

1992 EQUIPMENT BUYING GUIDE Compact Disc Players, Receivers, Tuners, Amplifiers, Loudspeakers, and Turntables

THE BEST RECORDS OF THE YEAR

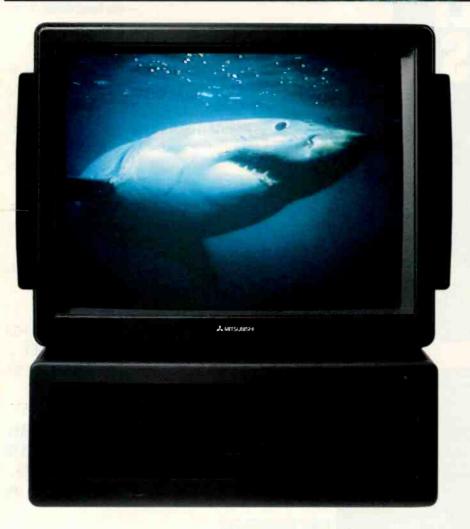
TEST REPORTS Tannoy Speakers, Denon A/V Preamp, and More

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The Mitsubishi CS-3535R 35" TV features a fine pitch screen, digital comb filter, invar shadow mask, velocity scan modulation, dynamic beam forming, and an anti-static coating.

"Wow, what a picture!"



When we introduced the first 35" direct view TV back in 1986, people couldn't believe that a picture that big could also be that sharp and that beautiful.

It's a reaction that has become more pronounced with every passing year. And this year is no exception, thanks to Mitsubishi's commitment to technical innovation. Take, for example, our exclusive Diamond Vision picture tube. A direct descendant of our stadium display screens, it delivers optimum contrast and color even under the most challenging light conditions.

And this year, we're treating selected Diamond Vision tubes with a special coating that boosts contrast an additional 20% while forming an antistatic shield against dust. It also absorbs ambient room light rather than reflecting it, so your picture never looks washed out.

Our Dynamic Beam Forming technology resulted from the fact that electron beams become distorted as they reach the edges and corners of the screen. Reshaping and refocusing the beams results in a much sharper overall picture.

Also contributing generously to a sharper picture is our exclusive Fine Pitch Screen. By reducing the pitch, or horizontal distance between the phosphor stripes, it delivers a 20% improvement in detail.

We could go on and on about the picture enhancing advantages of our digital comb filters, invar shadow masks and quote from a considerable list of other technical specifications.

But to really appreciate the remarkable picture you get with the CS-3535R direct view 35," you need to do some basic research of your own.

Turn it on and watch it.



UNSURPASSED VALUE IN BOOKSHELF SPEAKERS

Model PN5+

Micdel PN70



HERE'S WHY

The New Hork Times

"PINNACLE LOUDSPEAKERS HAS ACHIEVED WONDERS WITH ITS PATENTED VERSION OF A BASS REFLEX ENCLOSURE.

- Hans Fantel, October 21, 1990

Stereo Review

"AT LOWER LEVELS THE SOUND CHARACTER OF THE PN5+ SYSTEM WAS AMAZINGLY CLOSE TO THAT OF OUR REFERENCE SPEAKERS WHICH COST NEARLY TWENTY TIMES AS MUCH!...QUITE REMARKABLE...!"

- Julian Hirsch, January 1988

HIGH FIDELITY

"...THE PN6+ IS A MUST HEAR MODEL FOR YOUR AUDITION LIST."

— Robert Lang, November 1989

Stereoghte

"THE LARGER PN8+ WAS SHOCKINGLY GOOD FOR THE MONEY..."

- Peter Mitchell, April 1990

Inc.

"GOOD SPEAKERS FOR LESS THAN \$200 ARE HARD TO FIND. THE PINNACLE PN5+...BOASTS TRUE HIGH FIDELITY SOUND IN SMALL CABINETS."

- Cary Lu, September 1990

Stereo Review

"HEAR THE PN8+...ESPECIALLY IF YOU ARE LOOKING FOR AN EXCEPTIONAL VALUE IN A SPEAKER."

— Julian Hirsch, July 1990



Patented Loudspeakers from \$150 per pair.



255 Executive Drive, Plainview, N.Y. 11803 (516) 576-9052 CIRCLE NO. 26 ON READER SERVICE CARD



Cover

The Klipsch kg^{4.2} speaker, Onkyo DX-708 CD player, and Harman Kardon HK-3600 receiver are among the hundreds of components described in the Equipment Buying Guide beginning on page 51. Furniture courtesy of Bell'Oggetti; carpet courtesy of ABC Carpets.

Photograph by Roberto Brosan

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Neatness Counts
10 Tips for Better Sound

Spruce up your system's performance without emptying your wallet • by Ian G. Masters

• by Bob Ankosko, José Garcia, and staff

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MUSIC

Record of the Year Awards	
The best of the past year, and lots of honorable mentions	
Best Recordings of the Month	

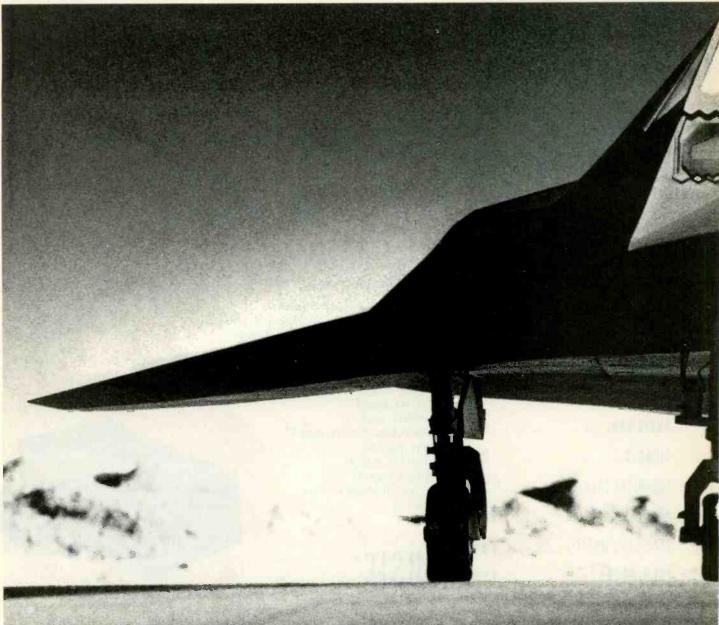
Best Recordings of the Month Paul Simon, Richard Strauss tone poems, Matthew Sweet, and Mstislav Rostropovich's "Return to Russia"



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THE HIGHER THE PERFORMANCE,

Compare Maxell's XLII-S to an ordinary cassette. An obvious difference is the size of the windows. Remember: there are no bay windows in rockets, but in houseboats there are.

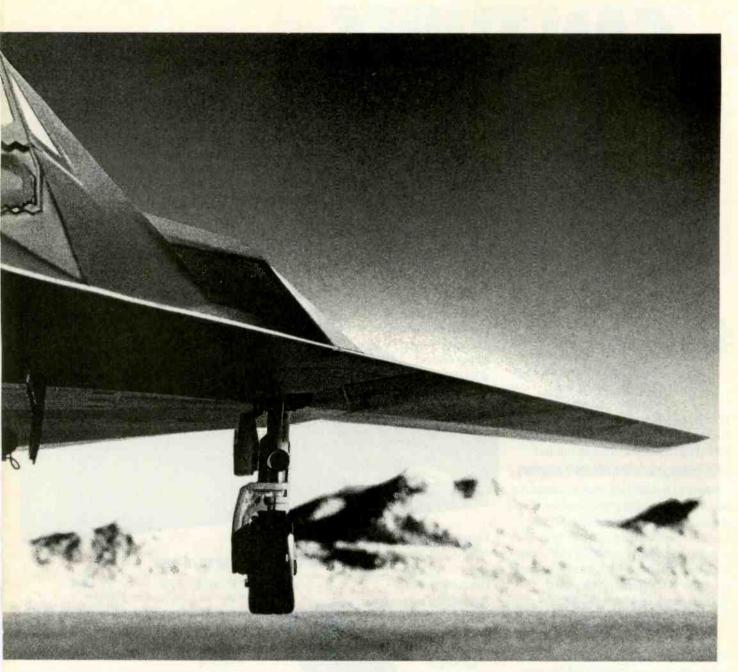
That tiny little slit of a window allowed us room to build additional support into the cassette shell for greater rigidity and durability.

The shell itself is a compound of ceramic and polymer resins. With 1.4 times the specific gravity of standard cassette shell material, it's antiresonant, absorbs vibrations that can cause modulation noise.

Inside, the tape is formulated

with Black Magnetite—a higher energy magnetic material harnessed by Maxell engineers.

It contributes to the sound *CD Review* magazine described like this: "Bass response that doesn't stop, staggering dynamics, real music." And in their review of Type II tapes, they



THE SMALLER THE WINDOWS.

rated XLII-S, "Head, shoulders and torso above the rest."

Of course, an XLII-S cassette is going to cost you more than one with big, low-performance windows and matching sound.

But not so much more that you have to go to Congress for it.



TAKE YOUR MUSIC TO THE MAX.

CAN TUBES WARM UP CD SOUND?

How a very old technology can make a brand new compact disc player sound extraordinarily good

Our ultraadvanced new SD/A-490t includes two vacuum tubes whose classic design has remained unchanged for over 35 years. We and many other critical listeners believe that this anachronistic addition to an already excellent CD player design significantly enhances its sound.

THE AMPLIFIER THAT DOESN'T AMPLIFY.

Between a CD player's D/A converter and external outputs is circuitry called a buffer amplifier which actually doesn't boost the signal strength at all. Instead, the buffer amp is a unity gain device which increases output current, and acts as a sort of electronic shock absorber, isolating the relatively fragile D/A chip set from the nasty outside world of demanding analog components.

TUBES VERSUS SOLID STATE

More than 98% of all CD players use solid state devices for buffer amplifiers. A handful of hard-tofind, esoteric designs in the \$1200 to \$2500 range employ one or more tubes instead. As does our readily-available \$699 SD/A-490t.

In ultra-expensive preamplifiers and power amplifiers, tube sound is subjectively described as "mellower", "warmer", "more open and natural" or simply "less harsh than solid state". Objectively, it's safe to say that tubes: 1) Produce even-order distortion versus transistors' odd-order distortion, particularly 3rd harmonics which are especially unpleasant to the ear; 2) Act as a pure Class A device when used in a buffer stage (Class A output is considered the optimal amplifier configuration) 3) "Round off" the waveform when they clip, while over-driven solid state devices cut off sharply, causing audible distortion.

THE SD/A-490t'S OUTPUT SECTION.

Our new CD player uses two 6DJ8 dual triodes placed between the digital-to-analog converter and a motorized volume

control. Operated at less than 30% of

their maximum

capacity, the tubes

output voltage with

OWATR

The Carver SD/A-490t. At \$699, its suggested retail is achieve a highly linear \$500 less than the nearest competitor with tube output.

very low static and transient distortion while providing very high dynamic headroom. And because they're "loaf-

ing" at 1/3 their rated current capa-

bility, the SD/A-490t's tubes

are designed to last the life of the CD player without replacement or need for adjustment.

AN ARRAY OF FEATURES AS RICH AS ITS SOUND.

We've designed the SD/A-490t to be both useful and easy-to-use. 21-key front panel or remote programming. Fixed and variable output. Programming grid display. Random "shuffle" play. Variable length fade. Automatic song selection to fit any length of tape. Even index programming for classical CD's.

Plus our proprietary Soft EQ circuitry which compensates for variables in spacial (L-R) information and midrange equalization found in many CD's mastered from analog tapes.

BRING YOUR TWO BEST CRITICS TO A CARVER DEALER.

It's tempting to further regale you with how well we think the SD/A-490t's tubes and Single Bit D/A circuitry improve the sound of a compact disc. But your own ears should be the final arbiter of quality. Bring them to a Carver dealer and compare tube output with solid state designs costing \$1000 or more. Suffice it to say that almost all critical listeners not only are able to hear a difference, but prefer the sound of the remarkably affordable SD/A-490t's dual triode transfer function.

THE SD/A-490t

- Dual 6DJ8 Vacuum Tube Output Stage
- Over-sized Disc Stabilizer Transport
- · 24-Track Programming with Music Calendar Display and 21-key front panel and remote input
- Indexing

20.10

- Random Play
- Motorized Volume Control
- Time Edit/Fade Taping Feature with user-variable time parameters
- 2 to 10 Second Variable Length Fade
- · Optical and Coaxial Digital Outputs
- Exclusive Carver Soft EQ



Powerful

Musical

Accurate

Carver Corporation, Lynnwood, Washington, U.S.A. Call (206) 775-1202 for information and dealer listings

Stereo Review.

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MA



A Very Hot Offer From Sony.

FREE CDS When you purchase any Sony portable CD player.



Sony is celebrating 1992, the 10th anniversary of the CD, with a red hot offer.

Buy any Sony Discman® Portable CD Player or Sony Portable CD/Radio/Cassette Recorder between December 27, 1991 and April 5, 1992 and Sony will pick up the tab for up to 3 hot CD titles. So start shopping around for your new Sony. And as soon as you're sold on a particular model, check your model number on the chart below to see how many hit CDs you're entitled to.



(The number of CDs you receive depends on which Sony Portable CD Player you decide to buy.)

We think free CDs for our portable CD players

is a great way to celebrate a decade of music excellence. With Sony. The Leader in Diaital Audio.^{Tw}



Artist / Title	Sele	ction	Artist/Title	5	election
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Heart	Little Queen	34799	Luther Vandross	Never Too Much	37451
The Byrds	Greatest Hits	09516	Gloria Estefan	Eves of Innocence	39622
Bruce Springsteen	Witt Innocent		Sade	Stronger Than Pride	44210
	E. Street Shuffle	32432	Aerosmith	Gems	44487
Julia Iglesins	Julio	38640	Jomes Taylor	IT	34811
Johnny Methis	Johnny's Greatest Hits	34667	Sarah Vauahan	Brazilian Romance	42519
Simon & Garfunkel	Sounds of Silence	09269	Big Audio Dynamite	#10 Lipping Street	40705
Neil Diamand	Heartlight	38359	Bob James	Touchdown	35594
Ozzy Osbourne	No Rest for the Wicked	44245	Stan Getz	The Best of Two World	k 33703
Quiet Riot	Mental Health	38443	Placido Domingo	Perhaps Love	37243
Ted Nugent	Ted Nugent	33692	Branford Marsalis	Romance For Saxophi	one 42122
Morvin Gave	Mininight Love	38197	Judas Priest	Sin After Sin	34787
Isley Brothers	Greatest Hits, Vol. 1	39240	Leonard Bernstein	Favorite Overtures	46713

To receive your (D's, muil this coupon postmorked no later than May 5, 1992 along with the bor code (with the model number on it) from the carton of your Sony (D Portable Player, a copy of your dated sales receipi and a check or money order (no cash) for 52.00 (payable to Sony Corporation) for shipping & hondling to: SONY MOT (D OFFER, P.O. Box 1147, Terre Houte, Indiana 4781).

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Offer good only an Sany Discmar® Partable CD Players and Sany Partable (D/Radia/Cassette Recorders-inhose modes beginning with D and CPD. Sany reserves the right to substitute compact discs based on supply or availability. Limit ane Gift Package per qualifying Sany CD player purchased. Offer valid anly in the Continental U.S. (Includes Aloska, excludes Hawaii). Void where prohibited by law. Missuse of offer will void coupon. Please allow 6.8 weeks for delivery. GiPg2 Sany Corporation of America. All rights reserved. Sany. Discman. The Leader in Digital Audia, and Campact Disc. 10th Anniversary are trademarks of Sany. 0016

10" ANNIVERSARY

LETTERS

Guns n' Roses

I thoroughly enjoyed Steve Simels's thrashing of Guns n' Roses' "Use Your Illusion I and II" in December. As a distraught former fan, I have watched with amazement the GNR frenzy that has taken hold of the pop music world. Mr. Simels is correct: The ballads are insincere, whining drawls that completely destroy the rocking mood of the album. As for the social commentary throughout, who cares what a bunch of illiterate drug addicts think?

> MIKE WAINSCOTT Hubert Heights, OH

Concerning the review of Guns n' Roses' "Use Your Illusion," I would bet the Gunners did not *want* their songs to sound like "some kind of organic whole," and this fan does "care" about ballads such as *November Rain*. Also, if good hard rock-and-roll sounds like "a bratty three-year-old banging a spoon on his highchair," I will be the first in line to buy my spoon and highchair.

CRAIG K. BREWSTER Kansas City, MO

Steve Simels says that GNR's Axl Rose "performs about the way you'd expect from somebody who thinks Rob Halford of Judas Priest is rock's greatest vocalist." I also think Halford is rock's greatest vocalist. Many people do. Rose, on the other hand, has a terribly annoying voice that in no way resembles Halford's powerful, four-octave pipes.

I've met Halford, and I found him to be a very kind, friendly, decent person. Rose, however, has been in the news recently for starting a riot, hitting a neighbor over the head with a bottle, and writing racist, sexist song lyrics. Mr. Simels's insinuation that Halford is similar to Rose musically or personality-wise is an unfair characterization.

CHRISTOPHER C. DOLL Modesto, CA

I'm glad Steve Simels didn't condemn the latest release from Guns n' Roses as "a total loss." I can use the discs as coasters.

> M. DAVID COLLINS San Antonio, TX

New Digital Formats

In November "Signals," Ken Pohlmann describes Digital Compact Cassettes and Mini Discs, both of which will use data compression. When the LP gave way to the CD, it was truly a step forward. All the music (audible and inaudible) could be reproduced better than ever before in a compact medium that did not deteriorate over time or with repeated use. Nothing proposed for the future remotely resembles an advance of this magnitude. Unless you think the 1992 Geo represents progress over the 1957 Bel-Air, you will see that in the realm of recorded music, evolution has ended and devolution has begun.

MARTIN H. WILLIAMS Los Gatos, CA

Data-compressed music formats will provide only subjectively (not objectively) correct reproduction of the original sound. As such, they are a threat to the very concept of high fidelity.

PHIL COHEN Bay Harbor, FL

I fail to see any general consumer advantages to DAT, DCC, or MD recorders, much less DAB (digital audio broadcasting). CD's played on components matched to a listening room remain the best way to seriously enjoy [recorded] music. I don't feel we need news, advertisements, or DJ jargon in CD-quality sound. The obvious acoustic restrictions and distractions of cars and beaches, plus factors of loss, theft, and damage, are what keep [analog] dubbing decks so popular.

> TOM K. Tiffin, OH

Dubbing from CD's

E. Brad Meyer's "How to Make Great Tapes from CD's" in December didn't tell readers about the best connection for making these recordings: a direct patchcable from the CD player to the tape deck, bypassing the receiver. The tape deck in the recording mode and hooked into the receiver acts as a sound monitor. GEORGE NUSSBAUM

New York, NY

Your arrangement will work just fine, but unless there is something wrong with your receiver, the results should be the same as recording via its tape-output jacks.

Amplifier Specs

Hats off to Julian Hirsch for his November article, "Understanding Amplifier Specifications." As a newcomer to hi-fi, I really appreciated the effort to present this subject in layman's terms.

ARNOLD VANDERSCHOOT San Rafael, CA

Cassette Deck Features

lan G. Masters's November article on choosing a cassette recorder, "Decked Out in Style," was well written and informative, but I would like to comment on the "What Doesn't [Matter]" portion. Contrary to Mr. Masters, skip and scan functions were available on cassette decks before CD's, and while I usually listen to tapes straight through in my car, at home I often want to locate one or more specific selections. Having the deck count blank spaces before it stops is much faster and more convenient than searching manually.

Also, I am one person who *does* use the timer function. At least three times a week I record radio programs that are broadcast at inconvenient times for listening, then play the tapes while commuting to work.

Finally, Mr. Masters gives the impression that buying a cassette deck is similar to buying a car and that the purchaser can pick and choose which options he wants and which he doesn't. The truth is, if you choose an upscale three-head deck with Dolby C, you will get many of the options Mr. Masters considers unimportant whether you want them or not.

