Ole Schmidt's cycle, or Bis's series with Myung-Whun Chung, currently in progress. Welcome though all this attention is—since it serves the cause of one of the century's greatest symphonists—it produces something of a critical quandary. These latest Nielsen performances are uniformly excellent, and they may well signal a revival of this music in the concert hall as well as on disc. But what to recommend?

The standout performance here is Paavo Berglund's revelatory reading of *The Inextinguishable*. It's singularly strange that what makes it so special is Berglund's faithful adherence to Nielsen's tempo markings in the finale. Rather than slowing down for a bloated apotheosis saturated with Straussian bombast, he follows the score and races to the finish with a vitality and, well, inextinguishable verve that fully vindicate the composer's intentions. The rest of the piece moves with a similar sense of inevitability, as does Berglund's account of the miraculously self-assured First Symphony, a terrific work that is virtually impossible not to like. Although program-note writers are always quick to apologize for its debts to Dvořák and Brahms, to these ears the First sounds like Nielsen, and nobody else.

Herbert Blomstedt's recording of the Fourth and Fifth symphonies marks the start of his second complete cycle (the first was on EMI, with the Royal Danish Orchestra, the same group Berglund is now leading through *his* cycle), and his views on the music have matured accordingly. Unlike Berglund, Blomstedt makes the traditional Grand Statement out of the Fourth's motto theme, but he manages it with great warmth and imparts an almost autumnal quality to his interpretation that precludes bombast. The closing of the work, with the timpani pounding away over a glowing diminuendo (hardly suggested by Nielsen's markings), conveys a highly personal vision. The Fifth, Nielsen's greatest symphony, gets a much more cogent performance from the conductor this time around than on his first go. San Francisco's snare drummer really assaults the orchestra, and the second movement has noticeably greater kinetic drive. Nonetheless, and in spite of Blomstedt's undoubted inspiration, I prefer Berglund's Fourth and Esa-Pekka Salonen's new Fifth.

This latter, the third installment in Salonen's Nielsen cycle for CBS, was preceded by a decent reading of the First Symphony and a dreadful one of the Fourth. Salonen has certainly redeemed himself for that failure with this extraordinary performance. It's preferable to Blomstedt's on three counts. To begin with, Salonen finds exceptional beauty in the haunting adagio that initiates the second

part of the symphony's opening movement. Next, he builds the climax of this section at a daringly slow tempo, and brings it off with even more conviction and impact than Blomstedt. Finally, he permits an extra violence and wildness to grip the orchestra in the second movement's quick fugue. This is not a passage in which reticence is a virtue. As filler, Salonen offers the overture and two orchestral excerpts from Nielsen's opera *Maskarade*, lovingly done.

All three orchestras play very well. The CBS and RCA recordings sound warmer and richer than the slightly edgy, more obviously brilliant London. It is this one, however, that offers the two greatest Nielsen symphonies together on one disc, a genuine bargain at 72 minutes of music. All of Nielsen's symphonies belong in the collection of anyone who loves orchestral music, but if you have room for only one Nielsen disc, Blomstedt's is the one to get. Though both Berglund and Salonen are slightly better in my opinion, the differences won't matter that much in terms of listening enjoyment. If you can afford a larger investment in this wonderful composer, then the CBS and RCA discs will amply repay both the time and money expended. Playing times: 64:36 (RCA); 71:59 (London); 52:18 (CBS Masterworks).  
David Hurwitz

**SCHUMANN: Quartet for Piano and Strings in E flat, Op. 47\*; Quintet for Piano and Strings in E flat, Op. 44†.**

① Ax. Members of the Cleveland Quartet\*. Cleveland Quartet†. Thomas Mowrey, prod. RCA 6498-2 (D).

The logic behind pairing Schumann's popular Piano Quintet with his Piano Quartet appears to be that once a pianist has been brought in to do the quintet, why not do both? The answer is that the quartet is inferior music, and it would have been better instead to fill out the disc with one of Mozart's piano quartets, which most record buyers would be more likely to listen to twice.

That caveat aside, Emanuel Ax's piano playing—secure, incisive, colorful, and powerfully expressive—is worth having for itself. And that, in a manner of speaking, is almost how one has it here. It is he who carries both works, while the Cleveland Quartet, especially when Ax is silent, approaches the music with a tentativeness that degenerates at times into something close to musical disintegration. As recorded here, the Cleveland's tone is more granular and shaky than I can recall ever hearing it before. Conceivably, the quartet was having an off week. But it is also possible that the ensemble no longer plays as marvelously as it used to—which would be sad if it were true. Playing time: 56:43.

Thomas Hathaway

**TCHAIKOVSKY: Manfred, Op. 58.**

Oslo Philharmonic, Jansons. James Burnett, prod. Chandos CHAN 8535 (D). © ABRD 1245. □ ABTD 1245. (Distributed by Koch Import Service.)

Well, it had to happen sometime. After a very successful series of the six numbered symphonies of Tchaikovsky (save for a rather undernourished *Pathétique*), Mariss Jansons and Chandos have founded on the rocks of the *Manfred* Symphony. Though arguably Tchaikovsky's greatest orchestral work, *Manfred* is unquestionably difficult to perform successfully. And however well Jansons negotiates the work's longueurs, it still demands more than he or his players provide.

Unlike his colleague Neeme Järvi, whose flamboyant temperament seems made for this music, Jansons is a Classicist. He has a good sense of a work's architecture, but not much razzle-dazzle. In the symphonies, where Tchaikovsky's grasp of structure and argument occasionally failed him, a neat, lively, even understated approach such as Jansons's often pays dividends. But *Manfred* is not meant to be tidy. It's a sprawling, episodic, magnificently raw hunk of symphonic mayhem, and the wild climaxes just aren't there in this account. As played here, the tempestuous end of the first movement, with its triple-forte gong crashes all but inaudible, lacks the epic passion Riccardo Muti brings to it with the Philharmonia Orchestra on Angel EMI (CDC-47412). Similarly, the Oslo Philharmonic is no match for the Philharmonia in the bubbly scherzo, which Muti finishes off almost two minutes faster than Jansons. And although Muti's initially sluggish treatment of the finale would seem less on target than Jansons's livelier approach, the balance tips away from the newcomer as themes from earlier in the symphony start to reappear and Muti's grand conception coalesces.

The Chandos recording, somewhat surprisingly, also falls short. It lacks deep bass and manages to sound both murky and glaring at the same time. Perhaps the absence of Brian Couzens as producer has something to do with this. Whatever the reason, the release marks a disappointing conclusion to an otherwise fine series. Stick with Muti until that really great *Manfred* we all wish for finally comes along. What a pity Leonard Bernstein reportedly can't stand the piece. . . . Playing time: 53:20. *David Hurwitz*

**TELEMANN: "Parisian" Quartets (4).**

Pariser Quartett, Michel Bernard, prod. Adda 581025 (D). (Distributed by Qualiton Imports, Ltd.)

Quartets: No. 1, in A; No. 2, in D; No. 8, in A minor; No. 12, in E minor.

This is the initial volume in what will eventually be the first complete recording of

the twelve compositions that make up Georg Philipp Telemann's so-called "Parisian" Quartets. The pieces have been referred to that way only by modern cataloguers: Telemann penned the initial half-dozen in Hamburg in 1730, seven years before he ever set foot in Paris.

Telemann's trip to Paris in the fall of 1737 had a dual purpose. He intended to meet with influential musicians there who favored his work, but he also wanted to do everything in his power to prevent his music from being sold in pirated French edi-

tions. It is one of the ironies of music history that the compositions of which the Parisians were most demonstrably fond were the very six "quadr" for violin, flute, viola da gamba, and harpsichord he had composed in Hamburg—which had illegally crossed the border sometime around 1735. Upon Telemann's arrival, his admirers requested more of the same, and the prolific composer readily complied in a way that made all twelve pieces seem cut from the same musical cloth. Thus the nickname that correctly identifies the

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place of origin of Quartets Nos. 7–12 eventually came to be applied to their precursors as well.