RAYMOND T. BAXTER Huntington Beach, CA

Audible Differences

I subscribed to STEREO REVIEW some years ago because I was impressed by your articles and test reports stating that there were minimal audible differences between CD players and between moderate- and high-price amplifiers and receivers of 40 watts or more. Your recent article on selecting a CD player (November) again stated that audible differences are minimal to nonexistent. I can only say, "Bravo!"

> HARRY B. SOLETSKY Brookfield, CT

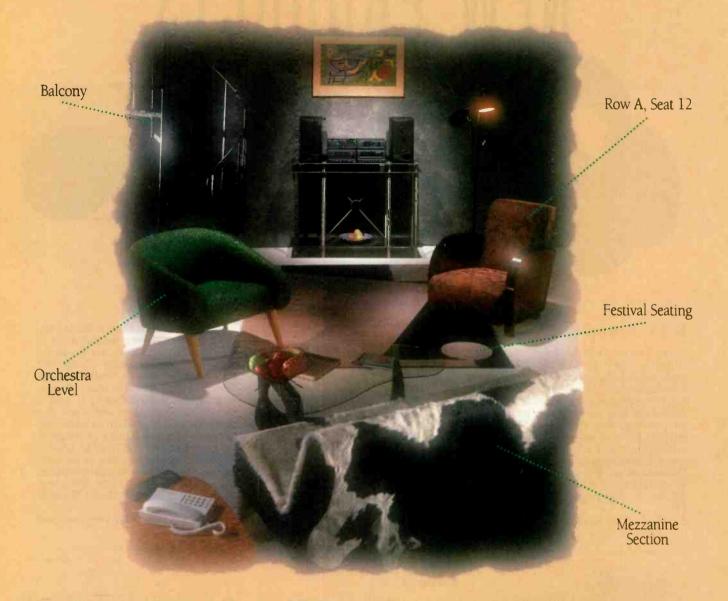
Corrections

An incorrect price was given for Bert Stern's "Jazz on a Summer's Day" video in December's round-up of holiday gifts. The correct list price is \$59.95.

Two references in David Hall's December review of Lorin Maazel's recording of the Sibelius Fourth and Fifth Symphonies were transposed. The "dissonance-ridden development of the fanfare figure" occurs in the *fourth* movement of No. 4, not the slow movement, and the place where Mr. Hall meant to say that Maazel "comes dangerously close to sentimentality" in No. 5 was in the very last pages of its *slow* movement, not its last movement.

We welcome your letters. Please address correspondence to Editor, STEREO REVIEW, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

WITH THE NEW KENWOOD UD-90, THINGS JUST WON'T BE THE SAME AROUND THE HOUSE.



Here's a compact audio/video system that will redefine your living room. The new UD-90. It's designed with our Digital Front Presence circuitry, which uses Digital Signal Processing, or DSP in order to optimize the simulation of actual music environments. So now, the push of a button turns your home into a huge rock concert. A hot jazz club. Or four other venues. Adding to the realism are two built-in Digital Front Presence speakers. Angled outward, they simulate home theater surround sound all by themselves. (But you can still add a pair of rear speakers if you wish.)

There's also Audio Intelligence for high-speed CD to tape dubbing. Automatic equalization. Plus other advanced functions. So call 1-800-4-KENWOOD for a dealer near you. Then sit back and enjoy the show.



NEW PRODUCTS



B·I·C America

The Venturi V62A bookshelf speaker system succeeds B.I.C.'s V62. The upgrade uses a new 6-inch woofer, a $\frac{3}{4}$ -inch ferrofluid-cooled dome tweeter, and the Venturi venting system, which is said to deliver the deep bass normally associated with much larger speakers. The improved crossover network is said to result in a more natural-sounding midrange and extended high-frequency response. Dimensions are $\frac{8}{4} \times 14 \times \frac{9}{4}$ inches. Price: \$219 a pair. B.I.C. America, Dept. SR, 895 E. Hampshire Rd., Stow, OH 44224.

Circle 121 on reader service card

Koss

Designed for studio use, the Koss PRO/4XL Stereophone features dynamic elements with a titanium-nitride coating for clarity and detail. The voice coils are copper-clad aluminum to reduce the moving mass of the diaphragm assembly. Bandwidth is given as 10 to 25,000 Hz. The phones have an adjustable headband and pivoting earcups; a 3-foot straight cord and an 8-foot coiled cord are included. Price: \$130. Koss Corporation, Dept. SR, 4129 N. Port Washington Ave., Milwaukee, WI 53212.

Circle 120 on reader service card



Fultron

Fultron's Neirbon tweeter for car stereo systems features a magnet made of neodymium, iron, and boron—hence "Neirbon." The company claims that such a magnet can be smaller and yet more powerful than one made of standard alloys, and combining it with a durable titanium dome and a soft diaphragm is said to result in a clearer, less "brassy" sound than other car tweeters produce. Bandwidth is rated as 1,500 to 20,000 Hz, power handling as 40 watts continuous. The tweeter can be installed either flush or angled. Price: \$99 a pair. Fultron, Dept. SR, P.O. Box 177, Memphis, TN 38101.

Circle 122 on reader service card



The Infinity ERS 400 in-wall loudspeaker's bandwidth is rated as 90 to 15,000 Hz, with a sensitivity of 85 dB. Nominal impedance is 4 ohms, and recommended power is 8 to 30 watts per channel. Its 4-inch injection-moldedgraphite full-range driver is mounted to a $7 \times 7 \times 2\frac{1}{2}$ -inch "D" baffle that mounts in a 6¹/₄-inch-square hole. Price: \$160 a pair; \$38 for bracket kit. Infinity Systems, Dept. SR, 9409 Owensmouth Ave., Chatsworth, CA 91311. Circle 123 on reader service card

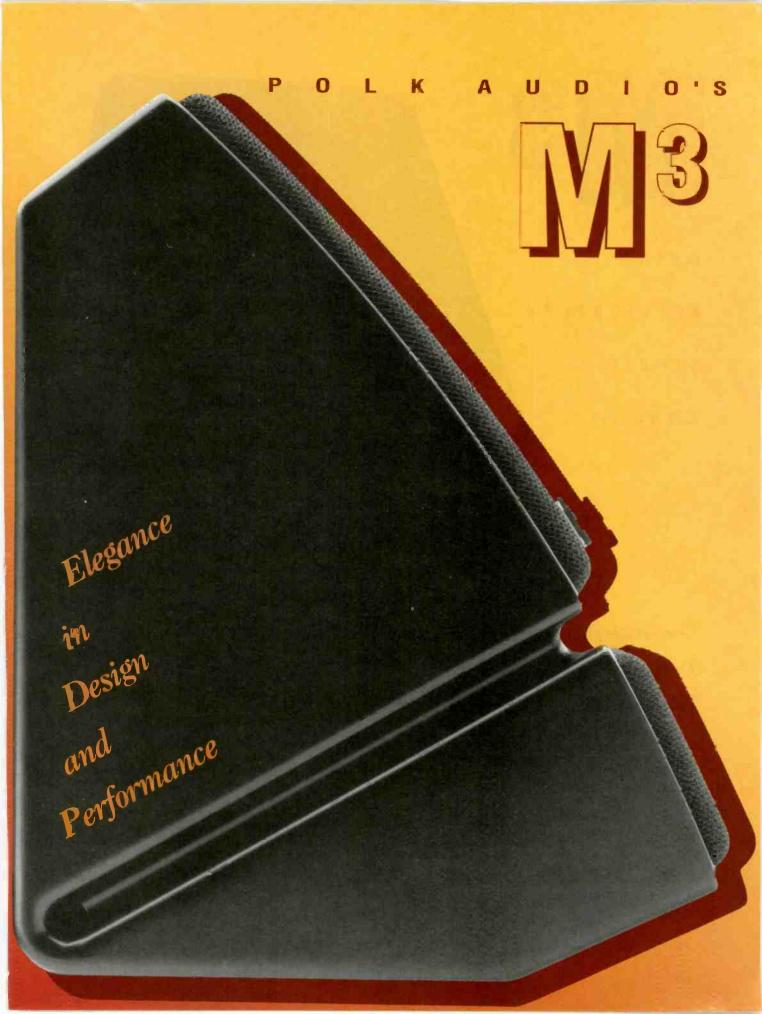
10 STEREO REVIEW FEBRUARY 1992

Adcom

The GFA-545 II power amplifier is an update of Adcom's well-received GFA-545. The company claims that the new model has improved dynamic range, greater stability into difficult speaker loads, and lower distortion than its predecessor. Its continuous power output is rated at 100 watts per channel into 8 ohms and 150 watts into 4 ohms; dynamic headroom into 4 ohms is rated as 2.1 dB. At 100 watts into 8 ohms, the rated signal-to-noise ratio is greater than 110 dB and input sensitivity is 1.25 volts rms. Input impedance is 100,000 ohms. Options include rack-mounting adaptors and a white front panel. Price: \$500; \$550 in white; rack adaptors, \$20 in black, \$25 in white. Adcom, Dept. SR, 11 Elkins Rd., East Brunswick, NJ 08816.

Circle 124 on reader service card







MULTI-APPLICATION STUDIO MONLTOR

Compact Size and Exceptional Sound

Demand for small, high performance speaker systems has blossomed. Inspired by the often limited space available for loudspeakers and the increasing popularity of home theater systems Polk has developed the exciting new M³.

Unique in performance, shape and size, the M3 is equally at home on a shelf or a wall, in a corner, on a ceiling, or free standing. Whether employed as the primary speaker in a quality high fidelity outfit, as a video surround speaker, or a remote speaker in a secondary location, the M^3 will amaze you with its outstanding sonics.

Polk Engineering. Sonic Performance Which Belies the $\ensuremath{\mathsf{M}^3}$ Size and Price.

Polk engineers have managed to squeeze exceptional performance into the compact M³ enclosure. Produced with stateof-the-art manufacturing techniques, the cast composite housing is durable and beautiful, as well as sonically inert. The M³ driver complement includes a Polk high efficiency 5.25 inch woofer/mid-range and a wide dispersion .5 inch fluid-cooled polycarbonate tweeter. Bass performance is enhanced with computer-designed, vented enclosure. High frequency dispersion is optimized by a Critical Dispersion Lens which surrounds the tweeter dome. Precise integration of the drivers is achieved through a sophisticated, full LCR crossover network.

The Polk Integrated Bracket/Mount

The M³ cabinet includes an integral mounting system which allows total placement flexibility. No expensive optional accessories are required to mount your M³ in any of the aforementioned locations. This innovative system also provides an integrated adjustable bracket designed to optimize the speaker angle when the M³ is placed on a shelf. Finally, the smartly angled rear section of the enclosure allows easy corner or shelf placement with maximum space efficiency.

The Bottom Line

The Polk M³ is an exceptionally high value product. Its superior sound and imaging capabilities are unmatched in its class. The small size, incredible placement flexibility, and reasonable cost of the M³ mean you can easily enjoy high quality music reproduction throughout your home or office.





The M³'s integrated bracket all aws for ceiling and corner mounting.

Specifications:

Driver Complement: 5.25° (133cm) bass/midrange driver, .5° (12mm) polymer dome tweeter Size: 11.25°H x 6.5°W x 8.25°D (29cm x 16.5cm x 20.9cm) Overall Frequency Response: 67Hz - 20kHz Recommended Amplification: 20 - 100 watts/channel Norminal Impedance: Compatible with 8 ohm outputs Efficiency: 89dB Shipping Weight: 14 lbs, 1 bz / pair (6.4 kg)



5601 Metro Drive, Baltimore, MD 21215 USA (301) 358 - 3600

The M³ can be mounted on

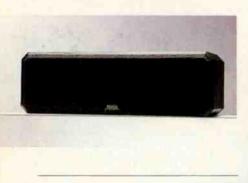
the wall or set on the floor

beside a wall.

NEW PRODUCTS

Boston Acoustics

The Boston Acoustics Model 404V was designed to be the center-channel speaker in an A/V surround-sound system. It is said to have broad horizontal dispersion for natural-sounding dialogue across a large "sweet spot." The magnetically shielded speaker uses two 4-inch full-range drivers. Frequency response is given as 100 to 17,000 Hz ± 3 dB, sensitivity as 90 dB. Nominal impedance is 8 ohms. Recommended amplifier power is 5 to 50 watts per channel. The Model 404V measures 17 x 5½ x 6½ inches and weighs 8 pounds. Finish is black-ash vinyl with a black grille. Price: \$129 each. Boston Acoustics, Dept. SR, 70 Broadway, Lynnfield, MA 01940.



AudioRocks

The Aspen (top in photo) and Newport (bottom) outdoor loudspeakers from AudioRocks are reinforced with fiberglass to prevent resonance. The twoway speaker systems, with $6\frac{1}{2}$ -inch polycarbonate-cone woofers and 1-inch dome tweeters, are said to be completely weather-sealed. Bandwidth is rated as 60 to 19,000 Hz, sensitivity as 89 dB. Power handling is 60 watts per speaker. Nominal impedance is 8 ohms. The Aspen measures 17 x 12 x 21 inches, the Newport 19 x 12 x 13 inches. Price (both models): \$395 each. AudioRocks, Dept. SR, 2010 N.W. First St., Delray Beach, FL 33445.

Circle 126 on reader service card





Nakamichi

The Nakamichi CassetteDeck1.5 has discrete erase, record, and play heads that are independently aligned at the factory and individually shielded to prevent crossfeed and noise-pickup problems. The deck's asymmetrical dualcapstan transport is said to prevent the compounding of flywheel and capstan resonances. Frequency response with Type I (normal-bias) tapes is rated as 20 to 21,000 Hz ± 3 dB, wow-and-flutter as less than ± 0.06 percent weighted peak and less than 0.035 percent weighted rms. Features include Dolby B and Dolby C noise reduction, a bias fine-tune control, bidirectional automatic search, a defeatable MPX filter, timer record/ play capability, automatic repeat, record mute, and a headphone jack. Price: \$699. Nakamichi, Dept. SR, 19701 S. Vermont Ave., Torrance, CA 90502.

Circle 125 on reader service card



Tree Dimensions

Tree Dimensions' solid-oak Stack Racks were designed to hold both components and recordings. The SR 08 storage rack (bottom) can hold 75 laserdiscs or 125 LP's. The SR 02 (middle) holds two standard-width components, and the SR 03 (top) holds three standardwidth components. The units come assembled and are grooved for stacking. A cotter pin in back helps to stabilize the racks. The SR 08 and SR 03 measure 20 x 147/8 x 15 inches, and the SR 02 is 20 x 113/8 x 15 inches; inside dimensions for each shelf are 181/2 x 57/8 x 14 inches. All three racks are available in a natural oak or black finish. Prices: SR 08 and SR 03, \$28.50; SR 02, \$24; add \$2.50 each for black finish. Tree Dimensions, Dept. SR, P.O. Box 609, Boone, NC 28607. Circle 127 on reader service card

M&C Speakerworks

The Series I loudspeaker from M&C Speakerworks uses two 61/2-inch polymer woofers and one ¹/₄-inch soft-dome tweeter. Frequency range is given as 37 to 20,000 Hz and sensitivity as 90 dB. Nominal impedance is 4 ohms. Maximum power handling is rated as 150 watts rms. The crossover has two 14gauge coils and a single low-tolerance capacitor; binding posts are made of gold-plated brass. The ported enclosure is finished in oak veneer. Dimensions are 39 x 12 x 9¹/₂ inches, including the supplied matching stand. Price: \$800 a pair. M&C Speakerworks, Dept. SR, P.O. Box 151082, San Diego, CA 92175. Circle 128 on reader service card

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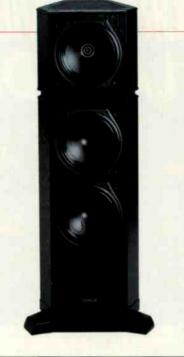
THE WIZARD OF OZ (ANNIV. EO)

NEW PRODUCTS

Tannoy

The Model 615, part of Tannoy's new Sixes series of loudspeakers, features a flattened-hexagon cabinet design that is said to minimize coloration, diffraction, and standing waves. There is an 8-inch dual-concentric mid/high-frequency driver with a molded cone and a "tulip" waveguide tweeter, an 8-inch woofer, and an 8-inch mass-tuned passive radiator. Frequency response is given as 41 to 30,000 Hz \pm 3 dB, sensitivity as 92 dB. Recommended amplifier power is 10 to 175 watts per channel. Nominal impedance is 6 ohms. The speaker, which can be biwired, comes with gold-plated binding posts. Dimensions are 38 x 121/2 x 83/4 inches. The cabinet is finished in black ash or walnut. Price: \$1,399 a pair. Tannoy, Dept. SR, 141 Linden St., Suite G10A, Wellesley, MA 02181. Circle 129 on reader service card





Bose

The Bose RoomMate Computer Monitor can be connected to a computer's headphone or audio line-output jack; adaptors are provided for stereo or mono signals. The self-powered speakers use Bose's proprietary HVC full-range driver and distortion-limiting circuitry. A volume control is located on the right module. The injection-molded plastic enclosures are magnetically shielded so that the speakers can be used next to a computer screen without distorting its display. Dimensions are $6 \times 9 \times 6$ inches. Price: \$339 a pair. Bose Corporation, Dept. SR, The Mountain, Framingham, MA 01701-9168.

Circle 130 on reader service card

Design Acoustics

The Design Acoustics DA-360 outdoor loudspeaker is said to be impervious to rust, corrosion, and wide variations in temperature and humidity. An omnidirectional two-way system, the DA-360 has an ABS plastic shell housing a 6-inch cone woofer and a 11/2-inch piezoelectric tweeter. Bandwidth is rated as 90 to 18,000 Hz and sensitivity as 84 dB. Power handling is given as 15 watts continuous, 30 watts maximum. The 7³/₈-inch-diameter speaker is 10 inches high. It can be mounted on a standard threaded pipe or from the side or top using the supplied bracket. Price: \$90 each. Design Acoustics, Dept. SR, 1221 Commerce Dr., Stow, OH 44224. Circle 131 on reader service card

16 STEREO REVIEW FEBRUARY 1992





Specialty Sound Platforms

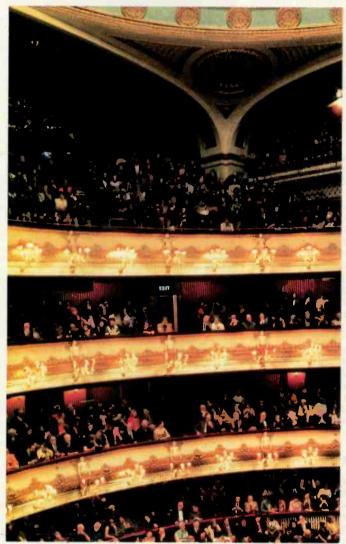
The TTCD II hanging platform for turntables and CD players is said to prevent record or disc skipping by transforming vertical vibrations into horizontal ones, which are absorbed by rubber isolators in the supports. Leveling knobs are used to reduce tonearm skating. The platform can be hung as much as 5 feet below most ceilings. Finishes are matte black or oak veneer. Dimensions are 24 x9 x 16 inches. Price: \$70. Specialty Sound Platforms, Dept. SR, 424 Burt Circle, Lewiston, NY 14092.