It is almost certain that there were actually five performers when Telemann and his new Parisian friends first got together to read through these works in the grand hall of the Jardins des Tuileries. As with the Baroque trio sonata, the continuo part would have been executed by a harpsichordist and either a cellist or the player of some other bass instrument.

For the performances recorded here, the Pariser Quartett assigns the bass line only to the harpsichord; the sound is, unfortunately, neither large enough to be clearly heard nor dynamic enough to lend the music the necessary feeling of propulsion. In most other respects, however, these readings are stylistically exemplary. American ears might find the phrasing overly precious, but it is not at all out of line with the traditions set forth several decades ago by the Dutch and Belgian pioneers of the early-music movement. Indeed, the adjectives that Telemann himself attached to various of the movements—*soave, gai, gracieusement, flatteusement, coulant*—go a long way toward describing the way in which this music is handled by these latter-day members of Telemann's French fan club. Playing time: 57:38.

James Wierzbicki

## RECITALS AND MISCELLANY

**BERG:** "Lulu" Suite\*; Three Pieces, Op. 6; Fünf Orchesterlieder nach Ansichtskartentexten von Peter Altenberg, Op. 4\*.

Price\*; London Symphony Orchestra.  
 Abbado. Karl Faust, prod. Deutsche Grammophon 423 238-2 (A).

**CAGE:** String Quartet in Four Parts.

**LUTOSLAWSKI:** String Quartet.

**MAYUZUMI:** Prelude for String Quartet.

**PENDERECKI:** String Quartet.

LaSalle Quartet. Karl Faust and Rainer Brock, prods. Deutsche Grammophon 423 245-2 (A).

**HONEGGER:** Symphony No. 2 for

Trumpet and String Orchestra;

Symphony No. 3 ("Liturgique").

Berlin Philharmonic, Karajan. Otto Gerdes, prod. Deutsche Grammophon 423 242-2 (A).

**MESSIAEN:** Quatuor pour la fin du temps.

Yordanoff, Tétard, Désurmont, Barenboim. Günther Breest, prod. Deutsche Grammophon 423 247-2 (A).

**SCHOENBERG:** Works for Piano.

Pollini. Rainer Brock, prod. Deutsche Grammophon 423 249-2 (A).

Three Piano Pieces, Op. 11; Six Little Piano Pieces, Op. 19; Five Piano Pieces, Op. 23; Piano Suite, Op. 25; Piano Piece, Op. 33a; Piano Piece, Op. 33b.

**STRAVINSKY:** Les Noces\*; Mass†.

Mory\*, Parker\*, Mitchinson\*, Hudson\*, Argerich\*, Zimerman\*, Katsaris\*, Francesch\*; Trinity Boys' Choir†, English Bach Festival Chorus, English Bach Festival Percussion Ensemble\*, members of the English Bach Festival Orchestra†, Bernstein. Günther Breest, prod. Deutsche Grammophon 423 251-2 (A).

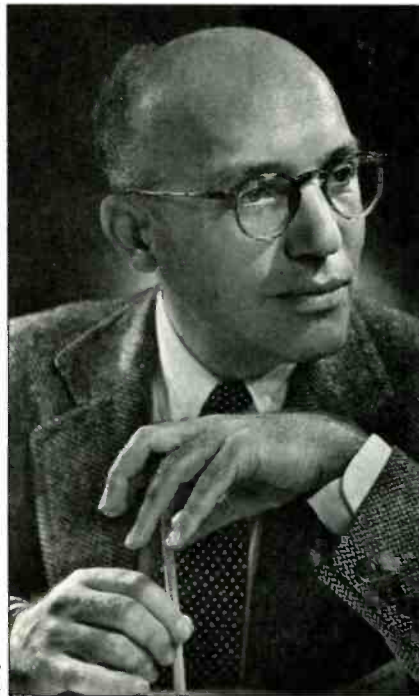
**WEBERN:** Passacaglia, Op. 1; Five Movements, Op. 5; Six Pieces, Op. 6; Symphony, Op. 21.

Berlin Philharmonic, Karajan. Hans Hirsch, prod. Deutsche Grammophon 423 254-2 (A).

**WEILL:** Kleine Dreigroschenmusik; Concerto for Violin and Wind Orchestra\*; "Mahagonny" Songspiel†.

Liddell\*, Dickinson†, Thomast, Langridget, Partridge†, Luxon†; London Sinfonietta, Atherton. Rudolf Werner, prod. Deutsche Grammophon 423 255-2 (A).

It is very gratifying to see a major record company making contemporary music available at a price that gives the musically curious an incentive to take the plunge. Many of the releases featured on this new,



Kurt Weill

midprice line of Compact Discs—dubbed "20th Century Classics"—were taken from Deutsche Grammophon's "Collector's Series" of LP reissues, but some have been culled from the main catalog as well. All eight CDs under consideration here are thoroughly recommendable, and some are classics that belong in every collection.

The three members of the Second Viennese School receive one disc apiece. First, Maurizio Pollini turns in immaculate per-

formances of Schoenberg's thorny and intractable piano music, complete on one fifty-minute CD. Anyone wanting these works can buy with confidence, though Glenn Gould's performance of the Opus 25 Suite on CBS remains uniquely inspiring, especially when he hums along—an impressive feat in itself. Claudio Abbado's Berg performances with the London Symphony have been both praised and criticized for their remarkable surface beauty. Certainly the *Three Pieces for Orchestra* and the *Lulu Suite* could sound scarier at times. But the real prize is the only recording on CD of the haunting *Altenberg Lieder*, sung to perfection by Margaret Price—and the sound is excellent. Finally, Herbert von Karajan's Webern performances with the Berlin Philharmonic make a welcome reappearance; this account of the *Six Pieces for Orchestra*, Op. 6, easily surpasses James Levine's recent effort with the same ensemble.

More classic Karajan—his superlative readings of Arthur Honegger's Second and Third symphonies—appears in this initial batch of reissues. It was performances like these that belied Karajan's reputation as a slick, superficial sonic beautician. The Berlin Philharmonic plays with great ferocity and bite, and the recording is one of DG's most outstanding. Essential listening.

One of Leonard Bernstein's finest and least-known efforts, his recording of Stravinsky's *Les Noces* and *Mass* with the English Bach Festival Chorus and Orchestra, has also reappeared. Not only are the performances and recording top-notch, but the coupling is inspired. The earthy, vibrant, and percussive sounds of *Les Noces* stand in stark contrast to the austere wind music of the *Mass*, revealing much of Stravinsky's tremendous range as an artist.

Kurt Weill, a terribly underrated composer with a range at least as wide as Stravinsky's, receives solid representation on a CD bringing together his early Concerto for Violin and Wind Orchestra, the *Kleine Dreigroschenmusik* suite from *The Threepenny Opera*, and the "Mahagonny" Songspiel. David Atherton leads the London Sinfonietta with violinist Nona Liddell and various vocal soloists. DG should make the rest of Atherton's Weill series available without delay.

Two of these reissues feature chamber music. Messiaen's *Quartet for the End of Time*, for violin, cello, clarinet, and piano, sounds a bit soft-edged in the hands of Daniel Barenboim, Claude Désurmont, Albert Tétard, and Luben Yordanoff. Bearing the imprimatur of the composer, it's a good version, but it lacks the intensity that made Tashi's RCA recording such an experience. Anyone interested in avant-garde string quartets can dip into a disc containing representative works by Luto-



slawski, Penderecki, Cage, and Mayuzumi. The Lutoslawski is the major item, a noteworthy addition to this great composer's discography. All four works are expertly handled by those champions of contemporary chamber music, the LaSalle Quartet. Incidentally, this group recently announced its retirement from professional activity. Their spirit of adventure and enterprise will be missed.