Eurotek Audio

The Merin (left above) and Dauphin speakers are part of Eurotek's Quadral Phonologue E Series. The Merin, a bassreflex three-way system with a 6³/₄-inch woofer, a 41/2-inch midrange, and a 1inch tweeter, has a rated bandwidth of 32 to 22,000 Hz and sensitivity of 87.5 dB. The two-way Dauphin, with a 6³/₄-inch woofer and a 1-inch tweeter, has a bandwidth of 36 to 22,000 Hz and sensitivity of 87.5 dB. Nominal impedance for both systems is 4 ohms. The Merin is 181/2 x 81/4 x 111/2 inches, the Dauphin 151/4 x 83/4 x 111/2 inches. Both are available in black or light gray. Prices: Merin, \$550 a pair; Dauphin, \$450 a pair. Eurotek Audio, Dept. SR, Brandon South, P.O. Box 20004, Brandon, Manitoba R7A 6XA, Canada. Circle 133 on reader service card

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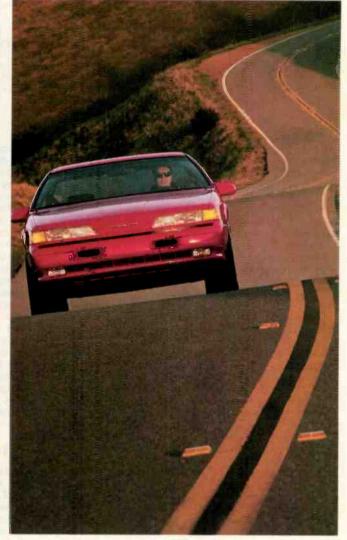
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AUDIO Q&A

by Ian G. Masters

Low-Frequency Response

My speakers have a specified frequency response of 49 to 20,000 Hz within 2 dB. Recently I bought a test CD and was surprised that I could hear tones as low as 20 Hz. If the speakers are only supposed to respond to frequencies above 49 Hz, how could I hear lower tones?

BRET ALLIE Sauk Rapids, MN

In frequency-response specifications, the high and low limits indicate the points where the output drops below whatever tolerance has been chosen, in this case 2 dB. That doesn't mean there is no output at all below the lower limit, but that it is more than 2 dB down from the mid-frequency level-a very small amount. In your case, you should have considerable output well below 49 Hz and at least some right down to the lowest frequencies.

Headphone Hookup

To avoid complaints about noise, I listen to my system through headphones rather than speakers. This is fairly simple with my CD player and cassette deck, which have their own headphone outputs. But neither my tuner nor my preamplifier offers such an output, so the only way I can listen to FM is by feeding the phones from the Tape 2 output, which means I have no volume control over that source. Short of replacing my equipment, how can I use the phones to listen to the radio?

> CRAIG STEVENS Edwards, CA

There are several possible answers. Perhaps the simplest is to put your A cassette recorder in the recordpause mode and listen to FM-and, if you wish, CD's—through the deck's headphone jacks. That may be awkward, however, and it might cause wear on the tape mechanism.

Do you ever listen through speakers? If you do, your amplifier might have a headphone-output jack you could use; if it doesn't, there's no real difficulty padding down the speaker outputs for headphone use. Attach the headphone circuit to a second pair of speaker outputs if you have them, or install a simple selector switch. If you don't have any sort of amplifier now, it would be worthwhile to buy a low-power unit (a couple of watts is all that's needed) specifically to drive your phones. It needn't be designed for the purpose, although that would be ideal.

However you choose to go about it, using a power amplifier after your preamplifier will enable you to listen to all of your sources without having to repatch for each one

Recycled Guitar Amp

I have an old 80-watt bass guitar amplifier and would like to add it to my stereo system as a subwoofer. Is this a plausible idea?

> NICK OXLEY New Haven, CT

Musical-instrument amplifiers, and their built-in or detachable speakers, usually make pretty poor hi-fi components. They are designed to produce-not reproduce-sound, so linearity is not necessarily a virtue; whatever is added is part of the creative process. That's just as well, because serious compromises often have to be made to achieve their main objectives: high volume level and durability.

For use as a subwoofer, however, none of that may matter. What is important is low-frequency extension, and the speakers for most guitar amps don't have it. Few can handle frequencies lower than the fundamental of the lowest string on an electric bass-about 40 Hz-which means that the bottom octave of your recorded music will be lost. For most of us, that's exactly what we want to hear from a subwoofer; good regular speakers are usually just fine down to 40 Hz.

Hot Cassettes

I have always dutifully removed cassettes from my car to protect them from the sun, as I understood that heat can remove some frequencies. Recently I read a report that suggested no signal loss would occur at temperatures likely to be found in a parked car. Have cassettes been improved to the point where they are no longer affected by heat, or were they ever?

STEVE GERKEN Houston, TX

In theory, heat can reduce magnetism, but the temperatures at which A tism, but the temperatures and you'll that happens are higher than you'll ever encounter in your car. On the other hand, cassettes are made almost entirely of plastic, which heat can soften or warp. The shells may twist, tape splices may come undone, and the tape itself may become sufficiently deformed that it no longer makes good head contact. As cassettes have become increasingly popular for in-car entertainment, tape manufacturers have indeed made them more

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AUDIO Q & A

resistant to these effects, but it's not always possible to predict how a particular cassette will behave in the heat. Removing your cassettes when leaving your car in the sun for a long time is still a wise precaution, and you should never leave a cassette anywhere that it might bake in direct sunlight.

Eliminating Dust

I understand that one basic enemy of stereo gear is dust settling into the components over time. To control that, I am considering placing one of those air-filtering negative-ion generators next to my stereo rack. Is that likely to do any good?

> MICHAEL BEDNASH Boulder City, NV

Alt can't hurt, as long as its motor doesn't induce noise in your system. But dust usually falls from above, so putting a cloth over your components when they're not in use would probably work just as well. Or closing the doors on your equipment cabinet, if there is one. Anyway, dust may be overrated as a menace. Keep it off your turntable to be sure, and spritz your controls with contact cleaner if they need it, and you should be just fine.

Biwiring and Biamping

I intend to wall-mount my new speakers, but the owner's manual suggests that they should be biwired at the very least, and preferably biamplified. I did not expect the expense of a second stereo amplifier, nor would it be convenient to run a second set of cables up my wall. I'm not sure what the advantages of either technique are. Will there be a significant degradation in sound quality if I wire my speakers in the conventional manner?

JOHN A. STANLEY Mill Valley, CA

A Except for the rare instances in which a speaker is designed specifically for biamplification, and thus lacks a built-in passive crossover network to route different frequency ranges to the appropriate drivers, normal amplification is usually best. Adding a second stereo amplifier and cabling for biamplification will increase the amount of power available, but unless the speaker is designed for use with an external linelevel electronic crossover between the preamp and power amplifiers (instead of an internal passive crossover), that will be the only benefit, which could be duplicated with less risk of installation error simply by using a single more powerful amp.

As for biwiring, that involves running separate cables from the amplifier outputs to the inputs of the various sections of a speaker's internal crossover; the split happens at the amplifier rather than inside the speakers. The main effect will be to reduce the series resistance between the amplifier and loudspeaker, which can be a good thing, particularly if your speakers are a long way from the amplifier, but in most cases the same benefit can be achieved by using a single set of heavier-gauge speaker cables.

If you have a question about hi-fi, send it to Q&A, STEREO REVIEW, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.

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N Rays

ENÉ-PROSPER BLONDLOT was an eminent French physicist and member of the prestigious Academy of Sciences. In 1903, while experimenting on X rays, discovered only eight years earlier by Wilhelm Roentgen, he stumbled on another amazing discovery. Using a heated filament placed in an iron tube with a window made of aluminum, he observed that when the room was darkened and the aluminum window aimed at a barely illuminated target, he could see the target more clearly. Evidently, emissions from the filament constituted a new kind of ray, similar to X rays. He named it the N ray, to honor his workplace, the University of Nancy.

Although very exacting techniques were necessary to observe the subtle effect of N rays, subsequent studies uncovered more data. The aluminum window could be as much as 3 inches thick without impeding the rays, but any iron completely blocked them. Further. N rays were emitted from other sources, and they could be stored. For example, a brick placed in the sun would store N rays, and when brought into a darkened room it would clarify visibility of the barely illuminated target. One breakthrough followed another, with many surprises. N rays defied many basic tenets of science: For example, when ten bricks loaded with N rays were brought together, the effect was the same as with one brick. It was found that human beings emit N rays. Loud sounds diminished the effect. Heat enhanced it.

SIGNALS

by Ken C. Pohlmann

There also existed negative N rays, which decreased visibility, but only at a certain angle of incidence. Blondlot published photos to support his observations, and over a dozen other scientists repeated the N-ray experiments and published their findings.

Robert Williams Wood was a feisty American physicist who had no patience for anything less than scrupulous adherence to the scientific method. He seriously questioned the data that Blondlot and others used to prove the existence of N rays. One day Wood visited Blondlot in his laboratory. Blondlot was conducting an N-ray experiment using an aluminum prism to refract N rays. Wood watched as Blondlot measured the angle of refraction with great precision. Although the measurements were precise and repeatable, they did not agree with known laws of refraction. In response to Wood's questioning, Blondlot noted that N rays were fascinating in that they did not follow ordinary laws of science, and one of the challenges was discovering the laws that govern them.

Wood asked to observe the measurement again, and in the darkened room he surreptitiously slipped the aluminum prism into his pocket. Blondlot again measured refraction, and he obtained precisely the same results as before—even though the device supposedly refracting the rays was entirely absent. When Wood published an account of this event, it was the end of Blondlot's career, and the end of N rays.

This particular version of the N-rays tale was related in 1953 by Irving Langmuir, winner of the 1932 Nobel Prize in Chemistry (the text was reprinted in *Physics Today* in October 1989). Langmuir's description of the rise and fall of N rays illustrates the nature of pathological science, or, as he put it, "the science of things that aren't so."

Blondlot wasn't a crook. He wasn't dishonest. He was, in fact, a great scientist who was deluded into a false result by subjectivity, wishful thinking, and the difficulty of dealing with threshold phenomena. Even the most earnest scientist can be swayed by chimerical results that undermine the truth he is pursuing. Langmuir summarized the symptoms of pathological science: The effect is barely detectable. Fantastic theories are suggested to explain the effect. Supporters of the effect can duplicate the result, but critics cannot. Even in the light of disproof, supporters always have an answer. Always.

To anyone who has ever walked into a stereo showroom these symptoms should have a faint ring of familiarity. Some audio technology meets all the requirements of pathological science. For example, several manufacturers sell devices that lift speaker cables off the floor. This is said to improve sound because solid surfaces such as floors are said to disrupt electron flow through cables. The audible improvement is said to be slight, but it becomes more audible with practice. If doubleblind testing failed to show any audible difference between supported and unsupported cables, believers would probably give the excuse that the stress of taking the test impaired the listener's ability to hear the difference. And so on and so forth.

It is all too easy for even experienced, sophisticated listeners to fool themselves into hearing something that isn't there.

Certainly, because much about audio is subjective, with effects that are often very, very subtle, it is all too easy for even experienced, sophisticated listeners to fool themselves into hearing something that isn't there. But how do we distinguish pathological science from healthy science in audio? If scientists can be fooled by autosuggestion, what about us mere mortals? Unfortunately, there is no good answer. Our only weapons are Langmuir's list of symptoms, a healthy skepticism, and common sense.

Next time a manufacturer tries to sell you a CD player with a goldanodized disc-clamping mechanism, or some liquid-nitrogen-cooled speaker cables, remember Blondlot. Try to make sure you're not paying extra for N rays. They're expensive.

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When you place an Acoustimass-5 speaker system in your home, all you see are two tiny cube speaker arrays (shown left). You can easily hide the compact bass module (lower left) anywhere in the room, out of view.

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The Acoustimass bass module contains technology unlike that of any conventional speaker. It launches sound into the room by an air mass, rather than directly from a vibrating surface. Some benefits of this patented Bose technology are shown in the pictorial on the lower left.

Compare the sound to conventional speakers costing far more.

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Obsolete Specifications?

REVIOUS columns have described some of the measurements we use in our product evaluations. A recent letter from a reader asks about the significance of certain amplifier specifications that occasionally appear in manufacturer's literature but are not part of our testing procedures. Are they obsolete, or have I overlooked them?

For example, what is the importance of *slew rate*, which is rarely mentioned these days outside of "high end" circles? Another almost extinct specification is *transient intermodulation distortion* (TIM), sometimes referred to more generally as *slewinginduced distortion* (SID). This type of distortion is closely related to slew rate, since it occurs when an amplifier's output is unable to follow rapid changes in a high-level waveform.

TIM and SID are not merely results of restricted high-frequency response; in fact, they can be eliminated by reducing the amplifier's high-frequency response in the proper manner. They can be created in an amplifier whose output voltage cannot shift rapidly enough over a wide range of voltage, usually because of the design of its output transistors. As a simplified example, if the output changes from -50 to +50 volts in 100 microseconds, it can be said to slew at a rate of 1 volt per microsecond (V/ μ s). A signal frequency of 20,000 Hz, therefore, would require the amplifier to slew at a

TECHNICAL TALK

by Julian Hirsch

 $2-V/\mu s$ rate at the same output level, which it might not be able to do. The resulting distortion is known as SID.

Virtually all amplifiers use negative feedback, from the output to an earlier stage, to reduce distortion and noise and to flatten and extend frequency response. The early stages operate at a much lower level than the output stage and are not likely to be affected by a slew-rate limitation.

The end result of this situation is that a wide-range input signal that passes undistorted through the early stages of an amplifier can be distorted in the output stage. Worse yet, this distorted signal is fed back to the input, resulting in what is usually called TIM. The solution is either to (1) use "faster" output transistors, or (2) reduce the output voltage swing (lower power output), or (3) limit the signal bandwidth before the input stage, which makes the whole issue moot. Another option, akin to throwing out the baby with the bath water, is to eliminate or drastically reduce the overall (global) negative feedback.

About ten years ago, there was considerable interest in slew-related distortions, but some of us wondered why we had never *heard* any distortion identifiable as TIM, although measurements were devised to show how an amplifier from Company X had more TIM than one from Company Y.

The answer was simple. As David Hafler (I believe) pointed out, an amplifier that could deliver its rated output at frequencies somewhat higher than the maximum program frequency (20,000 Hz) could not be overloaded by a slewing audio-signal waveform. It would be hard to find a hi-fi amplifier that could not deliver its rated power, or very close to it, up to 40,000 or 50,000 Hz. If it had a simple low-pass filter at its input to attenuate signals above the audio range, TIM would be quite impossible.

There were those who argued that some sources, such as moving-coil phono cartridges, had the capability to generate outputs up to 100 or 200 kHz, from record noise if not from program overtones. Perhaps, although the levels at those frequencies would have to be surprisingly high to cause trouble. But now the CD has solved that "problem" (one I suspect few of us ever suffered from) with a bandwidth rigorously limited to 20,000 Hz. Exit TIM, SID, etc. from the hi-fi lexicon.

The EIA amplifier test standard solves the problem of slew-induced distortion measurement in a simple and elegant fashion. Slew factor is measured by driving an amplifier to its rated output at 1,000 Hz and increasing the frequency (at a constant input level) until the waveform shows 1 percent distortion. The ratio of that frequency to 20,000 Hz is the slew factor. Any number greater than 1 effectively guarantees negligible slewing distortion in hi-fi listening. In my experience, over hundreds of amplifier tests. the slew factor is rarely less than 4 or 5 and is usually greater than 25

There is another specification, rarely found these days outside the world of high-end audio, that is, and always has been, of little or no practical significance to the user. I refer to *damping factor*, the ratio of 8 ohms (a standard loudspeaker impedance rating) to the internal source impedance of the amplifier. The effect of a low source impedance (typically a small fraction of an ohm) is to damp, or suppress, certain resonances in a speaker, especially low-frequency cone resonance.

There is no question that damping is desirable, but there is a catch. The damping resistance includes not only the source impedance of the amplifier but also the resistance of the connecting speaker cables, the speaker's crossover inductor(s), and the voice coil. So if the amplifier's source impedance is 0.01 ohm, the cable resistance is 0.1 ohm, and the speaker's internal resistance is 4 ohms (a typical value), the damping factor is not 800, or even 80, but a mere 2. Spending extra money for an amplifier with a 0.001-ohm impedance, or a cable the size of a garden hose with a 0.01-ohm resistance, will not have the slightest effect on the speaker's damping.

The myth that extremely high damping factors are beneficial has been with us for many decades, and it was as nonsensical forty years ago, when I first became active in high fidelity, as it is today. Most such fads fade away with time, and almost all respond well to a dose of common sense. In the meantime, they are good for a chuckle or two.

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TEST REPORTS



Denon AVP-5000 A/V Preamplifier

Julian Hirsch, Hirsch-Houck Laboratories

HE Denon AVP-5000 is a highly versatile preamplifier with extensive video switching capabilities and surround-sound features. Its audio functions include digital signal processing (DSP) that can be used for a number of purposes, including Dolby Pro Logic surround decoding, ambience enhancement for simulation of acoustic environments, three-band parametric equalization, and dynamic-range processing. In fact, the AVP-5000 has two complete DSP stages, which enables it to perform additional processing on the Dolby Pro Logic output from the first stage and, according to Denon, to create better environment simulations than would be possible using a single

DSP chip. It also has a large number of input and output ports that can accommodate virtually any array of companion components one might assemble. Built-in analog-to-digital (A/D) converters enable the DSP circuits to work their magic on audio signals from analog as well as digital sources, while output signals from digital inputs and the DSP section are handled by six high-quality digital-to-analog (D/A) converters.

In normal operation, the only visible front-panel features are a large volume knob, several buttons, and a narrow display window, which Denon calls the Multi-Function Display (MFD). Below the window are small green LED's, which light to show the sampling frequency of a digital input signal (32, 44, or 48 kHz), and a red overload LED that indicates an excessive input level to the Dolby Pro Logic circuits. The exterior of the preamplifier, including its controls, is gold colored.

A hinged door across the entire bottom of the panel swings down at a touch to reveal sixteen buttons, two small knobs (balance and input level), a headphone jack, and an S-video socket plus three phono jacks (labeled VIDEO AUX) for temporary connection of a camcorder or other A/V source.

The AVP-5000's rear panel is densely populated with gold-plated phono jacks for video and analog audio input signals from a wide variety of sources including CD, tuner, TV, videodisc, direct broadcast satellite (DBS), and two audio and two video tape decks. (There is no phono input.) Four pairs of analog audio outputs are provided for the VCR's and audio decks. All video inputs and outputs are provided with both S-video and RCA-type composite-video jacks. The preamplifier's four pairs of main audio outputs are

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identified as front, center, rear, and mono (for driving an external powered subwoofer or any other component requiring a line-level mono signal). There are video outputs to a monitor, both for viewing selected video programs and for on-screen display of the preamplifier's control status.

Digital signal connections include optical input terminals for DBS, videodisc, CD, and DAT sources, coaxial inputs for DBS and CD, and an optical DAT output. Two special jacks are provided for remote power switching of one or two compatible Denon power amplifiers. There are three AC outlets, two of them switched.

Except for volume adjustment, all normal operating functions of the AVP-5000 are performed through pushbutton controls whose effects are indicated by alphanumeric readouts in the display or on a video screen. The number and variety of these effects are extraordinary; our space here does not allow even a mere listing of all the available choices, much less the range of their settings.

The normally visible front-panel buttons are power, two large function controls marked AUDIO and VIDEO. and two smaller ones marked DIGITAL IN and VIDEO SELECT. The video and audio controls select the corresponding input sources, toggling through the available choices on successive operations. The DIGITAL IN button selects digital audio inputs, and the VIDEO SELECT button enables selection of a video source different from the one supplying the audio. Regardless of the information previously displayed, the display shows the selected source as the control is operated. The com-

FEATURES

- Audio inputs for DBS, TV, videodisc, CD, tuner, two VCR's, two audio tape decks, auxiliary
- Video inputs for DBS, TV, videodisc player, two VCR's
- Video outputs for two monitors (including on-screen control display)
- All video inputs and outputs provided with composite (RCA jack) and Svideo connectors
- Audio outputs for VCR's, audio tape decks
- Line-level output pairs for front, center, and rear channels, plus mono
- Optical digital inputs for DBS, videodisc, CD, DAT; coaxial digital inputs for DBS and CD

LABORATORY MEASUREMENTS

Output level at clipping: 9 volts

Sensitivity for a 0.5-volt output: 75 mV (with input-level adjustment at middle position)

A-weighted noise (referred to a 0.5volt output): -93.5 dB

1,000-Hz distortion (THD): 0.0038% at 1 volt

De-emphasis error (digital): -0.25 dB at 16,000 Hz

- Optical digital output for DAT
- Three AC outlets (two switched)
- Digital signal processing (DSP) for nine surround modes (four- and sixchannel), including Dolby Pro Logic and Personal Logic with userprogrammable parameters
- Adjustable surround parameters include bass, midrange, treble gain; midrange Q; initial delay; room size; low-pass cutoff for rear channels: reverb level; liveness; dynamics
- System remote control learns commands for other components; remote-control connections for one or two Denon power amplifiers

NI MEAJUNEMENIJ Frequency response: analo

Frequency response: analog, 20 to 20,000 Hz +0, -0.08 dB; digital, 20 to 20,000 Hz +0, -0.05 dB

Channel separation (digital): 80 dB at 100 Hz, 77 dB at 1,000 Hz, 52 dB at 20,000 Hz

Linearity error (digital): +0.06 dB at -80 dB, +0.4 dB at -90 dB, +0.23 dB at -100 dB pletely independent choice of audio and video sources, and a similarly independent selection of programs for listening/viewing and recording, provides almost total operating flexibility.