Deutsche Grammophon has many other titles in its back catalog that belong in this series: Ferenc Fricsay's interpretations of Bartók; the sampling of music by



Arnold Schoenberg

Piston, Ruggles, and Ives that Michael Tilson Thomas recorded early in his career; Rafael Kubelik's and Rudolf Firkušny's accounts of Janáček; the complete recordings of Hindemith's *Cardillac*, Busoni's *Doktor Faustus*, and Pfitzner's *Palestrina*, which were glories of the label's LP catalog; Orff's *Trionfi* with Eugen Jochum (not to mention *Antigone* and *Oedipus the Tyrant*); Joonas Kokkonen's magnificent opera *The Last Temptations*; lots of stuff by Henze and Stockhausen; and, best of all, one of the greatest recordings ever made: Kurt Weill's *The Seven Deadly Sins* with Gisela May and Herbert Kegel. Music lovers should ensure that these and other fine recordings of contemporary music have at least a chance of showing up on CD by purchasing the present releases with enthusiasm. Playing times: 66:32 (Deutsche Grammophon 423 238-2); 63:23 (423 245-2); 58:52 (423 242-2); 49:07 (423 247-2); 50:01 (423 249-2); 44:29 (423 251-2); 46:04 (423 254-2); 71:24 (423 255-2).

David Hurwitz ▶

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**HONG KONG PHILHARMONIC ORCHESTRA: First Contemporary Chinese Composers Festival 1986.**

Rippon\*, Banowetz\*\*, various artists;  
 ① Hong Kong Philharmonic Orchestra, Schermerhorn† and Tang‡. Teije van Geest, prod. Hong Kong 8.240442 (D). (Distributed by Harmonia Mundi, U.S.A.)

CHAN: Symphony No. 3 for Double Orchestra (Part III)†. TAN: Intermezzo for Orchestra and Three Tone Colourist. HUANG: Piano Concerto in G minor (Allegro)\*\*†. QU: Mong Dong†. TANG: Symphony No. 3 (Andante sostenuto, Allegro)‡. YE: Moon over the West River†.

The musical life of a nation comprising one-fourth of this planet's population automatically merits attention, particularly in view of what has happened in the arts in China since the Gang of Four got their



Kenneth Schermerhorn leads five festival works.

just deserts. In 1986, the city of Hong Kong played host to Chinese composers from all over, representing a broad gamut of musical styles. This disc affords Occidental listeners a rare sampler chosen from the works performed there, effectively conducted.

The Chan and Huang pieces call for a big orchestra in the Romantic style, and they sound, by current Western standards, like echoes of yesteryear—odd, since both men studied in Toronto, and Huang at Yale as well. The Tan work gets pretty wild; it even includes some vocal work reminiscent of the late, greatly lamented Cathy Berberian. (Singers participate in various works, but the record identifies only baritone Michael Rippon.) Huang's work, firmly tonal, shows off the piano soloist in a sort of toccata, well played by Joseph Banowetz.

The Qu and the Ye pieces strike me as the most interesting. In their radicalism they recall the reckless, untamed, fulminant creativity of Poland's composers after they broke their Stalinist shackles in the mid-1950s and spurted off excitedly in all directions at once.

I confess that a slightly supercilious smile came over my presumptuous face when this record came into my hands, but the music—well, some of the music—wiped it away. If contemporary composition per se interests you, I urge you to look into this. In view of all the centuries of Chinese culture and genius, that people's manifest potential in the field of composition today must give one pause. Playing time: 78:15.

Paul Moor

**PHILIP JONES BRASS ENSEMBLE: PJBE Finale.**

Philip Jones Brass Ensemble, Friend\*, Howarth†. Brian Couzens, prod. Chandos CHAN 8490. (Distributed by Koch Import Service.)

PREVIN: Triolet for Brass. BERKELEY, M.: Music from Chaucer. LUTOSLAWSKI: Mini-Overture. DURKÓ: Sinfonietta\*. RAUTAVAARA: Playgrounds for Angelst.

Philip Jones founded the Philip Jones Brass Ensemble—the PJBE, to its many friends—in 1951, and for 35 years it occupied a unique niche in British contemporary music. Its repertoire of nearly 400 works ranged from Renaissance transcriptions to the moderns. After more than 40 years of blowing his trumpet, Jones retired and disbanded the PJBE, but during its final week it made this recording, June 4–6, 1986, as a valedictory to a remarkable career that had encompassed some 90 world premieres. The works recorded here come from the United States, England, Poland, Hungary, and Finland; the oldest of them dates from 1981.

The PJBE consisted of five trumpets and four trombones, plus horn and tuba, and its players belonged to the cream of London's brass virtuosos. (In fact, those whose lips have held up continue to concertize as the London Brass.) The quality and styles of the five works here vary considerably, ranging from André Previn's Hindemithian counterpoint plus jazzy oompah riffs to the latest Central European avant-garde techniques employed by Zsolt Durkó, Witold Lutoslawski, and Einojuhani Rautavaara. Michael Berkeley's lively suite had its origins in a BBC radio commission for incidental music.

The PJBE plays everything with flabbergasting security, precision, tonal range, and all-round virtuosity, and Chandos's customary recording expertise makes the music come plangently alive in all its brazen refulgence. Playing time: 59:02.

Paul Moor

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# WHAT'S THE



**ORNETTE COLEMAN: IMPROVISING IN HIS MOST UPBEAT, SING-SONG MANNER**

## **ORNETTE COLEMAN AND PRIME TIME: *Virgin Beauty*.**

Denardo Coleman, prod. *Portrait RK*  
44301. ◉ ◻

There is nothing in saxophonist Ornette Coleman's 30-year recording career that quite prepares the listener for this pleasantly surprising album. Though the Prime Time roster here is almost the same one that gave us the fearsomely intricate and harmonically unhinged *Of Human Feelings*, the music on *Virgin Beauty* is, for the most part, relatively simple, hummable, and happy. It's not just that the usual intricate interactions of the extended rhythm section have been replaced by a more unified, consonant backdrop but that the playing in general is less aggressive. Throughout, the music simmers and shimmers, the flame kept low.

Repeated listening reveals more activity than the smoother sound suggests, but the album's strategy is to draw our attention away from subtlety: Often an infectious riff is set up and continued for the length of a song while Coleman improvises in his most upbeat, sing-song manner. The mood of almost mystifying good cheer is enhanced as the kind of licks and hooks appear that one is simply not used to hearing on an Ornette Coleman album: the authentic c&w guitar on "Happy Hour," the mid-Seventies strolling soul line that anchors "Healing the Feeling," the jangling r&b rhythm guitar on "Bourgeois Boogie." The fact that Jerry Garcia appears on three cuts, blending nicely into the ensemble, is one of the album's smaller surprises.

This is a perfect set for people who have had difficulty with Coleman's Prime Time/harmolodic series: It's almost a primer on the topic, encouraging the listener to absorb its intentions gradually. Longtime fans should get a kick out of it, too, provided they're not put off by its prevailing tone of humor and contentment.

Richard C. Walls

## **RONALD SHANNON JACKSON: *Texas*.**

Bill Laswell, prod. *Caravan of Dreams*  
CDP 85012. ◻ ◉ (312 Houston St., Fort Worth, Texas 76102.)

The previous Ronald Shannon Jackson album that this harmolodic honcho's new LP most resembles is last year's live *When Colors Play* (his best, in my book), not surprising given we're now hearing the same sextet recorded seven months later. I've gotta admit, though, *Texas* doesn't get me off like its predecessor: The new one's

complex themes further remove Shannon from Ornette Coleman's shadow, maybe, but they also slam less. The solos show off more but don't run as wild; too often, the leader is almost standing by the sidelines. Shannon's Last Exit bass-buddy, Bill Laswell, mans the knobs, fashioning the drummer's most "accessible" record since 1984's likewise-Laswellized, computer-candy-coated *Decode Yourself*, but a dash of that collaboration's frivolity couldn't have hurt.

Then again, there are no complete monkey wrenches, and the ravers sizzle: Both "Nothing Beats a Failure but a Try" and "Panhandling" bang out some murederous concrete-jungle honk in a '71-'76 Miles mode, their fishing-rod bass lines reeling in wah-wah. "Shotgun Wedding" is a dreary pagan rite that turns fast and frictiony, and Side 2 ends with a hidden cut (called, apparently, "Sheep in Wolf's Clothing," an adaptation of RSJ's wailing-est title with the group Power Tools) that fuzzes anarchically as a war-flick-in-reverse against a bench-press beat.