In addition to the normal stereo mode, a direct mode in which all digital processing circuits are disabled, and a standard Dolby Pro Logic mode for movies and video programs recorded in Dolby Surround, the AVP-5000 has a Personal Logic mode that enables the user to vary the normally fixed parameters of Dolby Pro Logic to suit individual taste. Both Dolby modes provide outputs for front, rear. and center channels, plus a phantom center-channel option if no center speaker is available. Personal Logic can also be configured for Theater and Dynamovie effects, which provide an expanded dynamic range, for Cinema response, which mimics the standard theater treble rolloff, and for other special effects.

Other surround-sound choices include Mono Movie, Classic Concert, Rock Concert, Church, Jazz, Stadium, and Disco. These can be configured with a broad range of adjustable parameters, including bass, midrange, and treble levels, initial delay, room size, low-pass filter cutoff, early reflection level, reverberation level, liveness, and a number of others exclusive to the Personal Logic mode. Parameters are chosen by sequential operation of a button and varied using separate plus and minus buttons. The display shows the selected parameter and setting as adjustments are made.

A peculiarity of the AVP-5000 is the delay that is activated when any control is operated. The program is muted, and the display (which normally shows only the mode in use, not the source being heard) changes to show the selected action. The muting and special display remain in effect for at least 3 seconds after completion of the change, after which normal operation resumes with the new setting in effect.

The delay in implementing changes makes it difficult to judge their subjective effects, however. If you make a number of changes together (frequency response, levels, and delays, for example), you receive no feedback while the adjustments are taking place and for several seconds afterward. Fortunately, there is an EFFECTS fea-

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ture that switches all the special effects on and off simultaneously, making it possible to assess the combined result of a series of changes *after* they have been made (but not while the changes are in progress).

A system remote control is supplied with the AVP-5000. It is a "learning" type of controller, preprogrammed for a number of Denon products. Although it duplicates most of the preamplifier's front-panel functions, the nomenclature is not consistent, and it takes extra time and effort to learn to operate it effectively.

The AVP-5000 is a large, heavy component, measuring 17¹/₈ inches wide, 5¹/₄ inches high, and 16 inches deep and weighing an impressive 31 pounds. Price: \$2,500. Denon America, Inc., Dept. SR, 222 New Rd., Parsippany, NJ 07054.

Lab Tests

Our measurements were essentially limited to the AVP-5000's front-channel audio functions, mostly in the direct (stereo) mode. The input sensitivity (for a 0.5-volt reference output) was 75 millivolts (mV), with the inputlevel knob behind the hinged panel set to its middle position. The maximum output, at the clipping point, was 9 volts. The output impedance was 570 ohms (the center- and rear-channel output impedances were 920 ohms). The A-weighted output noise, referred to a 0.5-volt level, was -93.5 dB.

The front-channel frequency response was flat within +0, -0.08 dB from 20 to 80,000 Hz, falling to -4 dB at 200,000 Hz. With the balance control at its center-detent position, the channel levels differed by 0.12 dB. At 1,000 Hz, the total harmonic distortion plus noise (THD + N) was 0.009 percent at 5 to 6 volts output. A spectrum analysis, excluding noise, showed distortion to be 0.0038 percent at 1 volt.

The Dolby Pro Logic circuit, which has an excellent Auto Balance feature, was very effective in keeping front and center material up front: A sum (L + R) signal was attenuated in the rear outputs by 60 to 65 dB over most of the audio range. The rear-channel response was rolled off at high frequencies, as required by Dolby specifications, to -3 dB at 5,000 to 7,000 Hz (there were similar differences in response between the two rear-channel outputs in other measurements). We also measured the performance of the AVP-5000's built-in D/A converters, supplying them with the digital (electrical) output of a Denon DCD-1500II CD player and measuring the preamplifier's output. Its frequency response was slightly flatter than that of the player itself, with absolutely no measurable response change from 40 to 20,000 Hz (probably less than 0.02 dB overall); response was down 0.35 dB at 10 Hz. The channel levels differed by 0.15 dB, although the player itself had perfectly matched output levels.

The linearity of the D/A converters was superb, among the best we have yet measured. The maximum output error was +0.4 dB at -90 dB, dropping to +0.23 dB at -100 dB. Channel

The Denon AVP-5000's completely independent choice of audio and video sources, and similarly independent selection for listening/viewing and recording, provides almost total operating flexibility.

separation was 80 dB at 1,000 Hz, narrowing to 76 to 79 dB at 1,000 Hz and 50 to 54 dB at 20,000 Hz. The maximum de-emphasis error was -0.25 dB at 16,000 Hz.

Comments

The electrical peformance of the Denon AVP-5000 was excellent, and nothing less than outstanding in its digital section. In listening tests, which included using Dolby Pro Logic with laserdiscs and videocassettes as well as CD's and FM broadcasts, the subjective qualities of its audio performance were exactly what we would expect of a top-rank four-channel surround-sound system (we did not use a separate center-channel speaker, but the phantom center-channel setting worked very well).

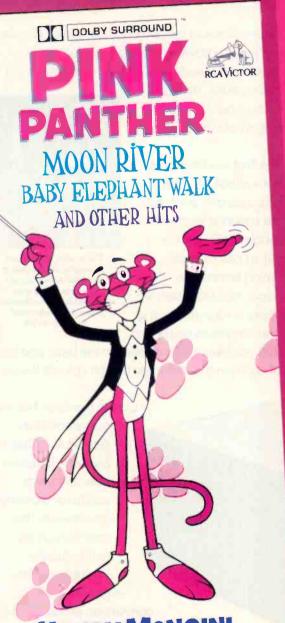
The AVP-5000 is unusually complex, however, and we cannot recall using any other audio or A/V component that was so difficult to master. The test unit was a preproduction model, accompanied by a preliminary draft of the English version of the operating manual. The manual had some fifty-seven pages (photocopied with two pages to a sheet), and it was necessary to refer constantly to different sections of it while learning how to operate the preamp. It was a long and painful process, and the fact that the control nomenclature was often less than clear did not make the task any easier. The remote control was, in some ways, even more confusing, although (as with the preamplifier itself) the necessary information was present somewhere in the manual if one was lucky enough to find it.

The AVP-5000's weight was what one might expect from a rather large power amplifier, and we wondered what was responsible for it. Removing the cover from the unit answered that question handily. For one thing, the cover (and probably most of the other metalwork) was steel instead of aluminum, and the interior was filled with well-populated circuit boards—layers and layers of them. It was reminiscent of the interior of our Audio Precision System One test system, which is not much larger than the AVP-5000 and weighs a bit more.

Although we did not feel that we were able to realize the full performance potential of this unusual product in the time available to us, there can no doubt that it is one of the most full-featured high-performance preamplifiers on the market (as well as one of the handsomest).

In any case, we strongly recommend that the AVP-5000 be auditioned at (and bought from) a well-qualified dealer who understands its operation and will be available to guide the purchaser for the time required to master its many features. This is not a product that anyone can expect to operate and use effectively without extensive study and hands-on practice. The reward is an extraordinary level of performance and flexibility for almost any audio-video system one could imagine. If you are planning a sophisticated A/V setup, you should take the time to find out everything this very ambitious preamplifier can do for you. We know of nothing else quite like it.

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Today, more and more CD Player manufacturers are making Single Bit the digital format of choice. Gone are the low level linearity problems that plagued multi-bit players which resulted in a loss of musical detail during quieter passages. Gone is the harshness that came from improper bit calibration or the shifting of calibration through time and use.

In their haste to rally around this newer, simpler technology however, many manufacturers have overlooked certain sonic characteristics

of Single Bit. After all, what good is it if every single note isn't perfect?

The first is a phenomenon called CD Jitter. Because of the incredible speed at which a Single Bit D/A Converter has to work, timing errors may occur. In aud ble terms, these errors manifest themselves as distortion



The smaller, bar-shaped Onkyo AccuPulse Quartz oscillator shown at right prevents timing error vibrations far more effectively than the conventional oscillator at left.

that you hear as muddiness in the bass and lack of clarity in the midrange at high volume levels.

Onkyo resolves this via our proprietary AccuPulse Quartz System. It uses a special quartz oscillator clocking mechanism that maintains rock solid stability throughout the digital-to-analog conversion process. The

result is a degree of sonic realism you'll notice from the instant the disc begins playing. All Single Bit systems must also incorporate some sort of Noise Shaping to remove unwanted switching noise inherent in the high speed D/A conversion. Other companies reduce this noise on a continuous slope from the high to low frequencies, in the belief the music will mask the noise in those areas it might be audible. Onkyo's Zero Shift Noise Shaper technology takes a different approach by completely eliminating noise in the middle of the frequency range where the most critical and complex musical information is contained.

Finally, the process by which Single Bit works, called Pulse Width Modulation, can allow small amounts of distortion to creep into the analog output signal. Again, most manufacturers are willing to let this pass, confident it will be obscured by the music. Onkyo's dedication to high fidelity won't allow us to take this chance. Through a phase inversion process we call our Complementary Distortion Canceler, any chance of distortion reaching the output signal is removed.

Buying a Single Bit CD Player shouldn't require a degree in engineering, just a few questions to insure the player is giving you the best single bit performance possible. You'll find that the answer will be Onkyo.





TEST REPORTS



Tannoy Model 603 Loudspeaker System

Julian Hirsch, Hirsch-Houck Laboratories

ANNOY, one of the oldest British loudspeaker manufacturers. recently announced a new series of speakers, the Sixes, in the development of which the company says every aspect of speaker design was re-examined. We tested the smallest of the series, the Model 603, whose basic qualities are also incorporated in the six larger models.

In general, loudspeaker enclosures

have internal resonances, some degree of panel vibration, and external features that produce diffraction of the acoustic output, distorting the spatial qualities of stereo reproduction. In the Tannoy Sixes, the use of hexagonal cabinets is said to minimize internal standing waves and resonances, in part because there are four different sizes among the six panels, which meet at angles of 120 degrees instead of the usual 90 degrees. Tannoy points out that the smaller panels in a hexagonal cabinet tend to have higher resonant frequencies than the panels of conventional enclosures, so that they are less likely to be excited by the lowfrequency output of the woofer. A central brace running through the length of each Sixes-series cabinet is bonded to the top and bottom caps, pulling the cabinet into a rigid structure. The cabinets are available finished in simulated black ash or walnut, with marbleized tops.

Diffraction is minimized by driver frames that blend smoothly into the front panel and a framed grille cloth that is positioned in front of the panel with a $\frac{1}{2}$ -inch open gap around its periphery. In addition, the 120-degree angles between the side panels and the front panel provide a gradual transition for sound waves as they pass around the cabinet.

The Tannoy Model 603 is a two-way system, with a 5-inch bass driver in a ported enclosure crossing over at 3,500 Hz to a 1-inch aluminum-dome tweeter. The crossover network uses iron-dust-core inductors and polypropylene capacitors. The bass driver has an injection-molded copolymer cone with a concave injection-molded dust cap. The cone is molded with a varying thickness, greatest near the voice coil to minimize cone breakup.

The tweeter's high-temperature voice coil is wound on a Kapton former, and it is damped and cooled by ferrofluid. Tannoy claims a frequency response up to 30,000 Hz ± 3 dB for the tweeter, whose dome is protected by a metal grille.

The cabinet's back panel contains the woofer port and the input terminals. The system is designed to be compatible with biwired or biamplified operation: The woofer and tweeter connections are brought out separately to heavy-duty binding posts that accept wire ends, lugs, or single banana plugs (they are spaced too widely for dual banana plugs). The terminals are joined by captive shorting links for conventional operation.

Tannoy recommends that smaller models in the Sixes series, including the Model 603, be mounted on rigid stands for the best imaging. The company offers a series of stands specifically designed for the Sixes, with hexagonal top and floor plates that match

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De Lo Habitual

(Warner Bros.)

(Columbia)

AC/DC-The Razor's

Edge (Atco)

424.457

411.371

410.662

415.711

407.098

Selections with two numbers contain 2 COs and count as 2-so write in both number

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BOLLON

Your Baby Tonight (Arista)

The Psychedelic Furs— World Outside (Columbia) 422+055 Skid Row-Slave To The

Grind (Atlantic) 422.220 Boston (Epic) 269-209 Harry Connick, Jr.-We Warrant-Cherry Pie 411-389 Are In Love (Columbia) 406-645

Vladimir Horowitz-The

Last Recording (Sony Classical) 405-985 Bangles-Greatest Hits (Columbia) 405.977 Damn Yankees (Warner Bros.) 405-886 Depeche Mode-Violator (Sire/Reprise) 405.423 Pretty Woman-Original Soundtrack (EMI) 405-407 Slaughter-Stick It To Ya 404.830 (Chrysalis) M.C. Hammer-Please

Hammer, Don't Hurt 'Em (Capitol) 403-477 (Capitol) Eddie Money—Greatest Hits Sound Of Money (Columbia) 403-428 Duran Duran-Decade 401.869 (Capitol) Basia—London Warsaw New York (Epic) 401.752 Pat Benatar-Best Shots

401.646 (Chrysalis) Kenny G-Live (Arista) 401-505 Chicago—Greatest Hits 1982-1989 (Reprise) 401.166

Robert Palmer-Addictions, Volume One (Island) 400.937 Eric Clapton—Journey-Man (Reprise) 400-457 Man (Reprise) Janet Jackson-Rhythm Nation 1814 (A&M) 388-918 Billy Joel-Storm Front

(Columbia) 387.902 Michael Bolton—Soul Provider (Columbia) 383+083

Tom Petty—Full Moon Fever (MCA) 382-184 Lynyrd Skynyrd Band-Skynyrd's Innyrds Greatest Hits (MCA) 381-129 Bonnie Raitt-Nick Of 381.087 Time (Capitol) EMF-Schubert Dip (EMI) 421-487

Marlah Carey (Columbia) 407.510 REM_Green (Warner Bros.) 375.162 The Bernstein Songbook Selections from West Side Story, On The Town etc. (CBS) 371-0 371.088 Marvin Gaye-Greatest Hits (Motown) 367.5 367.565

EGENDA

Louis Armstrong—Louis Armstrong Volume V Louis In New York In New TOTA (CL Jazz Masterpieces) 427-880

Chet Baker/Gerry Mulligan—Carnegie Hall Concert (CTI) 423-251 The Best Of Nat King Cole Trio—Jumpin' At Capitol: (Rhino) 421-982 Josephine Baker (DCC Compact Classics) 420-729/390-724 Best Of Theionious Monk (Blue Note) 419.663 The Best Of Herbie Hancock (Blue Note)

419.408 Sarah Vaughan-The Divine (Columbia) 374+280/394+288

John Coltrane—Giant Steps (Atlantic) 371-591 Steps (Atlantic)

John Lennon/Yoko Ono -Double Fantasy (Capitol) 380-774 Grateful Dead—Skeletons From The Closet (Warner Bros.) 378-406 Roy Orbison-The All-Time Hits, Vols. 1 & 2 (Columbia Special Prod. 377.945 The Who-Who's Better, Who's Best (MCA) 376.657 Fleetwood Mac-Greatest Hits (Warner Bros.) 375-782 Bros.) Journey-Greatest Hits (Columbia) 375.279 Van Halen-For Unlawful

Van Halen-ror Star Carnal Knowledge Bros) 420-273

Luther Vandross-Of Love (Epic) 418-848

Van Morrison-Moondance (Warner Bros 349.803

The Police--Every Breath You Take... The Singles 348-318 (A&M)

RY JAZZ

Bird-Original Motion Picture Soundtrack (Columbia) Dizzy Gillespie-The Best

Of Dizzy Gillespie (Pablo) 367-557

373.332

Billie Holiday—From The Orig. Decca Masters (MCA) 354-985

Duke Eilington Orch. & Count Basie Orch.—First Time The Count Meets The Duke (CL Jazz/Masterpieces)

353.078 The Dave Brubeck Quartet—Time Out (CL Jazz Masterpieces)

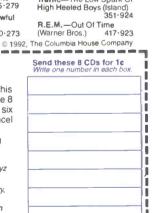
353.060

380.915 367.102 362.541 George Michael—Faith (Columbia) 362-228

(Columbia) INXS—Kick (Atlantic) 361-519

Best Of The Doors (Elektra) 357.616/397.612 U2—The Joshua Tree (Island) 354+449

Traffic-The Low Spark Of



EMS-8F-RN

Homebase Prince-H 421.024

The Byrds-Greatest Hits (Columbia) 342.501 Bad Company-10 From 6 (Atlantic) 341-313 341.313 Jimmy Buffett—Greatest Hits (MCA) 339-91 339-911 The Cars-Greatest Hits 339.903 (Elektra) Bob Marley & The Wallers -Legend (Island) 337.857 Pixles—Trompe Le Monde (Elektra) 429.571 429-571 Billy Joel-Greatest Hits

Motown's 25 #1 Hits

ZZ Top-Eliminator (Warner Bros.) 319-624

Foreigner-Records 318.055

Dan Fogelberg—Greatest Hits (Full Moon/Epic) 317·149

Musiquarium I (Greatest Hits) (Tamla)

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(Fantasy) (Columbia)

Best Of Carly Simon (Elektra) 291-856

-Smash Hits (Reprise) 291.641 (Columbia)

191 Harry Connick, Jr.—Blue Light, Red Light (Columbia) 429-191 James Taylor-Greatest Hits (Warner Bros.) 291-302 Wilson Phillips (SBK) 406.793

Color Me Badd—C.M.B. I Wanna Sex You Up; many more. (Glant/Reprise) 426•916

Garth Brooks-No

Billy Joel—Piano Man (Columbia) 239+863

Rolling Stones—Sticky Fingers (Rolling Stones Rec.) 350-645

411-587

Fences (Capitol)

Buddy Holly—From The Orig. Master Tapes (MCA) 348.110

Martika-Martika's Kitchen (Columbia)411.900

Electwood Mac-Rumours (Warner Bros.) 286-914

Eagles—Greatest 1971-1975 (Asylum) 287-003 Eagles-Greatest Hits



Paula Abdul-Spelibound (Virgin) 420-257

Chris Isaak-Heart Shaped World (Reprise) 386-144

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Traffic—The Low Optime High Heeled Boys (Island) 351-924

Miles Davis-Kind of Blue (CL Jazz Masterpieces) 353-045 Richard Marx-Repeat Offender (EMI) Joni Mitchell-Court and Spark (Asylum) Pretenders-The Singles (Sire)

the appearance of the speakers. The relatively light aluminum stands have hollow columns that can be filled with sand or lead shot for added weight. They are fitted with floor spikes, and for rigidity the speaker support plate is screwed into threaded holes in the bottom of the speaker cabinet.

The Tannoy Model 603's specifications include a recommended amplifier power of 10 to 70 watts per channel (peak power, 120 watts), nominal impedance of 6 ohms (minimum, 4 ohms), sensitivity of 86 dB soundpressure level (SPL) at 1 meter with 2.83 volts input, frequency response of 60 to 30,000 Hz \pm 3 dB, and crossover frequency of 3,500 Hz. The speaker measures 8½ x 13 x 6 inches, and it weighs 8¾ pounds. Price: \$279 a pair; matching 6s3 stands, \$149 a pair. Tannoy, Dept. SR, 141 Linden St., Suite G10A, Wellesley, MA 02181.