The rest of the set tends toward fusion-flashy drama, neatfreak structures, and a too soft axe/sax mix. "Charming the Beast" is lightweight, a refined Louisiana parlor-shuffle throwaway; the shifting splank sequences in "Psychic Greeting" get monotonous quick, then trot aside for a foursquare lard-funk break. "Holyman" and "Evoking," the most deliberate tone-splashes here, aim for a lonesome dusty feel but come off sounding like stone-washed, tumbling-tumbleweed quiet storms, with subdued brass interplay over near-neoclassy minimalism. "Pretty," sure. But who listens to a manhandler like Jackson for prettiness? *Chuck Eddy*

## **STEVE COLEMAN AND FIVE ELEMENTS: *Sine Die*.**

Steve Coleman, prod. *Pangaea PAND*  
42150. ◉ ◻ (Distributed by I.R.S.)

Altoist Steve Coleman's hi-tech humanism makes his band, Five Elements, something like a flesh-and-blood sampling device. Always fond of a rich blend of rhythms and odd meters copped from folk and Asian, funk and rap, Coleman works in a compositional style where juxtaposition is not so much a case of shock value and looky-here virtuosity as it is an effort to process and reinterpret the bewildering amount of information available to 21st-century humans.

As expected from a musician as ambi-

# HARMOLODIC!

tious as Coleman, there have been performances and recordings where one giddily thinks the future is here, others where Concept sticks out like the rib cage of a malnourished child. *Sine Die* reconciles the schism by showing Five Elements to be not only tight but always sure of where the *one* can be found—whether barnstorming through the imagistic romp “Cinema Saga,” with horns swirling and careening above a Miles-ish motif, or slinking through the sassy “Destination,” where Cassandra Wilson’s husky vocals are countered by Geri Allen’s dry, balaphone-sounding keyboards. But what starts out as Coleman’s strongest album tapers off halfway through and, by the *Cry of Love*-influenced vocals of “Profile Man,” becomes sluggish.

The CD version pays off, despite a few lackluster moments (and no additional material), because *Sine Die*’s details are many. The shimmer of the vibes and the low tones of Lonnie Plaxico’s acoustic bass on the sultry “Soul Melange,” buried deep in the mix on LP, are enhanced here. Most important, the horns, which are often in closely wound lines, come to the forefront on CD, as does the frenzy of the playing.

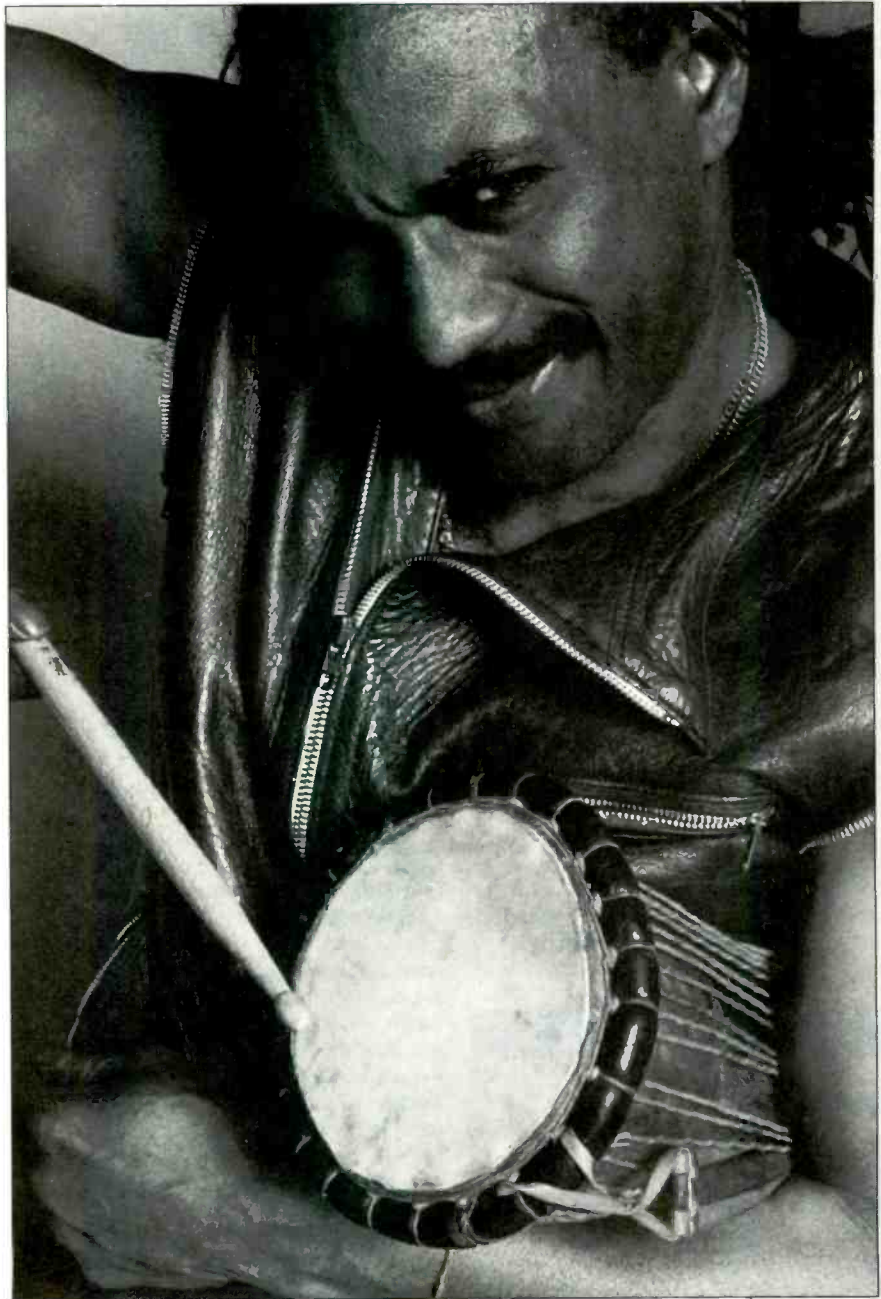
Don Palmer

## YELLOWJACKETS: Politics.

● *Yellowjackets and David Hentschel*, prods. MCA MCAD 6236. ◉ ◻

Good news: You can hear jazz on the radio again. Through the auspices of a format called The Wave and other playlists that have surfaced in its wake, jazz is once again thought to be “commercially viable.” Even a place like New York City, which has been without commercial jazz radio for years (though it has had some fine noncommercial stations), now has outlets playing the stuff. Bad news: They would sooner play the Yellowjackets than Thelonious Monk.

The Yellowjackets have been making socially acceptable (read “lowest common denominator”) jazz for some time now. This is fusion without electricity. Sure, there is power-company juice for Russell Ferrante’s synths and Jimmy Haslip’s bass amps, but the emotional charge, the kinetics that are a side of any vibrant and vital music-making organization from a punk band to a symphony orchestra, are lacking. Cool school? The Yellowjackets epitomize the frigid school. That’s why a lot of people refer to the stations that play them as Fuzak.



MARCIA RESNICK

Using percussionist Alex Acuna just doesn’t make you Weather Report, anymore than having the same instrumental lineup does, though the Yellowjackets try to make this aural connection on “Downtown.” Nor does recording a salute to the late bassist Jaco Pastorius, who probably would be embarrassed by it anyway, and not out of modesty (not one of his long suits). “Galileo (For Jaco)” is painfully

**RONALD SHANNON JACKSON: OUT FROM ORNETTE'S SHADOW BUT TOO PRETTY**

ambient, more in line with the sort of music Joe Zawinul is making today, only with less personality. Haslip is reasonably inspired here, but the track doesn't work as a dirge (c.f. "Goodbye Pork Pie Hat") and is too lugubrious to be anything else. "Local Hero" is more typical of the kind of bass work on a Yellowjackets album—and is also a blandly melodic bit of fluff with a plodding eight-of-the-same-note-to-the-bar bottom, the very thing Pastorius made major strides against.