Lab Tests

We tested the Tannoy Model 603 speakers on their stands, without any added weight. They were placed about 3 or 4 feet from the wall behind them, 7 feet apart, and 4 feet from side walls.

The averaged room response from the two speakers was flat within ± 2 dB from 600 to 20,000 Hz, the upper limit of our measurements. Combining the close-miked woofer and port responses yielded a very smooth bass curve that varied only ± 1.5 dB from 50 to 500 Hz and sloped down gently from 500 Hz to the 3,500-Hz crossover point. It overlaid the room response very closely from 100 to 4,000 Hz, producing a composite response curve whose highest point was between 80 and 200 Hz, sloping gently down about 6 dB to the average level in the treble.

The composite curve corresponded almost exactly to the curve we visualized mentally while first listening to the speakers (as always, initial listening preceded testing, with more listening following the measurements). It is unusual for our subjective response to agree so closely with measurements.

The minimum system impedance was 5.2 ohms at 225 Hz, with another dip to 6 ohms at 52 Hz. Maximum readings of 20 to 21 ohms occurred at 25, 90, and 3,500 Hz (the crossover frequency). Sensitivity was 86 dB, as rated. When we drove the system with 4.5 volts, corresponding to an output SPL of 90 dB, the woofer distortion was between 0.8 and 3 percent from 80 to 2,000 Hz, rising to 7.5 percent at 40 Hz. Considerable wind noise could be heard from the port at the lowest frequencies, and this undoubtedly accounted for part of the distortion reading, which included noise. Reducing the drive to the standard sensitivity-measurement level of 2.83 volts lowered the distortion only slightly.

The slightly high bass distortion readings were not surprising in view of the system's tiny woofer. Nonetheless, the Model 603 was able to handle substantial power levels in single-cycle bursts without undue distortion or damage. At 100 Hz, the woofer cone bottomed with a rasp at 105 watts into its 15-ohm impedance. At higher frequencies the amplifier clipped before serious distortion occurred, at 700 to 800 watts output into the speaker's 8to 9-ohm impedance.

Comments

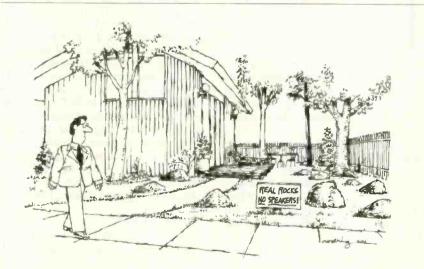
From our first hearing, the Tannoy 603 compared very favorably with some other speakers costing several times its modest price. Apart from an extraordinary smoothness and lack of coloration, the Model 603's projected one of the best sound stages I have heard in our listening room. The speakers almost disappeared, leaving the sound filling the end of the room and extending well back of the speakers. A speaker of this size and price simply should not sound that good, given the laws of physics and economics. But it seems to be possible to stretch those laws a bit. I can only assume that Tannoy's efforts in the

design of the Model 603's unconventional cabinet (and probably its drivers as well) had a lot to do with what I heard. It sounded as flat as it measured, which is very good indeed.

Did it sound like a \$1,000-a-pair speaker? Perhaps not, if you consider all aspects of its performance, but it most certainly did *not* sound like a \$279-a-pair speaker. I was struck from the start by its accuracy in the upper bass, where most speakers, at any price, add a chestiness that I find unpleasant. There was also a total absence of "sizzle" at the highest frequencies, yet the treble response was nearly as flat as we have ever measured from a speaker.

Although the Tannoy Model 603 doesn't have much "real" low bass, it creates a satisfying illusion of having it-until you compare it with a speaker that does have it. The real reason, I suspect, for the astonishing sound of this speaker is its balance, with all frequencies within its operating range being generated in plausible proportions. Obviously, this is not a speaker that can be played at ear-splitting levels without exacting a price. It is not a miracle worker, and if the program contains really deep bass, an oversupply of drive will cause some unpleasant sounds to emerge from the speaker's port, if not from the woofer cone.

Testing and listening to the Tannoy Model 603 provided one of the most pleasant surprises I have had in some time. It is a wonderful value, even adding in the price of the optional stands, which considerably simplify placing the speakers for best results.





AKG K-500 Stereo Headphones

Julian Hirsch, Hirsch-Houck Laboratories

HE AKG K-500 is a lightweight, circumaural stereo headphone set combining a wide frequency range with above-average wearing comfort. The earpieces are fitted with soft, comfortable cushions, and the backs are made of perforated metal. The outer section of the cushion pivots relative to the smaller section, which contains the driver element, to fit the wearer's head snugly yet comfortably.

The earpieces are mounted on two light, curved tubular elements, which also support a soft leather headband that is free to slide about an inch above each ear for fit. The straight 10-foot connecting cord emerges from the left earpiece. It has a handsome polishedbrass stereo phone plug at its other end; unscrewing the quarter-inch plug reveals a stereo mini plug that forms an integral part of the larger plug.

Specifications for the AKG K-500 include a bandwidth of 15 to 27,000 Hz (no tolerance stated), an impedance of 120 ohms, and power handling of 200 milliwatts (mW). Rated sensitivity is a 94-dB sound-pressure level (SPL) with an input of 1 mW. That implies an ability to generate an SPL of 117 dB, which is more than anyone will ever need (extended listening at such levels can cause permanent hearing damage). The headphones weigh just over 8 ounces (not including the cord). Price: \$229. AKG, Dept. SR, 1525 Alvarado St., San Leandro, CA 94577.

Lab Tests

We measured the AKG K-500's frequency response on a standard headphone coupler that simulates the air volume enclosed by the phones on the ears of a typical listener. Since the size and shape of this air volume can have a great effect on the frequency response (above a few kilohertz) at the wearer's eardrum, this measurement is principally useful for comparing different phones rather than for defining the sound quality that will be produced by any particular headphone.

The AKG K-500 was about as comfortable a headphone as I've worn, lighter than most with any claim to high fidelity.

We measured the frequency response by several different methods in the hope that less ambiguous results might be obtained. There were general similarities between all the resulting curves, though they differed somewhat in their details. Our ultimate aim was to try to correlate these data with what we heard from the phones.

All of the response curves showed considerable irregularity at high frequencies (above 5,000 Hz), which is typical of coupler measurements. Nonetheless, the peaks and dips were at about the same frequencies, though sometimes with very different magnitudes, in all the curves, showing that they were indeed effects of the combined headphone and coupler system rather than of the measurements.

The "best looking" curve, which also appeared to be consistent with the sound of the phones, was made with a pink-noise driving signal and measured with a scanning one-third-octave filter. The response varied less than ± 2 dB from 50 to 3.000 Hz. Below 50 Hz, it dropped smoothly to -10 dB at 25 Hz. Following a 3-dB dip at 3,500 Hz and a 3-dB rise at 5,000 Hz, the response fell to -4 dB at 8,000 to 10,000 Hz and eventually dropped off above 13,000 Hz (close to the upper limit of the microphone's response) to -10 dB at 17,000 Hz.

With a stepping sine-wave test signal, the response shape was similar, § with somewhat narrower and larger peaks and holes at high frequencies.

An FFT response plot with a noiseburst signal (an MLS, or maximum length sequence, measurement) resembled the sine-wave response in its shape but had irregularities of about the same size as those in our sweptfilter measurement.

The impedance of each headpiece was 130 ohms at 110 Hz, with a minimum of about 100 ohms at 20 and 1,000 Hz and a smooth rise at high frequencies to about 150 ohms at 20,000 Hz.

We measured the distortion of the phones at 50 Hz (nonlinear distortion was negligible at middle and high frequencies) using input levels of 1 to 5 volts (9 to 220 mW). The distortion, principally second-harmonic, ranged from 2.2 percent at 1 volt to 7 percent at 5 volts.

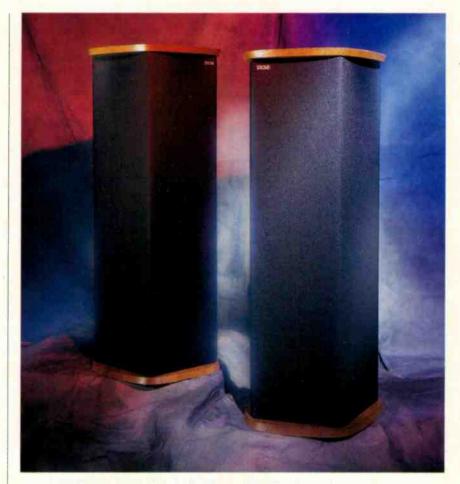
Comments

The AKG K-500's measurements compared very favorably with those of other good dynamic headphones we have tested in the past. The bass in particular, while not reaching down as far as the manufacturer's ratings implied, was smooth and uncolored, and very healthy down to 40 or 50 Hz. Very few phones go deeper than that, and they usually cost quite a bit more than the K-500.

The overall sound quality was excellent. It was airy and light when the program called for that quality, but the K-500 also came about as close to delivering the skin-massaging effect of a large speaker system as is possible with headphones.

Many phones that have very appealing sound are marred by excessive weight or bulk or simply don't fit the head as they should. The AKG K-500 was about as comfortable a headphone as I have worn. Appreciably lighter than most phones with any claim to high-fidelity performance, it was altogether easy to wear for long periods.

Although the AKG K-500 is a truly circumaural phone, because of the perforations on the back of the earpieces it provides no isolation from ambient sound, appearing to be totally transparent to external noises. The reverse effect is also true, but it is not as noticeable. If you are wearing these phones and listening to something at a fairly high volume, others around you will share in the experience but will not be able to appreciate the overall sound quality that envelops you.



DCM TimeWindow Three Loudspeaker System

Julian Hirsch, Hirsch-Houck Laboratories

Since its founding nearly twenty years ago, DCM Corporation has concentrated on designing loudspeakers whose acoustic output is as "time coherent" as possible in order to create stable, well-defined stereo images over a wide listening area. Heading DCM's current product line is the TimeWindow Three (TW3) floor-standing system.

The TW3's radiation pattern is separately controlled in two directions, respectively angled toward the center of the listening area and outward toward the sides of the room. The floorstanding cabinet has a roughly triangular cross section. Its speaker panelsidentified as "direct field" and "ambient field"—and their drivers are angled at 112 degrees to each other, with their apex facing the listening area. The rear of the triangle is curved, with the input terminals at the bottom and three knob controls at the top. The terminals are jacks that accept single or dual banana plugs; the speakers are supplied with matching single plugs.

The two speakers are constructed as mirror images of each other, with their direct-field panels facing inward toward the listening area and their ambient-field panels facing toward the sides of the room. The output from the ambient-field panels is reflected from

the walls, while the signals from the direct-field panels reach the listeners by the shortest route to establish the placement of the sound images.

The exterior of the cabinet, except for its finished oak top and bottom plates, is covered by a tightly fitting black cloth sleeve. According to information supplied with the speakers, each TW3 has an 8-inch woofer in a ported transmission-line enclosure, a 61/2-inch midrange driver, and two 3/4inch dome tweeters with antidiffraction lenses. The cloth grille is not removable, but DCM indicates that the inward-facing "direct" system consists of a tweeter mounted coaxially with the midrange driver near the top of the panel, while the "ambient" system has a tweeter mounted coaxially with the woofer at the top of the panel and the woofer port near the bottom.

DCM says the TW3's spatial-imagaing characteristics are dependent on the relative levels and frequency responses of its direct and ambient outputs. The control knobs on the speakers' back panels have a very limited adjustment range, and their optimum settings must be determined by critical listening. Two of the controls affect the relative amounts of high- and midfrequency distribution in the room, with each having a total adjustment range of only 3 dB. The third control (tweeter level) affects only frequencies from 6,000 to 18,000 Hz and has a range of 2 dB.

The DCM TimeWindow Three measures 39 inches high, 17 inches wide, and 12 inches deep, and each speaker weighs 45 pounds. The rated system sensitivity is 90 dB sound-pressure level (SPL) at 1 meter with 2.83 volts of full-band pink-noise input, and its nominal impedance is 6 to 8 ohms. The usable power-input range is specified as 5 to 400 watts. The frequency response (nonanechoic) is given as 24 to 18,000 Hz ± 3 dB (this appears to be the summed output from the two speakers with the microphone on the center listening axis). Price: \$1,499 a pair. DCM Corporation, Dept. SR, 670 Airport Blvd., Ann Arbor, MI 48108.

Lab Tests

We measured the room response of the two DCM TimeWindow Three speakers by averaging their outputs from a sweeping warble-tone signal, using a single microphone position on the forward axis of the left speaker, about 30 degrees off the axis of the right speaker, and 12 to 15 feet from them. The response curve showed virtually no directional effects up to its 20,000-Hz limit (there were the usual room interactions below 1,000 Hz). Response was almost perfectly flat from 400 to 1,500 Hz. There were 5-dB dips at 2,200 and 10,000 Hz, but the room response was otherwise flat up to 20,000 Hz.

In our close-miked bass-response measurement, the combined woofer and port output reached its maximum (within 1.5 dB) from 50 to 130 Hz, falling off at 6 dB per octave at lower and higher frequencies. The acoustic crossover between the cone and port appeared to be at 80 Hz. It was difficult to splice the low-frequency curve to the room curve because of room effects that made the transition ambiguous, but there was little doubt that the useful response went down to at least 30 Hz—very creditable performance for a single 8-inch woofer.

The system's impedance dipped to 3.6 ohms at 130 Hz and about 3.4 ohms at 20,000 Hz, with a maximum of 14 ohms at 1,500 Hz. Sensitivity of a single speaker system measured 87 dB SPL with a 2.83-volt input, consistent with the manufacturer's 90-dB measurement with both speakers operating. At 4 volts input, corresponding to a 90-dB SPL output, the woofer distortion was about 1 percent from 100 to 500 Hz. At lower frequencies, where the port output was dominant, the port distortion was less than 1 percent down to 40 Hz, increasing to 2.5 percent at 30 Hz and 5 percent at 20 Hz.

We checked the TW3's power-handling ability with single-cycle toneburst signals. At 100 Hz, the woofer cone bottomed with 1,200 watts input to its 5-ohm impedance. At 1,000 and 10,000 Hz, the measurement was limited by the driving amplifier, which clipped at 350 watts into 14 ohms and 800 watts into 4 ohms, respectively.

Comments

The sound stage created by the DCM TimeWindow Three speakers was exceptionally realistic. DCM points out that these speakers can be listened to from a nearby position with good results, yet they will present a stable stereo image over a wide range of locations.

Imaging tests using the Chesky J37 CD confirmed the stability of the sound stage created by these speakers. Whether we stood or sat on the center line between the speakers or in front of one of them, and at almost any distance, the sound came from where it was supposed to. Listening up close, which one would not expect to do with speakers the size of these, did not alter the apparent placement of the sound source-except in one completely natural way. Close listening, especially to orchestral music, resulted in the brighter, more immediate sound character one expects sitting close to an orchestra, along with the wider angular spread that would result from a wide sound source heard close up.

Moving back gave the effect of moving back in the auditorium, with a slightly reduced brightness that would be consistent with a more distant sound source. By sitting in a chair with casters, I could move forward and backward and appreciate the way the spectral balance remained consistent with my distance from the (simulated) orchestra.

The manufacturer's suggestions for trimming the three level controls on the back of the speakers make it plain that this is not something that can be done casually. Frankly, I found the changes, though audible (especially with a pink-noise signal), to be entirely too subtle to warrant the investment of time it would have taken to optimize the speakers in my room, though someone expecting to live with the speakers for a long time might feel differently. The speakers arrived with all the knobs set counterclockwise, and they remained that way during most of our listening tests as well as during our measurements.

Apart from its spatial qualities, the DCM TW3 had a very smooth, wellbalanced sound with no significant emphasis or lack in any part of the frequency range. It was highly listenable from anywhere in the room (as this is being written, I am only about I foot from the right speaker, listening to a string quartet, yet I am getting a good sense of the overall performance, including its spatial distribution). The TimeWindow Three is an outstanding loudspeaker and definitely worth listening to if your budget extends that far-and even if it doesn't.

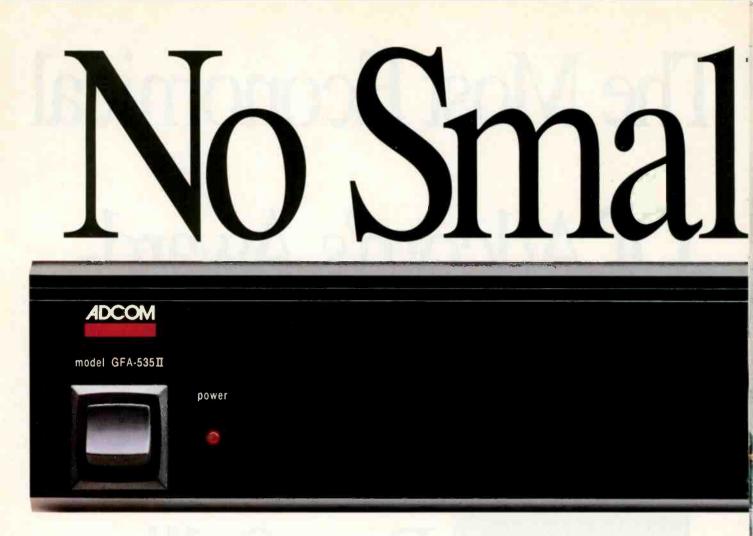
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Critically Acclaimed





Adcom has built its reputation on building a family of amplifiers which has consistently outperformed components costing two and three times as much. The breakthrough GFA-555 "...went on to become one of the best-selling amplifiers of all time"* and is now available as the improved GFA-555II. The new GFA-545II follows in the footsteps of the everpopular GFA-545. And, the 300 watt GFA-565 mono amplifier continues to astound serious music lovers with its awesome display of pure power.

Now, following the success of the value-packed GFA-535, Adcom introduces its new 60-watt-perchannel GFA-535II. Although its power rating is conservative, its ability to provide pure, distortionfree performance is no small wonder. And, its power output may be considered more than adequate for most home applications using loudspeakers of at least moderate efficiency.

The Adcom Hallmark Of High Current Output

A major factor contributing to the superior performance of all its amplifiers is Adcom's understanding of the benefits derived from high current output design. The ability to deliver large amounts of current instantaneously and continuously into varying load conditions is a true test of an amplifier's performance. In fact, it is this demanding condition of varying impedances and reactive loads that causes most other amplifiers to become unstable and shut down. Adcom high current amplifiers, on the contrary, are designed to cope with these real-life conditions and perform without stress.

Specifically, the Triple-Darlington output stage of the GFA-535II is designed to reduce the effects of speaker impedance variations thereby minimizing



high current power amplifier instantaneous distortion alert L R Channel

distortion throughout the entire audio spectrum even when driving difficult speakers.

While the GFA-535II is the smallest of the Adcom family, it shares the same high-current design philosophy that has made its bigger brothers so highly respected.

Additionally, by taking advantage of direct coupling, Adcom eliminates the use of coupling capacitors and their inherent tendency of introducing subtle, but detectible distortion. Its circuitry also keeps the damping factor high at all frequencies, lowers phase shift and improves performance into all speakers systems including electrostatics.

Keeping Cool Even Under The Most Difficult Conditions

The cooler an amplifier operates, the longer its life will be. Over time, excessive heat build-up causes component values to change, if not break down.

The new Adcom GFA-535II incorporates several improvements designed to minimize heat build-up. Larger heat sinks for each channel increase heat dissipation while improving dynamic bias tracking. Greater overall thermal stability has been achieved.

More cooling vents on the top cover and chassis also contribute to the GFA-535II's cooler operation, even when driving speakers of lower impedances.

Sustained and excessive high power operation may activate a thermal overload protection circuit which will be indicated by an LED on the front panel. When the GFA-535II cools to a safe temperature, its operation is automatically restored. This protection feature assures the continued, long life of the GFA-535II.

*Stereophile, October 1990

(Over please)

Details You Can Hear

Many other refinements have been incorporated into the new GFA-535II to improve its performance and make it an even better value.