An attempt at musical adventure like "Avance," a pseudo samba, is nearly laughable—which is okay, as much of what the Yellowjackets do is pretty grim. They occasionally sound like latter-day Steely Dan but lack that band's musical wryness. And "Evening Dance," in the hands of a less gray outfit, might have put Spyro Gyra in its place—but as far as the Yellowjackets are concerned, who use "Morning Dance" as the tune's launch pad, that's the very place to be. Not that *Politics* is entirely as boring as politics in this year of the presidential fiasco. But with the exception of "Foreign Correspondent"—via its synthetic orchestrations, slightly out tonalities, and Marc Russo being given permission to wail on sax—this disc is very near as bland as Dan Quayle.

It has been a good year for bloodless bands and joyless jazz. Which means the Yellowjackets should end up having a banner year. They are clearly a group whose time has come. Too bad, that.

Hank Bordowitz

POP

JIMMY PAGE: *Outrider*.

Jimmy Page, prod. Geffen GHS 24188.

If Robert Plant sang all the vocals on this album and it went by the name of *Led Zepelin XI*, critics would hail the return and fans would buy more copies than anyone but Geffen Records could possibly imagine. As it is, Plant appears only once—on "The Only One"—and this is merely a Jimmy Page album called *Outrider*, which one critic has dubbed a "whole lotta muddle" and which, a scant 13 weeks after it first appeared on the charts, fans have relegated to the position of No. 74 and Sinking Fast.

What is going on here? Clearly, expectations were high for the arrival of Page's first true solo record since the demise of Led Zeppelin in 1980. After all, Page has

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hardly been A Guitarist About Town over the past decade, surfacing only for the ARMS benefit tour, two soundtracks (his own *Death Wish II* and John Paul Jones's *Scream for Help*, each having two great solos but nothing else), and the cute Honeydrippers project. And of course there were the two albums and tours with the Firm, but Page was never really into that band: He wrote the music for only half of the material, and the precision of vocalist Paul Rodgers always kept Page's wild guitar instincts in check.

Why then is *Outrider* getting, if not the heave-ho, certainly the ho-hum? It's true that the lyrics of vocalists John Miles and Chris Farlow, who each get two originals to Plant's one (Farlow also sings the cover of Leon Russell's "Hummingbird"), are mostly infantile. It's also true that the vocals of those two vocalists are close to unbearable: Miles, formerly associated with the Alan Parsons Project and Tina Turner, sounds like he spent more time in today's heavy-metal school of excruciating screaming, while Farlow, who dates back to the British r&b movement, shouts in a cartoon fever. But hey, if I wanted to hear Plant singing all day, I'd grab *Now and Zen*—and get lousy music. I'd rather stick with *Outrider*, appreciating the three instrumentals and elsewhere tuning out the vocals when necessary, because the music here is pure Page rock.

So I repeat: *What is going on here?* How is it that lame stuff from Guns n' Roses and Def Leppard is in the Top 5 more than a year after release—followed closely by recent lame stuff from Van Halen, Cinderella, Poison, Scorpions, and yup, Mr. Plant—while an honest-to-goodness Guitar Album by the originator wallows near the *Billboard* basement?

Maybe people are having trouble with Page's constantly shifting time signatures. Or maybe '80s ladies and gentlemen can't accept a record that isn't sweetly overproduced; heck, Page doesn't even hire a synthesizer player (the nerve of the guy). If all this is true, then "Stairway to Heaven" has become the great deceiver, clouding the memory of veteran fans and lulling the appetite of newer ones when it comes to such challenging Zeppelin thrills as "Out on the Tiles" and most of the bare-bones *Physical Graffiti*.

Trust me: Anyone young or old who craves the Zeppelin crunge will want this record. If Page is an outrider, it's because his riffs are intelligent and not one-note hackwork, it's because his solos are deliberate and not Speedy Van Name 'Em finger exercises. And for those of you who, like me, have missed the sound of Page's Les Paul rocketing out of "Bring It On Home" ever since he began concentrating on Telecasters and Stratocasters, listen to "Prison Blues" for some of the most beautiful wailing you've heard in years. "Why have I been messing about with all these other guitars," Page mused in *Musician*, "when the Les Paul just sings so sweetly?" Why indeed. And why would anyone buy Kingdom Clone when they can have the real thing?

Ken Richardson

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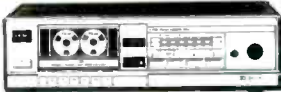


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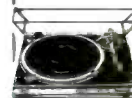
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going toward helping the Smithsonian Institution recoup some of the \$800,000 it spent buying the Folkways catalog in 1987. (Proceeds also will support the Smithsonian's acquisition of the Woody Guthrie Archive from the Woody Guthrie Foundation.) Overlooking the irony of a bunch of (in most cases) wealthy white pop stars paying tribute to an itinerant and a jailbird, there's plenty here to enjoy. John Mellencamp's hoedown version of Guthrie's sarcastic "Do Re Mi," U2's near-rockabilly take on "Jesus Christ," Little Richard and Fishbone's raucous performance of Leadbelly's "Rock Island Line"—in each case, the performer successfully redefines the song in the context of the '80s. The gospel sextet Sweet Honey in the Rock turns Leadbelly's "Sylvie" and "Gray Goose" into breathtaking excursions in harmony singing, and Bruce Springsteen's dust-dry take on Guthrie's "I Ain't Got No Home" takes on added significance in light of his marital woes.

The second side has a few bright moments—especially Springsteen and band's transformation of Guthrie's folksy "Vigilante Man" into a chilling raveup—but doesn't catch fire, and its predictable closing cut, Pete Seeger and company's "This Land Is Your Land," is anticlimactic. As personified by Emmylou Harris's pretty but shallow "Hobo's Lullaby," some of these performances don't sound lived in or simply lived, which was never an accusation that could be leveled at Guthrie's or Leadbelly's own recordings.

Johnny Cash has been taken for granted by the record-buying public for too many years, which is something of a mystery: His music spoke to the white working class of the '50s and '60s as heroically as Guthrie's tales spoke to lower classes of earlier decades. Once again, it has taken some Brits to alert us to our own heritage. Jon Langford of the Mekons and Marc Riley of the Creepers assembled a rag-tag backup band, brought in some friends and allies, and cranked out 13 Cash covers. The result, *'Til Things Are Brighter...* (named for a line in "Man in Black"), is looser, funkier, and less suffocatingly reverent than *Folkways*.

While not all of the versions work—namely, an oversung "A Boy Named Sue" by Mary Mary of Gaye Bykers on Acid and a camp rendition of "Five Feet High and Risin'" by members of Voice of the Beehive, the British Bangles—all the musicians involved sound as if they're simply having fun with the concept. Highlights include the Mekons' ghostly "Folsom Prison Blues" (the group's Sally Timms also does a lovely cabaret version of "Cry, Cry, Cry"); the cheesy Farfisa and salacious delivery of "Rosanna's Goin' Wild" by Steve Mack of That Petrol Emotion; Michelle Shocked's wry reading

of the overlooked Cash classic "One Piece at a Time"; and David McComb of the Triffids coming down to earth with a rocksteady rockabilly run-through of "Country Boy." Like *Folkways*, this is a charity LP (proceeds going to the Terrence Higgins Trust for AIDS research), but any listener will benefit from it. *David Browne*

**CAMPER VAN BEETHOVEN:**

**Our Beloved Revolutionary Sweetheart.**

*Dennis Herring, prod. Virgin America*  
 Ⓞ 90918-1. □ ●

**EUGENE CHADBOURNE WITH**

**CAMPER VAN BEETHOVEN:**

**Camper Van Chadbourne.**

*Fundamental Music SAVE 46.* □ ●  
 Ⓞ (251 Rio Cir., Decatur, Ga. 30030.)

On the big labels, neatness counts, and so after a string of hang-loose independent

concept is an alien presence that the band's appealingly shaggy personality just manages to co-exist with. But it doesn't ruin the party: If the shirts are tucked in and the faces freshly scrubbed, the glint in the eye has the old hip playfulness. And on the final two cuts here—"Tania," a gypsy love song to Patty Hearst, the album's title heroine, and "Life Is Grand," a statement of principle by a group well aware of life's follies but too sensible to become fashionably depressed—the high-rent production values sound just fine.