Higher grade power supply filter capacitors have been utilized to provide greater power delivery at low frequencies and lower distortion.

A new servo circuit reduces DC voltage at the output. This minimizes woofer cone offset with no signal present, which not only can degrade short term speaker performance, but can reduce their life expectancy because of higher voice coil temperatures.

Even the smallest details are considered important at Adcom. Higher quality, gold-plated input jacks feature Teflon insulators for quieter, dependable source connections. Upgraded gold-plated binding posts make speaker hookups easy, secure and loss-free.



The Adcom GTP-400 Tuner/Preamplifier and GFA-53511 has been called the "Cure for the Common Receiver." This combination offers all the advantages of Adcom separate components for about the price of a common receiver.



The Adcom GCD-575 CD Player with Remote Control is a perfect complement to your Adcom music system.



The Adcom GTP-50011 Remote Control Tuner/Preamplifier offers superior performance and the convenience of remotely controlling your music system from different rooms.

More Sound, Less Money

All Adcom components are known for their high value, consistently offering superior performance at a reasonable cost. The GFA-535II is perhaps the finest example of Adcom's ability to deliver extraordinary value. Sharing many of the technical breakthroughs of Adcom's bigger models, the GFA-535II provides the remarkably lifelike sound of Adcom, yet at a moderate power level.

The GFA-535II is perfect for those who appreciate state-of-the-art performance and do not require high power levels. For a minimum investment, it is a popular entrée into the world of high-end audio.

Specifications (to FTC Requirements)

Power output, watts/channel, continuous, 20 Hz - 20 kHz, <0.04% THD: 8 ohms/60 4 ohms/100 Signal-to-noise ratio, A-weighted, 60 watts into 8 ohms: >110 dB Input impedance: 100,000 ohms Input sensitivity: 60 watts into 8 ohms: 0.97 V rms 1 watt into 8 ohms: 130 mV rms Damping factor (20 Hz - 20 kHz): >180 Dynamic headroom into 4 ohms: 3.0 dB Chassis dimensions: 3" (76mm) x 17" (432mm) x 11 1/4" (286mm) Maximum dimensions: 3 3/8" (86mm) x 17" (432mm) x 12 1/2" (317mm) Shipping weight: 23 lbs. (10 1/2 kg) Available options: RM-3 rack mount adaptors. White front panel.



11 Elkins Road, East Brunswick, NJ 08816 U.S.A. (908) 390-1130 Distributed in Canada by PRO ACOUSTICS INC. Pointe Claire, Quebec H9R 4X5

EVERY February for over two decades, the editors and critics of STEREO REVIEW have announced their choices for the top twelve albums of the year, both pop and classical. You'll find our choices for 1991 on the next two pages, along with an additional twentyfour releases cited as honorable mentions. The winners, as always, were chosen on the basis of musical interest, quality of performance, and sonic excellence. On the pop side, we are pleased this year to be able to honor artists who have not sold large numbers of albums (Sonny Sharrock, Pere Ubu) as well as those who more often go Platinum (Bonnie Raitt, R.E.M.), We are also pleased to present a Special Achievement Award to composer and conductor Leonard Bernstein's own recording of his Candide. Like its creator, this unique work defies categorization, except perhaps as a truly American musical expression. There's no doubt, however, that its blend of popular and classical idioms makes it an extremely apt choice as "the best of all possible" recordings this year.

Steve Simels and Robert Ripps

STEREO REVIEW'S RECORD OF THE YEAR AWARDS

AWARDS .R

DSORECONDON

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SHIRLEY HORN You Won't Forget Me VERVE. "A musical experience you won't forget."



S C H O E N B E R G Gurrelleder Soloists, choruses, Berlin Radio Symphony, Riccardo Chailly conducting. LONDON.



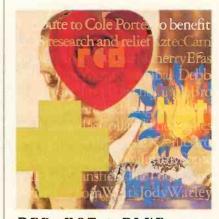
M O Z A R T Concertos for Two Pianos; Fantasia in F Minor; Andante and Variations in G Major Murray Perahia, Radu Lupu, English Chamber Orchestra, SONY CLASSICAL. "Treasurable."



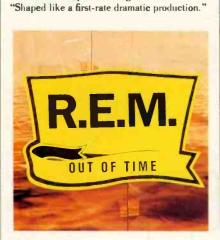
BEETHOVEN Fidelio Jessye Norman, Reiner Goldberg, Kurt Moll, Staatskappelle Dresden, Bernard Haitink conducting. PHILIPS. "Vigorous, tasteful, and thoughtful."



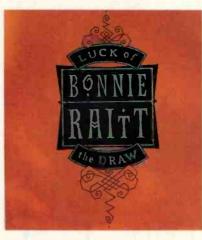
CORIGLIANO Symphony No. I Chicago Symphony, Daniel Barenboim conducting. ERATO. "A triumph."



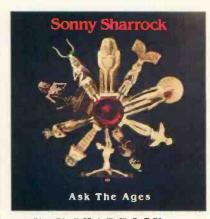
RED, **HOT** + **BLUE** A Tribute to Cole Porter to Benefit AIDS Research and Relief CHRYSALIS. "A generous act of synthesis, perhaps even a cultural milestone."



R.E.M. Out of Time WARNER BROS. "No faith is needed to get the music."



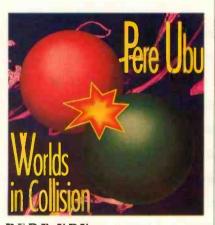
BONNIE RAITT Luck of the Draw CAPITOL. "Marvelously expressive, earthy music."



SONNY SHARROCK Ask the Ages AXIOM. "Moves quickly from beautiful melodies to controlled, almost mathematical solos to raw, keening free-for-alls."



S M E T A N A Má Vlast Czech Philharmonic, Rafael Kubelik conducting, SUPRAPHON. "Gripping."



PEREUBU Worlds in Collision MERCURY. "Colorful, evocative music with a light dose of surrealism."



BARBER Symphony No. 1; Piano Concerto; Souvenirs

John Browning, Saint Louis Symphony, Leonard Slatkin conducting. RCA VICTOR. "Blazing virtuosity."

HONORABLE MENTIONS

BEETHOVEN Symphony No. 3 ("Erolea"); Leonore Overture No. 3 NDR Symphony, Günter Wand cond. RCA VICTOR.

B R A H M S A German Requiem Soloists, Monteverdi Choir, Orchestre Révolutionnaire et Romantique, John Eliot Gardiner cond. PHILIPS.

GARTH BROOKS No Fences Capitor

DEBUSSY Pélleas et Méllsande Soloists, Montreal Symphony Chorus and Orchestra, Charles Dutoit cond. LONDON.

ROY HARGROVE Public Eye Novus,

ROBYN HITCHCOCK Perspex Island A&M.

ROBIN HOLCOMB Elektra/Asylum

HUMPERDINCK Hänsel und Gretel Soloists, Symphonie-Orchester des Bayerischen Rundfunks, Jeffrey Tate cond. EMI/ANGEL.

I V E S Country Band March; Four Ragtime Bances; Calcinm Light Night; Three Places in New England; other works Orchestra New England, James Sinclair cond. KOCH INTERNATIONAL CLASSICS.

THE KENTUCKY HEADHUNTERS Electric Barnyard Mercury.

THE LA'S Go/London.

M A H L E R Symphony No. 8; Symphony No. 10, Adagio Soloists, choruses, Vienna Philharmonic, Leonard Bernstein cond. DEUTSCHE GRAMMOPHON.

BRANFORD MARSALIS The Beautyful Ones Are Not Yet Born. Columbia.

KATE & ANNA McGARRIGLE Heartbeats Accelerating Private Music.

JONI MITCHELL Night Ride Home GEFFEN.

MOZART Arlas Cheryl Studer, Academy of St. Martin in the Fields, Neville Marriner cond. PHILIPS.

MAURA O'CONNELL AReal Life Story WARNER BROS.

MURRAY PERAHIA The Aldeburgh Recital Sony Classical,

R O S S I N I Cantata, Giovanna d'Arco; Songs Cecilia Bartoli, Charles Spencer. LONDON.

S C H U M A N N Piano Concerto; Solo Piano Pieces Thomas Lorango, New Brandenburg Collegium, Anthony Newman cond. NEWPORT CLASSIC.

SCHUMANN Symphonies Nos. 1 and 4 London Philharmonic, Kurt Masur cond, TELDEC.

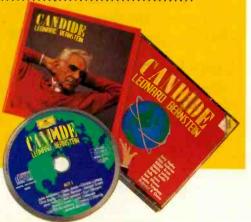
MATTHEW SWEET Girlfriend Zoo.

RICHARD THOMPSON Rumor and Sigh CAPITOL.

VERDI I Vespri Siciliani Soloists, Chorus and Orchestra of La Scala, Riceardo Muti cond. EMI/ANGEL.

SPECIAL ACHIEVEMENT

BERNSTEIN Candide Soloists, London Symphony Chorus and Orchestra, Leonard Bernstein conducting. DEUTSCHE GRAMMOPHON. "A honey of a performance."



N A T N B S S O O U N T S

How to make your compact discs last a lifetime ARE you guilty of CD abuse? You could be, without even knowing it, seriously threatening the life of your music collection. But you shouldn't feel guilty—it's not all your fault. No, it's not your parents' fault either. The brunt of the blame should be borne by those who initially touted the compact disc as a virtually indestructible music storage medium. This estimation was somewhat overoptimistic.

To paraphrase the old "Do magic at home" TV ad, destroying a compact disc is easy once you know the secret. It involves compromising the lacquer coating on the label side of a CD, which seals in the aluminum reflective layer that renders readable the millions of pits that carry the digital information. Cracks in the lacquer allow in oxygen, which oxidizes the aluminum, which makes the CD unplayable, which leaves you with a Christmas-tree ornament.

But don't despair. Cared for properly, a CD should last indefinitely. Diligently follow the "do's" shown here, avoid the "don't's" like the plague, and save your hard-earned music collection for posterity. • **by Glenn Kenny**

DO lift the CD from its jewel box with care, pressing the spindle to release it and lifting from the rim without touching the disc's surface.

DON'T bend the disc when lifting or holding it. Persistent bending of a compact disc can eventually lead to cracks in its protective coating.





















DO hold the disc firmly at the rim or with your thumb in the hole and one finger on the rim. Again, keep your fingers off the disc's surface.

DON'T put your hands all over the disc when carrying it, and always be sure to keep foreign matter of any kind away from its surface.

DO clean the disc with a lintfree cloth, wiping gently in a radial motion from the center of the disc out to its edge.

DON'T wipe discs in a circular motion (CD care isn't LP care), and don't use linty cloths—the lint could end up on your CD player's lens.

DO keep CD's in a disc wallet or their jewel boxes if you travel with them. Having a solid surface to rest on is essential to maintaining a disc's health.

DON'T carry discs in an unprotected stack, rubbing up against each other, which can damage them in a number of ways, all of them serious.

DO replace your CD's in their jewel boxes when you're through listening to them, pressing them firmly onto the center spindle as shown.

DON'T leave your CD's scattered around where they can fall prey to dust, smoke, and other environmental hazards typical of home life. In 1986, Yamaha developed what many industry experts consider the most significant audio advancement since stereo. We're referring to Digital Soundfield Processing.

Digital sampling of actual soundstages to recreate the same acoustic environments you once had to go out to enjoy.

Now this remarkable technology is available in an audio/video receiver. The one you see before you. Yamaha's new RX-V1050.

The RX-V1050 has four DSP settings, in fact. Concert Video, Mono Movie, Rock Concert and Concert Hall.

But what may ultimately be more exciting is something no other receiver can offer. Dolby* Pro Logic Enhanced. A technical feat which combines DSP and Digital Dolby Pro Logic. An incredible enhancement which allows you to enjoy all the sonic information embedded in the movie soundtrack, as well as the acoustics of the theatre, all without leaving the house.

Under the hood, the RX-V1050 sports five power amplifiers—110-watt amplifiers for the left, right and center front channels, and 30-watt amplifiers for each of the rear effects channels.

A high-powered center channel combined with Yamaha's DSP and Digital Dolby Pro Logic enables Yamaha's RX-V1050 receiver to recreate the experience other receivers have promised, but have never quite delivered.

Stop by your nearest Yamaha dealer and hear the new RX-V1050 receiver. The best argument for staying home anyone's ever come up with. YAMAHA

The only receiver that can make your home theatre sound as good as the original.



TIPS for better sound

WE'RE never satisfied. Even though many of us have stereo systems that normal human beings would kill for, we still pore over hi-fi magazines and stare drooling into store windows, dreaming of ways to make our systems sound just a little bit better. Most of the dreams have to do with a bigger amp, or better speakers, or a more elaborate CD player, all of which cost money. But there are ways to spruce up a system's performance without replacing major parts of it or adding new components, and often taking a few simple steps lets you postpone serious upgrading until it's financially convenient. The procedures outlined here won't flatten your wallet, but they might improve your sound.



Find the Right Location

Where you place your equipment can have an effect on how it performs, so some fiddling with new positions may yield immediate sonic benefits. Your FM tuner or receiver, for instance, may be susceptible to radio-frequency interference from your CD player; putting some distance between the two components often clears this up (if not, turn off the player when you're listening to FM).

ILLUSTRATIONS BY TERRY ALLEN

Ian G. Masters

BY

And if your system is plagued by hum or other extraneous noises, rearranging your cables may be the cure.

Loudspeakers are especially sensitive to placement. In any room, what you hear is a mixture of the direct sound from the speakers and a complex "soup" of reflections from the walls, ceiling, and floor. Most of these reflections add a sense of spaciousness, but the near-field reflections from surfaces close to the speakers can combine with the direct sound to produce a new sonic character. Such reflections are excited by the speaker's off-axis radiation, which is rarely as smooth as the on-axis sound, so the combination can be pretty ragged. Shifting your speakers even a few inches may result in a dramatic improvement, so experiment. It's worth it.

By the same token, bass performance can be profoundly affected by the positions of the speakers and the listener relative to each other and to the room boundaries. Again, even slight adjustments can yield major audible gains.

🦉 Clean Up Your Act

If you haven't done it for a while, the audible improvement that results from cleaning the heads in your cassette deck will be immediately obvious. Heads can pick up oxide particles from tape, and the buildup of these particles will eventually interfere with high-frequency performance, so regular cleaning is a must. And although it won't actually improve sound, periodic head demagnetization will prevent after-the-fact degradation of your existing recordings.

Some audiophiles assiduously polish their CD's and clean the laser lenses in their players as well. There's no harm in this, but things have to be in very bad shape indeed before you can expect to hear an audible improvement. Not so with vinyl—keeping fuzzballs off the stylus and grit off the disc surfaces will pay obvious dividends.



Patch and Polish

Most of the minor things that go wrong with audio systems happen between the components, so it only makes sense to lavish some attention on the cables that join things together. If wiggling a patch cord causes crackles or intermittent hum, replace it. If the plugs are a bit loose, they can be crimped slightly with pliers.

More insidious is the gradual increase in noise that can occur because of oxide buildup on either the plugs themselves or the jacks they are connected to. This buildup is inevitable over time with aluminum, of which most connectors are made, but it can often be cured by merely unplugging and replugging the connections a few times. Better still, use some fine sandpaper or contact cleaner on the jacks and plugs. Contact cleaner is also often useful for ridding control knobs and switches of crackles and, in extreme cases, intermittent contact.

5 Flatten the Response

A system's equalizer—whether simple bass and treble controls or a more complicated multiband component can be useful for tailoring sound to a particular environment, but equalization is easy to overdo. And as we accustom ourselves to the sound we have, it's fairly common to push the controls just a bit more from time to time. Ultimately, we often build substantial peaks or valleys into the response curve that, although sometimes pleasant, could hardly be considered accurate. Every so often, therefore, it's a good idea to return everything to the "flat" position and listen to it that way long enough to become accustomed to it. Then listen carefully for problems in response, if any, and compensate only for those. The sound may seem a bit less dramatic at first, but the fidelity will be higher.

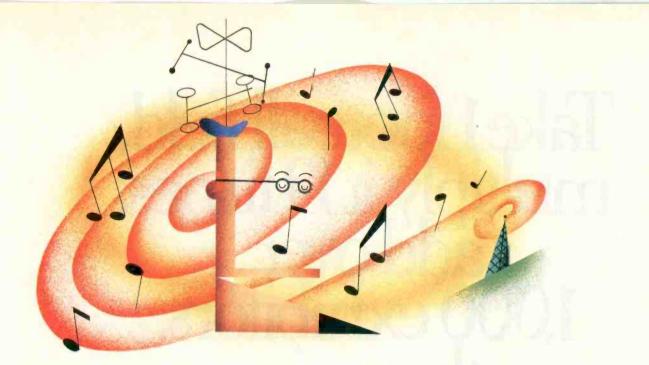
5 Keep It on the Level

A turntable is perhaps the most delicate device in most systems, and its many adjustments can gradually get out of whack. Periodically, it's wise to recalibrate everything as if you were setting up for the first time. Take particular care with stylus tracking force and antiskating, as these can materially affect the ability of the stylus to retain good—and equal—contact with both groove walls. And check that the turntable is level by placing a small spirit level on a disc on the platter and slowly turning it to make sure it is level in all directions. If it isn't, rotate the turntable's adjustable feet, if it has them, or use slips of paper to prop up the low side.

You may also want to try repositioning your turntable to reduce acoustic feedback from low-frequency standing waves. In extreme cases feedback can build up into an unbearable roar, but even if that doesn't happen, it can still cause unnatural bass reproduction. Shifting the turntable just a few inches can make a difference.

Close the Doors

A long-term bit of prevention is to keep dust and dirt as far away from your equipment as possible. Covering your components when they're not in use, or keeping them behind closed doors in a cabinet that seals fairly tightly, won't yield immediately audible gains, but it will prevent gradual degradation caused by foreign material that might creep into switches, controls, moving turntable and cassette-deck parts, and the like. It also looks better. Just make sure that the equipment is adequately ventilated when you are using it.



Upgrade Your Reception

The FM radio signals most of us listen to are notoriously hard to pull in: They're either so weak as to be lost in noise, or they bounce around from building to building, causing multipath distortion. Often we're not aware of minor reception problems until they go away, so it's worthwhile to try out some alternatives even if the reception seems okay. In many systems, the only antenna required is the Tshape wire dipole supplied with the tuner or receiver, but its effectiveness is dependent on orientation. Experiment with it in different positions to increase signal level and reduce multipath distortion. If that doesn't help, a directional or powered indoor antenna may provide a clean signal; otherwise a rooftop antenna might be the only answer. Or you could ignore all of that and simply hook into your cable-TV company's FM service, if it has one.

🖲 Strike a Match

For anyone who makes tape recordings regularly, matching recorder and tape is crucial. All tapes differ, and optimal performance is possible only if the recorder's bias is adjusted precisely for the tape in use. If your deck has a continuously variable bias trim (rather than the usual three-position bias switch), learn how to use it, and do so with every tape you record. If this facility is not offered on your deck—it seldom is on budget models—it's worth a few bucks to have a service facility adjust your machine for one specific current tape, then use that tape exclusively, at least for critical recordings. The bias should be readjusted every few years, even if you keep using the same tape, as tape manufacturers often alter formulations slightly without changing the designations.

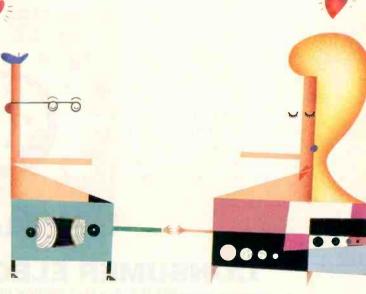
Keep Proper Audio Files

The sound your equipment produces is only as good as the material it has to work with, so take care to store your precious recordings in a manner that will preserve them. Cassettes, for instance, should be kept away not only from heat and cold but also far from stray magnetic fields. Don't pile tapes on a speaker or TV set, and make sure any cupboards they are in don't have magnetic catches. Keep them in their boxes, and if they are not likely to be used again for some time, play them all the way through and don't rewind them. That way, the tapes will be packed smoothly, with no protruding edges.

Compact discs can be stored for short periods in special multicompartment caddies or in changer magazines. For longer periods, however, they should be kept in their jewel boxes and stored on edge, away from extremes of temperature. LP's should be stored vertically as well, with plastic liners inside the sleeves. Pack them fairly tightly for support, but don't cram them together enough to distort the plastic.

10 Replace Your Stylus

Eventually, any phono stylus will wear. Sound quality will gradually go down and the risk of damage to your LP's will rise. As vinyl records become harder to replace, and as the range of equipment available to play them dwindles, it makes sense to get a replacement stylus, or maybe a whole new cartridge, even if the one you have now still sounds fine. The health of your vinyl record collection will depend on a pristine stylus in the future, but you may not be able to find an appropriate replacement in the coming years.



Take 1 football field, multiply it 19 times, bitors, nw in over 15 000 products, n it to the pub 1C, and you have the 1 show to see.

For 25 years, the Consumer Electronics Show has been the place to see the latest, most exciting consumer electronic products. Now, for the first time, it's open to you—the consumer. You'll see the latest in BITS, BYTES, DCC, DAT, CDTV, PC,



CD-I, FAX, MIDI, VCR & LCD. Simply call 1-800-388-6901 for information to qualify for 2 free tickets. Join us at McCormick Place this summer. You'll recognize it. It's the building that's 19 times larger than a football field.

CONSUMER ELECTRONICS SHOW SUMMER '92 - MCCORMICK PLACE - CHICAGO - MAY 30, 31. CD Players Page 72

> Receivers Page 52

Speakers Page 93

ILLUSTRATIONS BY KEN COFFELT

HETHER you're buying your first CD player, replacing speakers you bought in college, or assembling a full-blown reference system, it pays to scope out your options *before* confronting that imposing wall of components in your local stereo shop. Does the equipment in question offer the best combination of performance, features. size, and price for your unique listening habits?

Our buying guide is a good starting point, providing specifications, features, and prices for a wide range of audio components, from CD players to turntables (yes, you can still buy record-playing equipment), from highpower separate amplifiers to multichannel audio/video receivers, from subwoofer/satellite speaker systems to floor-standing towers to electrostatics. The listings are necessarily very selective, concentrating on representative models in the main categories of equipment from companies whose products are widely distributed. (Tape recorders and blank tape will be covered in future issues.) If a particular model or brand does not appear in this guide, that does not reflect on its quality.

All information was provided by the manufacturers, and prices that are given are suggested retail ("list") prices; actual selling prices may vary. For more information, contact the manufacturers (see address list on page 118) or their authorized dealers. Happy hunting. —Bob Ankosko

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Turntables

Page 91

Tuners

Amplifiers

Page 57



RECEIVERS

ACOUSTIC RESEARCH

X-07 70-W/ch A/V Receiver

BANG & OLUFSEN

Beomaster 6500 50-W/ch Receiver

CARRERA

CR-2530 30-W/ch Receiver

CARVER

The following receivers feature Carver's Sonic Hologram Generator, an analog ambience- and image-enhancement circuit.

HR-772 140-W/ch Receiver

AM/FM receiver. Features asymmetrical chargecoupled FM circuitry; 8 audio inputs; 2 video



Denon AVR-810

HR-732 60-W/ch Receiver

AM/FM receiver. Features asymmetrical chargecoupled FM circuitry; nonvolatile memory for

DENON

DRA-1035R 130-W/ch A/V Receiver

AM/FM receiver with optical Class A amplifier circuitry. Features pure-current power supply; video switching; simulcast copy function and simulated-stereo circuitry: switchable wide/narrow FM IF bandwidth; variable loudness control; source-direct switch; separate input and recordout selectors; remote speaker switching; pre-out/ main-in jacks: 7 audio and 3 video inputs. FL tuning/status display; 40 station presets; seek, preset-scan, and manual-step tuning; last-station memory: connection for RC-615 system remote: RC-770 LCD programmable remote control. 130 W x 2 into 8 ohms from 20-20,000 Hz with 0.015% THD; THD 0.006% at -3 dB; S/N: 75 dB MC, 92 dB MM, 103 dB line. FM tuner: 50-dB quieting sens 37.3 dBf stereo; cap ratio 1.3 dB; S/N 82 dBA stereo; THD 0.06% stereo; sep 55 dB at 1.000 Hz \$1,000

AVR-810 265-W A/V Receiver

AVR-610 205-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic decoder with 6 surround modes; digital delay adjustable from 0 to 40 ms in 5-ms steps; 3 video inputs; 2 video outputs; 6 audio inputs; 4 audio outputs; rear-panel preamp outputs; frontpanel dubbing inputs; auto input balance. FL front-panel display; 16 AM/FM presets; last-station memory; programmable remote control. 55 W x 3 (front left, center, and right) + 20 x 2 (rear) into 8 ohms. FM tuner: 50-dB quieting sens 38.5 dBf stereo; S/N 75 dB stereo; THD 0.2% stereo. . \$600

DRA-435R 55-W/ch A/V Receiver

DUAL

CR-5950RC 70-W/ch Receiver

AM/FM receiver. Features Class A amplification; digital quartz-synthesis tuning; brushed metal housing; 6 inputs including phono; gold-plated phono and CD inputs. 16 nonvolatile AM/FM presets; FM stereo muting; auto/manual station scan; bass, treble, balance, and loudness controls; motor-driven volume control; wireless remote control. 70 W x 2 cont avg into 8 ohms at 1,000 Hz or 130 x 2 into 4 ohms; power bandwidth 10-70,000 Hz; s/N 75 dB phono, 95 dB line. Tuner: s/N 75 dB. Black anodized finish. \$620

CR-9065RC 60-W/ch Receiver

FISHER

RS-627B 100-W/ch Receiver

AM/FM receiver with Class A-II circuitry. Features quartz-synthesis tuning; 24 presets; FM muting; source-direct switch; CD-record switch; 5-band graphic EQ; remote control with volume. 100 W x 2 into 8 ohms; FR 20-20,000 Hz; THD 0.05%; s/N 55 dB \$\lambda Stop \$\lam

RS-646 300-W A/V Receiver

5-channel AM/FM receiver. Features Class A-II circuitry; Dolby Pro Logic decoder with 3-channel amplifier; 7-band graphic EQ; 8 inputs with A_V switching: 30 station presets with auto scan; motor-driven volume control; on/off timer: 44function universal remote control. 120 W x 2 + 20 x 3 (center, rear) into 8 ohms; THD 0.05%. Tuner: 50-dB quieting sens 42.1 dBf stereo; cap ratio 1.5 dB; alt-ch sel 55 dB. 17½ x 5½ x 13½ in ... \$450

RS-615B 60-W/ch Receiver

AM/FM receiver. Features 5-band graphic EQ; 24 AM/FM presets; auto scan; FM muting; loudness switch; FL display; remote control. 60 W x 2 into 8 ohms; FR 20-20,000 Hz; THD 0.09% \$350

HARMAN KARDON

All receivers feature a digital-synthesis, quartzlock AM/FM tuner with seek and remote control.

HK3600 75-W/ch Receiver

Dual tape and A/V monitors; interactive video switching; 3 line-level inputs; subwoofer output; 7-way tape-copy selector; 16 AM/FM presets. 75 W x 2 cont avg into 8 ohms with 0.09% THD ... \$799

HK3500 50-W/ch Receiver

2 tape monitors; 3 line-level inputs; subwoofer output; 7-way tape-copy selector; 16 AM/FM presets. 50 W x 2 cont avg into 8 ohms with 0.09% THD \$619

HK3400 35-W/ch Receiver

2 tape monitors; 2 line-level inputs; subwoofer output with level control; 16 AM/FM presets. 35 W x 2 cont avg into 8 ohms with 0.09% THD ... \$449

JVC

RX-1050VTN 370-W A/V Receiver

5-channel AM FM receiver with symphony-hall, pavilion, stadium, live-club, church, and operahouse digital ambience modes; Dolby Pro Logic decoder; Dolby 3 Stereo mode; room-size, liveness, and wall-type controls for ambience modes; 7-band computer-controlled graphic EQ with 5 EQ

RX-805VTN 290-W A/V Receiver

RX-505VTN 200-W A/V Receiver

RX-305TN 50-W/ch Receiver

KENWOOD

KR-V9030 300-W A/V Receiver

5-channel AM/FM receiver. Features DSP with 6 soundfield presets and adjustable parameters; Dolby Pro Logic and Dolby Surround decoders; Dolby Time Link digital-delay system; voltageinterface-gate amp-stabilizing circuitry; CD-direct input; rear line-level output; 3 video inputoutput pairs including 1 S-video pair. 30 tuner presets; preset scan; video dubbing; multiroom remote capability; programmable remote control. 130 W x 2 or 75 x 3 (front left, right, center) + 20 x 2 (rear); FR 20-20,000 Hz \pm 0.5 dB; THD 0.03%. Tuner: 50-dB quieting sens 38.2 dBf stereo; AM rej 65 dB; cap ratio 2.0 dB. 17¼ x 6¼ x 16¼ in; 32 lb. \$979

KR-V8030 270-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic and Dolby Surround decoders; Dolby Time Link digital-delay system; voltage-interface-gate amp-stabilizing circuitry; CD-direct input; 2 sets of video inputs/outputs. 20 tuner presets; preset scan; multiroom remote capability. 120 W x 2 or 75 x 3 (front left, right, center) + 15 x 2 (rear); FR 20-20,000 Hz ± 0.5 dB; THD 0.06%. Tuner: 50-dB quieting sens 38.2 dBf stereo; AM rej 65 dB; cap quieting sens 38.2 dBf stereo; AM rej 65 dB; cap

KR-V6030 230-W A/V Receiver

4-channel AM/FM receiver. Features Dolby Surround decoder; Dolby Time Link digital-delay system: amp-stabilizing circuitry: CD-direct input; 2 sets of video inputs/outputs. 10 AM/20 FM presets; video dubbing; multiroom remote capability. 100 W x 2 + 15 x 2 (rear). FR 20-20,000 Hz ± 0.5 dB; THD 0.06%. Tuner: 50-dB quieting sens



Kenwood KR-A5030

KR-A5030 80-W/ch Receiver

LUXMAN

RV-371 290-W Surround A/V Receiver

R-361 100-W/ch A/V Receiver

AM/FM receiver. Features voltage-driven amplification with Duo-Beta feedback loop and Star topology: S-video connectors; front-panel A/v jacks; 11 A/v inputs with separate record-out selectors. 2-way A/v dubbing capability; onetouch CD-deck synchro recording with select Luxman components; fixed-level preamp output jacks; remote control. 100 W x 2 cont avg into 8 ohms; THD 0.05% \$1,000

R-351 55-W/ch Receiver

R-341 35-W/ch Receiver

MARANTZ

SR-92 330-W Surround Receiver

SR-62 120-W A/V Receiver

MCINTOSH

MAC 4300V 100-W/ch Receiver

Features MPX filter; 6 AM/FM station presets; signal-strength indicator; loudness control; 5-band EQ; headphone jack; remote control. Amp: THD 0.02%; IM 0.02%; FR 20-20,000 Hz + 0. - 0.5 dB; S/N 100 dBA. Tuner (stereo): S/N 75 dB; FR 20-15,000 Hz + 0. - 1 dB; THD 0.08% at 1,000 Hz. 18½ x 6 x 14 in; 34.5 lb. \$2,995

MAC 4280 75-W/ch Receiver

Features MPX filter; 5 AM/FM station presets; signal-strength indicator; Power Guard circuit; 3-band EQ; scan; headphone jack. Amp: THD 0.03%; IM 0.03%; FR 20-20,000 Hz + 0, -0.5 dB. Tuner: S/N 75 dB stereo; FR 20-15,000 Hz ± 0.5 dB stereo; THD 0.1% at 1,000 Hz. 18/4 x 5/4 x 15/2 in; 25 lb \$\$1,995

MITSUBISHI

The following receivers feature 7 audio and 6 video inputs, a pre-outfmain-in loop, a video monitor output, line-level surround output, a headphone jack, 12-hour backup memory, an illuminated motorized volume control with LED indicator, audio muting, a clipping indicator, an AMIFM tuner with 16 presets, and a programmable remote control.

M-R8010 300-W A/V Receiver

4-channel AM/FM receiver. Features Dolby Pro Logic decoder with stadium, club, and theater surround modes; 15-30 ms rear-channel delay; 2



RECEIVERS

M-R6030 200-W A/V Receiver

NAD

Model 7400 100-W/ch Receiver

Bridgeable AM/FM receiver with power-envelope circuitry. Features soft-clipping circuit; discrete 4-transistor phono preamp with MM/MC switch. 14 AM/FM presets; semiparametric tone controls; bass EQ; preamp-out/main-in loop. 100 W x 2 cont avg: dynamic headroom + 5.7 dB. Rack mountable \$999

Model 7100X 60-W/ch Receiver

Bridgeable AM/FM receiver with power-envelope circuitry. Features soft-clipping circuit; discrete 4-transistor phono preamp with MM/MC switch. 14 AM/FM presets; bass EQ; preamp-out/main-in loop; remote control. 60 W x 2 cont avg ... \$749

Model 7000 40-W/ch Receiver

Model 701 25-W/ch Receiver

NAKAMICHI

Receiver 1 80-W/ch A/V Receiver

Receiver2 55-W/ch Receiver

Features Harmonic Time Alignment amplifier circuitry: isolated-ground topology: multiregulated power supply; quartz-locked frequency-synthesis PLL tuner; isolation buffer at tuner output stage: pre-out/main-in jacks. Multiroom control

Receiver3 37-W/ch Receiver

ONKYO

TX-SV90 PRO 290-W A/V Receiver

TX-SV70 PRO 315-W A/V Receiver

5-channel AMVFM receiver with discrete outputs. Features Dolby Pro Logic decoder; hall and matrix surround modes; Dolby 3 Stereo processor; 2-room capability; adjustable digital delay; front-panel A/V input terminal: 4-way binding posts. On-screen display; 6 audio and 4 video inputs; 30 station presets; classified memory scan; FM mute/mode switch; headphone jack; sleep time; programmable remote control. 85 W x 2 + 85 x l (center) + 30 x 2 (rear) \$850

TX-SV50 PRO 200-W A/V Receiver

4-channel AM/FM receiver with discrete outputs. Features Dolby Pro Logic decoder; hall and matrix surround modes; 2-room capability; adjustable digital delay; 6 audio and 4 video inputs; pre-out jack for center output; 4-way binding posts. 30 station presets; classified memory scan; FM mute/mode switch; headphone jack; sleep



NAD Model 7000

timer; programmable remote control. 70 W x 2 + 30 x 2 (rear) \$630

TX-906 174-W A/V Receiver

TX-902 50-W/ch Receiver

Low-imp-drive amplifier sections: discrete outputs. Features 30 station presets; battery-free

OPTIMUS, BY RADIO SHACK

STAV-3100 100-W/ch A/V Receiver

STA-2170 100-W/ch Receiver

STA-795 50-W/ch Receiver

AM/FM receiver. Digital tuning; 4 inputs including MM phono. 18 station presets; bass and treble controls; FM muting; loudness and tape monitor controls. FR 40-20,000 Hz with 0.5% THD ... \$199

PHILIPS

FR-980 280-W A/V Receiver

FR-70 70-W/ch A/V Receiver

Features discrete output transistors; subsonic filter built into phono preamp section; dual F-type FM input connectors; 6 audio inputs including phono; 2 audio outputs; 3 video inputs; 2 video outputs; 30 random presets with scan; auto scan; remote control. \$499 FR-60. As above, 60 W x 2 \$399 FR-50. As above, 50 W x 2 \$299

PIONEER

All the following except the SX-2900 feature multiroom capability with the optional MR-100 infrared remote sensor.

VSX-D1S 380-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic decoder; digital signal processor with 5 soundfield presets and adjustable delay time; source-direct switch; front-panel A/v input; 6 video inputs; video adaptor loop; 2 mono centerchannel outputs; 5 audio inputs; split-screen video enhancer with five preset levels; S-video

VSX-9900S 370-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic decoder; digital signal processor with adjustable delay time and 5 soundfield presets; 6 video and 5 audio outputs; 3 S-video terminals; subwoofer output. 30 AM/FM presets; split-screen video enhancer; preamp-output/power-amp-input terminals for front, center, and rear; 5-channel level meters; jog dial; sleep timer; programmable remote control. 125 W x 2 with 0.005% THD + 40 x 3 (center, rear) with 0.08% THD into 8 ohms. 20% x 10½ x 19% in; 37 lb\$1,120

VSX-5900S 285-W A/V Receiver

5-channel AMIEM receiver. Features Dolby Pro Logic decoder with digital delay; Dolby Surround decoder; simulated and studio surround modes; 4 video inputs; 5 audio inputs; preamp-output/power-amp-input terminals for front, rear, and center. Acoustic memory for bass/treble settings; surround-sound memory; 30 AM/EM presets; 5 tone presets; sleep timer; memory scan; programmable remote control. 105 W x 2 with 0.008% THD + 25 x 3 (rear, center) with 0.08% THD into 8 ohms. 19% x 8 x 18% in; 27 lb ... \$750

VSX-3900S 236-W A/V Receiver

SX-2900 65-W/ch Receiver

AM/FM receiver with SR remote. Features 5-band graphic EQ; quartz-synthesis PLL tuning; 5 audio inputs; motor-driven volume control; 30 AM/FM presets; direct access; custom memory; memory scan; connections for 2 speaker pairs. 65 W x 2 cont avg finto 8 ohms; FR 20-20,000 Hz; THD 0.07%. 16% x 4³/x x 13¹/₂ in; 17 lb \$300

Elite Series

Both models can operate a remote source.