Of course, there are those prone to resist even non-fatal compromises. For these stout hearts, the Camper kids can be found assisting near-legendary guitarist/singer/songwriter Eugene Chadbourne on his latest collection of songs he liked so much he figured he might as well record them.



*Camper Van Beethoven: Shaggy personality co-exists with AOR thump and bump on Sweetheart.*

releases, Camper Van Beethoven debuts in the majors with its rhythm section tightened and the drums mixed loud and up front. As a result, instrumentals like "Eye of Fatima (Part 2)," "Waka," and "The Fool," while still displaying the band's combination of folk and Central European boogie and whatever else fits at the moment, are less discursive than they would be otherwise. This focus on the Big Beat does diminish the band's off-the-cuff quality, but not fatally: Cries of "Sellout!" are premature.

Camper Van Beethoven's good-timey eclecticism has always been in the service of a cautious communal optimism: Part of the reason the band members radiate such good vibes is because they've found each other. On *Our Beloved Revolutionary Sweetheart*, then, the AOR thump and bump conspicuously grafted onto their

*Camper Van Chadbourne* includes an impeccably chosen and rather loosely executed covey of covers of people like Pharoah Sanders, Frank Zappa, and Thelonious Monk—here the tendency is to start with homage-like readings and then jump into free jazz—as well as classic-mode folk/country ballads both borrowed ("Reason to Believe," "Ballad of Easy Rider") and original ("Fayettenam," and enough said). Chadbourne's own LPs are usually endless, self-indulgent, and great fun. With Camper, there's a refreshing emphasis on Trait No. 3. *Richard C. Walls*

**BRIAN WILSON: Brian Wilson.**

*Brian Wilson, Russ Titelman, Jeff Lynne, Lenny Waronker, and Andy Paley, prods. Sire/Reprise 25669-2.* Ⓞ □  
 With what must be a record seven doctors receiving thanks—and with one of them,



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'round-the-clock psychotherapist Eugene E. Landy listed as co-author on half the tracks and executive producer on all eleven—it's easy to think of Brian Wilson's comeback album as an advanced form of musical therapy. In many ways, its very existence is assuring enough, given Wilson's decades-long creative trauma. But seeing as how he's been alienated from just about the entire planet for 20 years, the once mighty bond between him and his audience has long since dissipated. (The Beach Boys' mindless slogging of Wilson's best work has only worsened matters.) We don't know this man anymore.

All of which leaves one unable to judge most of this album. In a way, it picks up about where Wilson left off. There is much here that smacks of 1967: from endlessly layered chorales and Spectorian orchestrations, through mild meditations on the state of things, right down to the "pocket symphony" "Rio Grande." Yet how to accept the desperate, almost naked plea for "Love and Mercy" if set against the curiously clinical "Night Time"? The latter, presumably a traditional rock 'n' roll celebration, is instead shockingly numb. Wilson's voice, everything, is deadened; even a sax solo that should soar and release is sucked into this black hole. Only "Melt Away" achieves a balance, an equilibrium of words reaching out honestly, poignantly, to unleash angelic harmonies.

The most sympathetic listener would be hard pressed, on the basis of *Brian Wilson*, to meet the man halfway back. Me, I wasn't expecting any miracles first time out. But it seems unlikely that we'll have a chance to really respond until we get a true Brian Wilson solo LP, one safely beyond the shadow of an intrusive personal guru and that of Wilson's own brilliant and troubled past. *Wayne King*

#### WOMACK & WOMACK: *Conscience*.

Chris Blackwell and the *Gypsy Wave*  
 ● Power Co., prods. Island 90915-2. ☉☐  
 A recording based on the songs and stories of plain folk who work the mines and inhabit the hills of Virginia and West Virginia, *Conscience* could easily be called the Gospel According to Saints Womack & Womack. By weaving lyrics about everyday concerns into a gently textured and layered mix of Afro-Carib percussion, thumb-popped funk bass, organ-like keyboard sustains, and rhythmically stroked guitars, Linda and Cecil Womack—daughter and compatriot of Sam Cooke—transform sentiments that are mushy, nearly banal, and surely communal-hippie-dippy into a flirtation with universal truths about love lost and found.

I know that sounds corny, but the chilled-out Uncle Jam groove pushed by the Womack clan cradles to the point where Linda's hushed, spoken aside on

"Conscious of My Conscience"—"open your mind and discover (pause) your inner conscience"—could well have been that old P-Funk creed, "Free Your Mind and Your Ass Will Follow." Even extremely tired clichés like "Life's Just a Ballgame" sound majestic with Latin-flavored cross-rhythms bubbling under the Womacks'



CAROL FRIEDMAN

*The Womacks: as big as life on Compact Disc*

conversational vocals. The latter make this recording all the more remarkable, because the Womacks don't use mere gospel call-and-response or predictable accents at the end of lyric phrases. Instead, their duets vary tonal qualities—whispers, throaty exhortations, vibratoed croons—and the two deftly finish off each other's lines.

Given the dense yet airy sound of the production, not to mention the album's textual continuity, *Conscience* seems perfect for CD. The digital format makes the work as big as life by accenting the echoic silence of the haunting laments "MPB (Missin' Persons Bureau)" and "Slave (Just for Love)." And though the LP version doesn't muddy the sound, the CD gives greater definition to small but significant parts, like Linda's finger-snapping on the shuffle-stomp "Good Man Monologue." The only drawback to the CD is the inclusion of more than seven minutes of unacknowledged instrumental vamps on "Ballgame," "Teardrops," and "Celebrate the World." *Don Palmer*

#### IGGY POP: *Instinct*.

☉ Bill Laswell, prod. A&M SP 5198. ☐☉

#### PATTI SMITH: *Dream of Life*.

☉ Fred Smith and Jimmy Iovine, prods. Arista AL 8453. ☐☉

In rock 'n' roll, the problem is not so much how to grow old gracefully as credibly. One doesn't reasonably expect a middle-aged Iggy Pop to be the same post-adoles-

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cent, barely containable, yowling talent of yesteryear, but neither is it seemly for a committed firebrand to evolve into just another airwaves fashion dish. For years, the Ig has been attempting to come up with a second act worthy of his auspicious beginnings, a search that has taken him through various collaborators, all of whom (David Bowie included) have made for uneasy alliances.

On *Instinct*, working with producer Bill Laswell and guitarist and co-writer (and ex-Sex Pistol) Steve Jones, Mr. Pop offers his latest formula: stripped-down metal, kept pacey by Laswell, with Jones allowed measured pockets of space for tasteful guitar-hero keening. Over this punchy backdrop, Iggy is alternately defiant ("Power and Freedom," "Square-head") and doomy ("Lowdown," "Tuff Baby"—when he sings on the latter, "There's chaos in the ol' suburbs/And downtown too they got the blues," by God you believe it). His voice is strong and sounding good, more controlled and less apocalyptic as he insinuates and threatens along with the familiar but invigorating well-tooled crunch. Good enough, anyway, for the late '80s.

Like Iggy Pop, Patti Smith is a former Edge City talent attempting to come to terms with the long haul. On her new album, which ends a nine-year hiatus during which she married former MC5 guitarist Fred Smith and began a family, her singing retains its old melodramatic flair. But though some of the cuts are bracing—"People Have the Power," with its somewhat nostalgic message, and "Up There Down There," where Smith reasserts her Boho values over street-fighting riffs—the

songs here, co-written with husband Fred, are more restrained than her earlier work. No longer does she go a little crazy and build to dangerous climaxes. The new Patti is even more presentable than the current Iggy—no disgrace, but no rousing reaffirmation either. *Richard C. Walls*

**KARLA BONOFF: *New World*.**

Mark Goldenberg, prod. Gold Castle  
 ☉ 171 014-1. ☐

Karla Bonoff's *New World* sounds tailor-made for those easy-listening radio stations: nothing loud or jarring, though



BRANDEE ST. NICHOLAS

*Bonoff: shopworn lyrics, innocuous music*

nothing really awful, yet nothing exciting. Maybe Bonoff should try writing about something other than love: Whether she's falling in it or getting over it, breaking up or sticking together, every song addresses the same tired topic, and she has nothing new to add.

But it's more than shopworn lyrics that makes Bonoff's first release in six years so

disappointing. Though these ten offerings are well crafted and lushly orchestrated with lots of layered harmonies, the melodies don't grab. Several slow cuts, like the title song and "The Best Part of You," are so innocuous they'd be at home on a women's-music label. In fact, Bonoff even sounds like Cris Williamson on "Goodbye My Friend." Like that feminist counterpart, Bonoff is a polished, self-assured vocalist with a wide range, good phrasing, and clear diction who'd be terrific on better material. The only standouts here are "Tell Me Why," where Peter Frampton's guitar invigorates the breaks and Bonoff soars through a punchy chorus, and "How Long," a pretty showcase for Bonoff's smooth instrument.

It's ironic that "How Long" is the only tune she didn't compose herself. What happened to the woman who wrote great stuff like "Runnin' Back to Me" and "Someone to Lay Down Beside Me," many of whose early songs were covered by the likes of Bonnie Raitt and Linda Ronstadt? If this album represents Bonoff's new world, I'll take the old one.

*Kate Walter*

**ELTON JOHN: *Reg Strikes Back*.**

☉ Chris Thomas, prod. MCA 6240. ☐ Poor Elton John! He just cleaned his house of bric-a-brac, had Sotheby's sell the stuff for him (over the course of five days), and pulled down a cool \$6 million or so. It doesn't take an abacus to figure out that if he invested the money in CDs (that's Certificates of Deposit, not Compact Discs), he could pull down, oh, \$500,000 a year. Add to that, he just had a Top 3 single, "I Don't Wanna Go On with You Like That," not the strongest track on his new album but a catchy little tune nevertheless.

The point is, Elton really doesn't need this review—but he'll get it anyway, as *Reg Strikes Back* is easily the best rock he has made in the '80s. For one thing, he has hooked up with the team that helped make the great Elton John records of the '70s: Davey Johnstone fretting, Nigel Olsson and Dee Murray singing (if not playing), and Bernie Taupin songwriting again after selling perhaps a dozen copies of his own solo albums. And John is in rare form as vocalist and composer: "Heavy Traffic," particularly, works on the strength of its quirky arrangement and unexpected modulations. Johnstone, meanwhile, plays brilliantly on the acoustic ballad "A Word in Spanish," and if "Goodbye Marlon Brando" is any indication, he can still kick out the jams as far as John lets him.

Young readers may be puzzled why it is a small deal that Pete Townshend and a few of the Beach Boys make guest appearances here. And just who is this Freddie Hubbard character anyway? But jazz trumpeter Hubbard's solo is one of the

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high points of the Becker/Fagen stab "Mona Lisas and Mad Hatters (Part 2)," one of the few real rock epiphanies John has been responsible for. The Beach Boys, who sang on "Don't Let the Sun Go Down on Me," are much better used on a much better song, "Since God Invented Girls": The family harmonies add just the right touch to this musical and lyrical homage to Brian Wilson. Townshend doesn't really add anything to "Town of Plenty," which doesn't really matter, as a terrific song is a terrific song.

The title of the album, the whole feel of the record—not to mention the auction and the fact that John's back on MCA, where he had most of his musical triumphs—convey a sense that Elton is getting rid of some of the elements of the past that didn't work and trying to recapture those that did. *Reg Strikes Back* finds him to be very successful on both counts, releasing an album on par with *Goodbye Yellow Brick Road*, arguably his best work. My heart bleeds. *Hank Bordowitz*

#### BOB DYLAN: Down in the Groove.

Bob Dylan, prod. Columbia OC 40957.

For years, Bob Dylan's recorded output has been, well, schizophrenic, veering wildly from bright to banal, from imagistic and symbol-heavy works reminiscent of his best song-poems to awkward attempts at musical forms in which he's clearly an outsider. But this year Dylan has taken a musical breather both on tour and on record, indulging his whimsy more than usual, resulting in near-acoustic live shows and an album filled with quiet pleasure.

The summer tour of small venues with a guitar-bass-drums combo was a relaxed surprise of swift and simple reappraisals of old Dylan faithfuls. And even though *Down in the Groove* features just one of that tour's songs, "Silvio," it shares a similar sensibility: Its ten tunes sound as if they were recorded on the first take. The presence of a wide range of musicians spread around the LP's varied, spare settings—Eric Clapton, Ron Wood, Mark Knopfler, Paul Simonon, Danny Kortchmar, Jerry Garcia, Bob Weir, Willie Green, Bobby King, and Clydie King, to name half of them—adds to the impression that these songs were recorded in a cycle of friendly jam sessions.

There are no big statements or quintessential Dylanisms here, but the album does have special moments. Vocal performances are the real standouts, from the oddly interpreted traditional number "Shenandoah" to a delicate and melodic "Death Is Not the End." Best tracks include an acoustic cover of "Rank Strangers to Me" and the choir-like reverberation of "Ninety Miles an Hour (Down a Dead End Street)." *Leslie Berman*

#### LITTLE FEAT: Let It Roll.

George Massenburg and Bill Payne, prods. Warner Bros. 25750-2. ©

Little Feat's recording history is spotty—and got spottier as time went by. The band spent its first decade breaking up and returning in less focused incarnations, but *Let It Roll*, the new album from the newly resurrected Feat, is the absolute nadir. From the very first release in 1971, this band was dominated by the songwriting, singing, socket-wrench slide guitar, and quirky, acerbic brilliance of frontman Lowell George. As the Me Decade wore on, Little Feat developed a sonic signature—a murky, perky second-generation second line—and rode it to road popularity. The band's one gold album was 1978's live *Waiting for Columbus*, and George seemed increasingly disengaged from paying the rent by re-creating his widest grooves nightly. He drifted away for the last time in 1979 and died on the road, touring in support of a solo record.

Now, nine years after they disbanded with the juke box jury still hung, we have Little Feat. The Sequel (not the original but an incredible simulation). These guys are the legitimate heirs: Keyboardist Bill Payne and drummer Richie Hayward were Feats from the first, and bassist Kenny Gradney, percussionist Sam Clayton, and guitarist Paul Barrere came aboard 15 years ago, after the first reconstitution. Payne, Barrere, and new guitarist Fred Tackett wrote songs for Feat LPs all along—Payne penned Track 1 on the very first and Tackett the nearly perfect "Fool Yourself" on 1973's *Dixie Chicken*—but all of these previous efforts were framed by George's genius. Little Feat without that frame is like the Velvet Underground without Lou Reed: possible but pointless and, finally, insulting.

As if auditioning for a Bud ad, *Let It Roll* shamelessly pimps the fat, syncopated bottom from the first bar, and the band, sharing all writing credits in various combinations, shamefully imitates itself ("Hate to Lose Your Lovin'," "Let It Roll") when not imitating Foreigner ("Long Time Till I Get Over You") or—is this really happening?—Boston without the extreme echo ("One Clear Moment," "Changin' Luck"). New frontman Craig Fuller, who prepped with Pure Prairie League, is the very model of FM competence, investing bland truisms—"Soft as a summer day/Warm as a gentle breeze," from a track actually titled "Listen to Your Heart"—with blander sincerity. I don't know which is more disappointing: the truisms or the sincerity. This feat is so little it doesn't deserve the name and certainly doesn't belong on the same shelf with *Sailin' Shoes*. There's no bite here, no nourishment, nothing but refried pap. Thanks, I already ate. *Jeff Nesin*

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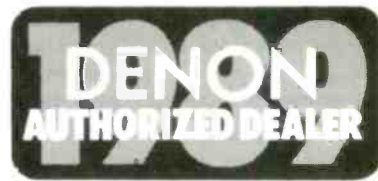
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| <b>Design Acoustics (13)</b><br>1225 Commerce Drive<br>Stow, Ohio 44224<br>216/686-2600         | <b>Illinois Audio (74)</b><br>12 E. Delaware Place<br>Chicago, IL 60611<br>1-800-621-8042        | <b>Pioneer Electronics (Cov. II, p. 1)</b><br>2265 E. 220th Street<br>Long Beach, CA 90810<br>213/865-6177    | <b>The Speaker Exchange (71)</b><br>804 West Fletcher Ave.<br>Tampa, Florida 33612<br>1-800-782-1288 |   |

(Continued from page 13)

for camera lenses. The cabinet panels are made of "hand-finished Crown-cut African Mahogany wood veneers." *Vector Research, 1230 Calle Suerte, Camarillo, Calif. 93010.*

### Cool Component

Stantron, a maker of electronics cabinets, among other accessories, has developed a 1 1/4-inch high rack-mount cooling unit consisting of three, six, or nine fans (\$264, \$357, and \$468, respectively). The front panel contains one on/off switch for each group of three fans. Although the Fan Tray's rack-mount "wings" are not removable, the 19-inch-wide unit should fit in most furniture-type equipment cabinets. *Stantron, Unit of Zero Corp., 6900 Beck Ave., North Hollywood, Calif. 91605.*

### Triple Header

Pioneer's Elite series of audio components has gained the CT-91 three-head cassette deck (\$950), which incorporates Dolby B and C noise reduction as well as Dolby



Pioneer's deluxe CT-91 cassette deck with Dolby B, C, and HX-Pro

HX Pro headroom extension. The three-motor, closed-loop, dual-capstan deck has an adjustable bias control that can be used during off-the-tape monitoring to optimize frequency response for the particular tape used. Features include fluorescent meters with peak-level hold, an elapsed/remaining time counter, and compatibility with Pioneer's SR system remote. Like other models in the Elite line, the CT-91 is built on a rigid, copper-plated honeycomb chassis, which is said to contribute to smooth transport operation. *Pioneer Elec-*

*tronics (USA), Inc., P.O. Box 720, Long Beach, Calif. 90801.*

### Factory Sounds

Bose has added two more automobile companies to its client list for customized car audio systems, which already includes GM and Acura. The first recipient is Nissan, which offers the Nissan/Bose system—based around a Clarion-made head unit—in its all-new 1989 Maxima four-door sedan (standard in the sporty SE, optional in the GXE). A dealer-installed CD player is available, as well. The Maxima system uses 4 1/2-inch Bose full-range speakers in the front and Bose 6-by-9s in the back, each in an enclosure containing an amplifier and the equalizer circuitry. Having recently driven the Maxima extensively, we'd say Bose is displaying remarkably good taste in its selection of cars.

Such is the case, also, with the new Audi 100 and 200 Series sedans, "refined" replacements (that is, they look the same) for the venerable 5000 Series models. The complement of speakers in the Audi/Bose systems is the same as that in the Maxima, but naturally the equalization is different. The system is based around a Blaupunkt-made head unit with diversity (dual-antenna) tuning and is standard in the 200 models, optional in the 100s.

### Tuner Amplifier

That's what Nakamichi calls its new TA-1A receiver (\$329), rated at 35 watts (15.5 dBW) per channel and incorporating an infrasonic filter in the phono preamp. Carefully designed bass and treble controls are said to act without spilling over into the midrange band between 300 Hz and 1.2 kHz. Other features include A/B/A-B speaker switching and ten presets each for AM and FM stations. *Nakamichi America Corp., 19701 S. Vermont Ave., Torrance, Calif. 90502.*

# Low Price Accessories

<b>For CD Players</b> AQ "Sims" CD Stabilizer Rings Starter Kit: 15 w/locator 19.95 Complete Kit: 25 w/locator 29.95 Bonus Kit: 50 + free locator 49.95 AQ CD Isolation Feet (4) 19.95 <b>CD Interconnects:</b> See Cables Accessories DB Passive CD preamp 99.95 Magnavox CD Players: CDB480 139.95 CDB582 w/remote 184.95 CDB473 w/remote 249.95 CDB486 16 bit CD Changer 249.95 CDV474 CD/Video Laser Call Mod Squad CD damper kit 23.50	<b>Record Doctor:</b> vacuum-powered record cleaning machine 169.95 <b>LAST Record Care Products:</b> #1 Power Cleaner 11.95 #2 Preservative 14.95 #4 Stylus Cleaner 7.95 #5 Stylust Treatment 16.95 <b>Headshells:</b> AQ-16 for MC's 39.95 Sumiko HS12 for MMT 29.95 <b>Headshell wires:</b> Livewire, Sumiko 9.95 SME Iitz BEST AVAILABLE 21.95 <b>Record Brushes:</b> AQ or NG 9.95 <b>Record Cleaning Solutions:</b> NG First: 6oz 14.95 16oz 24.95 Torumat TM 7XH: 16oz 14.95 SuperCleaner 16oz 12.95 32oz 16.95 1 gal.: 24.95 SuperSize: 2.5 gal. 49.95 <b>Record Mats:</b> AQ mat 29.95 Sota mat 129.95 Sumiko mat 84.95 Sota Reflex Clamp 89.95 <b>Stylus Gauges:</b> Shure Gauge 14.95 Electronic Stylus Gauge 99.95 Electronic Stylus Cleaner 39.95 Sumiko: FB-1 MC Dremmer 209.95 VTA-16 VTA for MMT arm 74.95 <b>Tip Toes</b> for turntables: C3-AR 4.95 C-17-VPI, C-37-Sota, C-10-Oracle 8.95 <b>Turntable Stands:</b> Lead Balloon 239.95 Target TT-2 w/2 shelves 139.95 <b>Turntable Wall Shelves:</b> TT-1 99.95 Target PS-1, for large tables 149.95 VPI Record Cleaning Machine: Call VPI PLC Power Line Cond: Call	<b>Speaker Stands/Equipment Racks</b> Chicago "Hercules" speaker stands 12" 129.95 15" 134.95 20" 134.95 25" 139.95 ARCCI Rigid Riser adjustable stand 119.95 ARCCI Quad stand 169.95 <b>Sound Anchor stands for VS IIC 219.95</b> Target BT-1 adj. wall bracket 24.95 <b>Target Equipment Racks (black or white)</b> AIB-1 amp floor stand, 4" 69.95 TT-3 33" tall, 3 shelves 199.95 PS-3 33" w/large shelves 245.00 TT-ST 40" tall, 5 shelves 259.95
<b>Hard-to-Find Audiophile LP/CD's:</b> Chesky Records: RC10 LI, Kijie (LP) 13.99 RC11 Reiner Sound (LP) 13.99 RC-8 Gershwin, RC-9 Spain (LPs) 13.99 CR-6 Brahms & Tchaik (CD/LP) 13.99 CR-7 Bizet & Tchaik (CD/LP) 13.99 Proprius: Contate Domino (CD/LP) 15.95 Jazz/PawnShop: CD: 15.95 LPs: 33.95 <b>Reference Recordings:</b> LP or CD RR12 Dafos, RR20 Serendipity 15.99 RR25 Nojima plays Liszt 15.99 RR26 Redheads (Jazz) 15.99 RR27 Fuller plays Rameau 15.99 Sheffield/Moscow Sess: CD/LP(set) 39.95 KodoDrums or Test Record (CD/LP) 14.99	<b>PowerStrips with line filters</b> Deluxe Datagard 6 outlet strip 49.95 <b>TrippLite ISOBAR line Filters</b> IB-4 4 outlets, 2-stage filtering 69.95 IB-8 8 outlets, 3-stage filtering 99.95 <b>TrippLite regulator/line conditioner:</b> LC-1200 4 outlet voltage reg. 199.95 LC-1800 6 outlet voltage reg. 289.00 *available in 220volt, 50/60Hz add \$10.00	<b>Cables and Cable Accessories</b> <b>Interconnect Cables:</b> As-One, Cardas, FMS, Ditech, Livewire, MIT, Monster, VanderHul Call <b>Custom longer length cables available Call</b> <b>Speaker Cables:</b> Aural, Cardas, FMS, Livewire, MIT, Monster, VanderHul Call <b>Banana Connectors:</b> King Size 8ga 7.95 Monster X-terminators (pr) 24.95 Tiffany RCA's: 4.5, 5.7, 9mm (pr) 13.50 <b>Silver Solder:</b> Wonder Solder 1.5oz 9.99 WBT 250g 29.95 500g 59.95
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