VSX-95 370-W A/V Receiver

VSX-51 261-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic with digital delay adjustable in 2-ms steps

PROTON

AV-646 60-W/ch A/V Receiver

AV-445 50-W/ch Receiver

SANSUI RZ-9500AV 300-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic decoder with variable digital delay; 3 surround modes; 4 surround preset memories; testtone generator; source-direct switch: 4 audio and 3 video inputs; rear and center preamp outputs; power-amp inputs; tape/video monitor outputs; motorized volume. 30 tuner presets; preset scan; electronic bass and treble controls; 70-key programmable remote control. 100 W x 2 + 40 x 1 (center) + 30 x 2 (rear) cont avg into 8 ohms with 0.02% THD. Tuner: 50-dB quieting sens 17.2 dBf stereo; s/N 70 dB stereo; cap ratio 1.5 dB; THD 0.2% mono, 0.3% stereo. Black finish..... \$770

RZ-7500AV 240-W A/V Receiver

R-950AV 105-W/ch A/V Receiver

R-550 35-W/ch Receiver

AM/FM receiver. Features selectable monitor output; motorized volume with LED; 8 AM/16 FM

SHARP

SA-R75AV 75-W/ch A/V Receiver

AM/FM receiver. Features PLL quartz-synthesis tuning; multimode surround sound with digital time-delay circuit; 5-band graphic EQ; 3 video inputs. Motorized rotary volume control with LED; bass boost; auto scan tuning; 30 station presets; muting circuit; multifunction system remote control. 75 W x 2 into 8 ohms with 0.05% THD \$430

SHERWOOD

RV-5010R 200-W A/V Receiver

AM/FM receiver. Features Dolby Surround decoder with theater and stadium surround modes;



RX-4010R 65-W/ch Receiver

SONY

STR-D2070 300-W A/V Receiver



STR-AV1070 300-W A/V Receiver

STR-AV770 180-W A/V Receiver

ES Series

STR-GX90ES 120-W/ch A/V Receiver

STR-GX67ES 300-W A/V Receiver

STR-GX57ES 210-W A/V Receiver

TEAC

AG-V1200 230-W A/V Receiver

AG-500 50-W/ch Receiver

AM/FM receiver. Features quartz-synthesis PLL tuning; matrix surround; motor-driven master volume control; 3 inputs including phono. Bass,

TECHNICS

SA-GX910 370-W Digital A/V Receiver

5-channel AM FM receiver. Features 1-bit MASH D/A converter; Dolby Pro Logic decoder with phantom and normal center-channel modes; Dolby 3 Stereo logic; hall, club, and stadium DSP surround modes; parametric EQ; 15-band spectrum analyzer; adjustable 15-30 ms digital delay; 2 optical digital inputs; 1 optical digital output; 5 analog inputs; 4 video inputs; front-panel A/V input; 3 S-video inputs; cooling fan. Input-level controls; 30 AM/FM presets; headphone jack; 59key programmable remote with volume control. 125 W x 2 into 8 ohms with 0.008% THD + 60 x 1 (center) + 30 x 2 (rear); FR 7-70,000 Hz ± 3 dB line. FM tuner: 50-dB quieting sens 40.2 dBf stereo; AM rej 50 dB; cap ratio 1 dB; alt-ch sel 65 dB. 17 x 61/4 x 17 in; 33 lb \$1,000 SA-GX710. As above, no DIA converter, DSP, or S-video inputs. 48-key remote; 32 lb \$700

SA-GX505 240-W A/V Receiver

4-channel AM/FM receiver. Features Dolby Pro Logic decoder with phantom and normal centerchannel modes; Dolby 3 Stereo logic; digitally encoded tuning with rotary knob; parametric EQ; 15-band spectrum analyzer; 4 audio inputs; 2



Yamaha RX-V1050

video inputs; cooling fan. Input-level controls; headphone jack; 48-key programmable remote control. 110 W x 2 into 8 ohms with 0.05% THD + 10 x 2 (rear, center); FR 7-70,000 Hz ± 3 dB line. FM tuner: 50-dB quieting sens 40.2 dBf stereo; AM rej 50 dB; cap ratio 1 dB; alt-ch sel 65 dB. 17 x 5³/x x 12 in; 22 lb \$450

SA-GX303 180-W A/V Receiver

3-channel AM/FM receiver. Features Dolby Surround decoder with digital delay; parametric EQ; 15-band spectrum analyzer; digitally encoded tuning with rotary knob; 4 audio inputs; 2 video inputs; cooling fan. Input-level controls; 30 AM/FM presets: headphone jack; 48-key programmable remote control. 85 W x 2 into 8 ohms with 0.05% THD + 10 x 1 (rear); FR 7-70,000 Hz ± 3 dB line. FM tuner: 50-dB quieting sens 40.2 dBf stereo; AM rej 50 dB; cap ratio 1 dB; alt-ch sel 65 dB. 17 x 5½ x 12 in; 19 lb \$350

VECTOR RESEARCH

VRX-6200R 65-W/ch A/V Receiver

Features matrix surround sound; 8 discrete output (ransistors. Pre-out/main-in jacks; video signal routing; A/V processing loop; video monitor output; CD input. Quartz-synthesis tuning; 16 station presets; mono/stereo switch; RF antenna inputs; FM auto scan. 2 tape monitors with dubbing; loudness control; parallel speaker switching; motorized rotary volume control; remote control. 17 x 4/2 x 13/2 in; 20 lb \$450

VRX-5200R 50-W/ch A/V Receiver

Features matrix surround sound; discrete output transistors; video signal routing; video monitor out; pre-out/main-in jacks; A/V processing loop; CD input. Quartz-synthesis tuning; 20 AM/FM presets; separate FM mute and mono; AM/FM auto scan. Rotary volume control with LED; 2 switched/unswitched AC outlets. Amp: THD 0.07%; FR 10-50,000 Hz. Tuner: 50-dB quieting sens 15.6 dBf mono, 37.6 dBf stereo; cap ratio 1.3 dB; alt-ch sel 60 dB. 17 x $4\sqrt{2}$ x $13\sqrt{2}$ in \$370

VRX-3550 55-W/ch Receiver

YAMAHA

RX-V1050 390-W A/V Receiver

5-channel AM/FM receiver. Features Dolby Pro Logic circuitry with auto input balance and concert video, mono movie, rock concert, and concert hall modes; direct-PLL IF count tuning; digital test-tone generator; switchable dual center-channel outputs; subwoofer output with low-pass filter; 8 audio inputs; 4 video inputs; 3 S-video inputs; banana-plug-compatible speaker terminals; rec-out selector; pre-main coupler for main channels; pre-out terminals for rear and center channels. 40 AM/FM presets; motor-driven volume control; sleep timer; remote control with volume. 110 W x 3 (left, right, center) into 8 ohms with 0.015% THD + 30 x 2 (rear) into 8 ohms at 1,000 Hz with 0.8% THD \$1,199 RX-V850. As above, no S-video inputs. 7 audio inputs; 3 video inputs. 80 W x 3 (left, right, center) into 8 ohms with 0.015% THD + 25 x 2 (rear) into 8 ohms at 1,000 Hz with 0.08% THD \$799 **RX-V660.** As above, 65 W x 2 + 25 x 3 with 0.02% THD \$699

RX-950 120-W/ch A/V Receiver

AM/FM receiver. Features Class A amplification; direct-PLL IF-count synthesis tuning; high-gain AM loop antenna. 40 AM/FM presets; signalstrength meter; continuously variable loudness control; motor-driven input selector and volume control; banana-plug compatible speaker terminals; pre-main coupler; 2 pre-out terminals that can be used in multiroom system; tone and balance controls; switchable bypass of tone, balance, loudness, and pre-main coupler; 5 audio inputs; 2 video inputs; record-out selector; sleep timer; 33-key remote control with -20 dB mute. 120 W x 2 cont avg into 8 ohms with 0.015% THD or 340 x 2 into 2 ohms \$899 RX-750. As above, Class AB amplification; no pre-out multiroom terminals; 32-key remote control without muting. 80 W x 2 cont avg into 8 ohms with 0.015% THD or 200 x 2 into 2 ohms ... \$529

RX-350 40-W/ch Receiver

POWER AMPLIFIERS

AMPLIFIERS

ACOUSTIC RESEARCH

A-07 70-W/ch Amplifier

ADCOM

GFA-585 250-W Mono Amplifier

20 discrete transistors in output stage. 250 W into 8 ohms or 400 W into 4 ohms; THD 0.002%; FR 20-20,000 Hz. Black finish \$1,200

GFA-565 300-W Mono Amplifier

GFA-55511 200-W/ch Amplifier

GFA-545II 100-W/ch Amplifier

1-ohm stability. Features low-negative-feedback design; constant damping factor; toroidal transformer; direct coupling. 150 W/ch into 4 ohms; THD 0.04%. 17 x $5\frac{1}{2}$ x $12\frac{1}{2}$ in; 25 lb \$500

GFA-535II 60-W/ch Amplifier

1-ohm stability. Features low-negative-feedback design; direct coupling; constant damping factor; separate power transformers for each channel; connections for 2 speaker pairs. 100 W/ch into 4 ohms; THD 0.04%. 17 x 3¼ x 12½ in \$350

ARAGON, BY MONDIAL DESIGNS Model 4004 MK II 200-W/ch Amplifier

Features 2 toroidal transformers; quad-array transistor; gold-plated connectors; Monster Cable output wiring; convection air cooling. s/N 120 dB; damping factor 200 from 20-20,000 Hz. 19 x 6½ x 14 in; 65 lb Model 2004 MK II. As above, 100 W per channel, 45 lb \$1,395

ARCAM

Delta 120 100-W/ch Amplifier

AUDIO BY VAN ALSTINE

Omega 240 120-W/ch Amplifier Active feedback design. 120 W x 2 into 8 ohms;

Delta 120 60-W/ch Amplifier

AUDIO DESIGN ASSOCIATES MBA 500 2 000 W America

MPA-500 2,000-W Amplifier

PBA-500 Amplifier

Bridgeable stereo amplifier designed for subwoofer(s) in THX and other home-theater applications. Features parametric bass EQ; front-panel bass-level, frequency, and bandwidth controls; LED output meter \$2,495

MPA-6 650-W Amplifier

Features 6 channels with adjustable input including one for subwoofer; variable crossover; surround sound; 5-way output jack; RCA inputs; LED power indicator......\$1,595

PF-250 100-W/ch Amplifier

Features MOSFET circuitry; toroidal transformers; 2-ohm stability; fan cooling; 20-segment LED power display. 100 W x 2 cont avg into 8 ohms from 20-20,000 Hz with 0.07% THD, 160 x 2 into 4 ohms, or 240 x 2 into 2 ohms; SN 95 dB; slew rate 15 V/ μ s. 19 x 5½ x 16½ in; 37 lb \$1,495

AUDIO RESEARCH Classic 150 140-W Hybrid Mono Amp

FET front end and vacuum-tube output stage. Features tube-protection circuit; cross-coupled circuitry. Standby switch; auto muting; balanced outputs. 140 W cont avg into 1, 2, 4, or 8 ohms; FR 7-100,000 Hz + 0, -3 dB. 19 x 10½ x 16½ in; 110 lb \$4,995

Classic 60 60-W/ch Hybrid Amplifier

Classic 120 115-W Hybrid Mono Amp

D240 120-W/ch Amplifier

AUDIOSOURCE

Amp One 60-W/ch Amplifier

Features MOSFET circuitry; toroidal power transformer; soft-clipping output circuitry to reduce distortion; dual analog power-output meters; L/R output level controls. 60 W x 2 cont avg into 8 ohms or 170 x 1 max; FR 20-20,000 Hz; THD 0.04%. $16\frac{1}{2}$ x $2\frac{3}{8}$ x $11\frac{1}{8}$ in; 14.3 lb \$300

AUDIRE

Forté 125-W/ch Amplifier

B&K COMPONENTS

Video-5 Sonata 525-W Amplifier

ST-202 Plus 200-W/ch Amplifier

Balanced inputs. 200 W x 2 cont	avg into 8 ohms;
THD 0.09%; FR 5-45,000 Hz; S/N	95 dB; slew rate
12 V/µs; dynamic headroom 1.1	dB. 17 x 6 x 17¾
in; 32 lb	\$848
Without balanced inputs	\$748

ST-140 Class A 105-W/ch Amplifier

BEL

Model 2002 100-W/ch Amplifier

Dual-mono construction. Features 2 Class A amps per channel; independent power supply for



Audio Research D240

each channel; input shutdown and status/fault indication of temperature, frequency, output, and load in each amp section; balanced outputs. 100 W x 2 cont avg into 8 ohms or 200 x 2 cont avg into 4 ohms; input imp 22 kilohms; high-level sens 1400 mV; gain 26 dB; bandwidth 3-250,000 Hz with input filter. 19 x $7\frac{3}{4}$ x $14\frac{3}{4}$ in; 52 lb . S4,395

Model 1001 50-W/ch Amplifier

Class A design; balanced output; temperaturestabilizing circuitry; fault-sensing system; optional balanced input. 50 W x 2 cont avg into 8 ohms, 100 x 2 cont avg into 4 ohms, or 200 x 1 bridged; input imp 27 kilohms; high-level sens 1,000 mV; bandwidth 5-200,000 Hz. 17¼ x 7¼ x 12¼ in; 28 lb \$1,995 FET1001. As above, FET circuitry \$2,295

AMPLIFIERS

BERNING

EA-2101 100-W/ch Tube Amplifier

BGW SYSTEMS

Model 8500T 300-W/ch Amplifier

Features speaker protection; barrier strip inputs/ outputs; rear-mounted gain controls and bridging switch; ¼-in input connectors. 300 W x 2 into 8 ohms or 450 x 2 into 4 ohms; FR 3-85,000 Hz + 0, -3 dB; IM 0.01%; damping factor 300. 19 x 5½ x 13¼ in; 56 lb \$1,299

Model 200 100-W/ch Amplifier

Model 7500T 200-W/ch Amplifier

Features speaker protection; barrier strip inputs/ outputs; rear-mounted gain controls and bridging switch; $\frac{1}{4}$ -in input connectors. 200 W x 2 into 8 ohms or 300 x 2 into 4 ohms; FR 3-85,000 Hz + 0, -3 dB; IM 0.01%; damping factor 300. 19 x 5 $\frac{1}{4}$ x 13 in; 40 lb ________ \$849

Model 6500T 100-W/ch Amplifier

BOULDER

Boulder 500 150-W/ch Amplifier

Boulder 102AE 100-W/ch Amplifier

BRYSTON

Model 7B 500-W Mono Amplifier

Features soft-start circuitry; ground-lift switch; balanced and RCA input. 500 W cont from 20-20,000 Hz; 1,000 W into 1 or 4 ohms; THD 0.005%; s/N 105 dB; slew rate 60 V/µs; IM 0.005%. 19 x 5¾ x 12 in; 45 lb\$1,895

Model 4B 250-W/ch Amplifier

CAMBRIDGE AUDIO A100 110-W/ch Amplifier

CARVER

Silver Seven 375-W Mono Tube Amplifier

Silver 9-t Mark II 550-W Mono Amplifier

Modified transistor amp featuring shock-isolation mounting and transfer-function calibration. Lighted analog power meter. FR 20-20,000 Hz; THD 0.5%; S/N 100 dBA. Black finish. 7 x 11½ x 14½ in; 23 lb \$1,000

TFM-45 375-W/ch Amplifier

Magnetic-field amp with transfer-function calibration. Features 2-ohm stability; analog power meters. 375 W x 2 into 8 ohms, 500 x 2 into 4 ohms, or 1,000 x 1 bridged; THD 0.5%; slew rate $180 \ V/\mu$; input imp 100 kilohms. 20 lb ... \$950 TFM-42. As above, LED power meter ... \$900

AV-60 240-W Amplifier

4-channel amplifier designed with two stereo magnetic-field power amps in one chassis for surround sound, satellite/subwoofer systems, or multiroom applications. Features 3- and 4-channel modes; active 18-dB/oct crossover at 75 Hz. Rear-panel trim controls. 60 W x 4 into 8 ohms or $60 \times 2 + 180 \times 1$; THD 0.15%; FR 3-36,000 Hz + 0, -3 dB; input imp 10 kilohms. 14 lb...... \$780

TFM-25 225-W/ch Amplifier

Magnetic-field amp with transfer-function calibration. Features 2-ohm stability; analog power meters. 225 W x 2 into 8 ohms, 350 x 2 into 4 ohms, or 350 x 1 bridged; THD 0.5%; slew rate 180 V/μ s; input imp 100 kilohms. 20 lb \$670

AV-63 195-W Amplifier

3-channel add-on amp designed for use with home theater systems using Dolby Pro Logic or similar decoders. Features front-panel gain control; vertical LED power display for each channel. 65 W x 3 cont avg into 8 ohms; FR 20-20,000 Hz; THD 0.5 %; S/N 92 dBA. 19 x 3¼ x 11¼ in ... \$530

TFM-15 100-W/ch Amplifier

Transfer-function modified design featuring dual



Carver Silver 9-t Mark II

analog meters with level selection; A/B speaker switching; input-level controls. FR 20-20,000 Hz; THD 0.1%; S/N 100 dBA. 19 x 3½ x 12 in ... \$400

CELLO

Duet 350-W/ch Amplifier

350 W x 2	contavg in	nto 8 ohms. 23	4 x 12 x 173/4 in;
95 lb			\$7,500

CLASSÉ AUDIO

DR-10 100-W/ch Amplifier

High-current design. Sleek curved chassis with large single heat sink at rear center; regular and balanced inputs. 100 W x 2 into 8 ohms, 200 x 2 into 4 ohms, or 400 W x 1 bridged into 8 ohms; FR 20-20,000 Hz ± 0.1 dB; sens 1 V; s/N 100 dB; imp 70 kilohms. Sculpted black handles. 22 x 10½ x 19½ in; 50 lb \$\$1,995

CONRAD-JOHNSON

Evolution 2000 200-W/ch Hybrid Amp Hybrid design tube driver with MOSFET output;

MV125 125-W/ch Amplifier

Features low-imp power supplies and polysty-
rene capacitors; LED bias indicators. 125 W x 2
cont avg into 8 ohms; S/N 94 dB. 19 x 9 x 201/2 in;
90 lb
MV52. As above, 45 W x 2 cont avg into 8 ohms.
40 lb

MF200 200-W/ch Amplifier

MOSFET output stage, J-FET input stage. Features low-feedback circuit design; polypropylene and polystyrene capacitors in all circuits. 200 W x 2 cont avg; FR 20-20,000 Hz; THD 1% into 8 ohms; s/N 98 dB. 19 x 8¼ x 12½ in; 59 lb \$1,995 MF80. As above, 80 W x 2 cont avg\$1,395

COUNTERPOINT

SA-220 220-W/ch Hybrid Amplifier Tube input and MOSFET output. Features 1-ohm stability; 1,000-V transformer; analog protection circuitry not in signal path; copper-plated chassis. 700 W x 1 bridged; FR 1.2-200,000 Hz; S/N 84 dB; THD 0.02%; output imp 0.012 ohms. Black or silver finish. 19 x 6³/₄ x 19 in; 69 lb \$2,995

Solid-2 200-W/ch Amplifier

FET input; bipolar output; 2-ohm stability, 385 W x 2 into 4 ohms; 120-ampere peak-to-peak current

SA-100 100-W/ch Hybrid Amplifier

Tube input and MOSFET output. Features 2-ohm stability; 1,000-V transformer; copper-plated chassis. Dynamic headroom 3 dB; FR 5-100,000 Hz; S/N 92 dB; THD 1.0%. Available in black or silver finish. 19 x 41/2 x 123/4 in; 28 lb \$1,395

Solid-1 100-W/ch Amplifier

Features FET input; bipolar output; 2-ohm stability. 19 x 41/2 x 123/4 in; 18 lb \$995

CROWN INTERNATIONAL PSA-2 275-W/ch Amplifier

Features multimode AB/B design; ground-isolation jumper; forced air cooling; low-frequency protection. Distortion, signal presence, and standby indicators. 275 W x 2 or 915 x 1 bridged into 8 ohms, 460 x 2 into 4 ohms, or 700 x 2 into 2 ohms; FR 20-20,000 Hz ±0.1 dB; S/N 115 dB; THD 0.05%; IM 0.05%; slew rate 30 V/µs; damping factor 700. 19 x 7 x 14¾ in; 57 lb \$2,095

PS Series

Features convection cooling, multimode AB/B circuitry, low-frequency protection, ground-isolation jumper, bridged-mono mode, level controls, distortion indicators, and signal-presence indicator on front panel.

PS-400 190-W/ch Amplifier

190 W x 2 into 8 ohms, 330 x 2 into 4 ohms, or 660 x 1 bridged into 8 ohms; FR DC-20,000 Hz ±0.1 dB; THD 0.05%; IM 0.05%; slew rate 16 V/µs; S/N 112 dB. 19 x 7 x 101/8 in; 55 lb \$1,195

PS-200 100-W/ch Amplifier

100 W x 2 into 8 ohms, 170 x 2 into 4 ohms, or 345 x | bridged into 8 ohms; FR DC-20,000 Hz ±0.1 dB; THD 0.05%; IM 0.05%; slew rate 16 V/µs; S/N 112 dB. 19 x 51/4 x 101/8 in; 25 lb \$995

D Series

Features convection cooling, V-1 limit protection, bridged-mono mode, level controls, and distortion indicators on front panel.

DC-300A II 175-W/ch Amplifier

Direct-coupled outputs. 175 W x 2 into 8 ohms, 305 x 2 into 4 ohms, or 610 x 1 bridged into 8 ohms; FR DC-20,000 Hz ±0.15 dB; THD 0.05%; IM 0.05%; slew rate 8 V/µs; damping factor 750; s/N 110 dB\$1,199

D-150A II 95-W/ch Amplifier

95 W x 2 into 8 ohms, 155 x 2 into 4 ohms, or 315 x 1 bridged into 8 ohms; FR DC-20,000 Hz ±0.15 dB; THD 0.05%; IM 0.05%; slew rate 6 V/µs; damping factor 400; s/N 110 dB. 19 x 51/4 x 83/4 in; 24 lb \$879

DB SYSTEMS

DB-6A 40-W/ch Amplifier

Features 1-ohm stability; 12-dB/oct infrasonic filter; peak-clipping LED's; electronic clamp. 40

W x 2 cont into 8 ohms from 20-20,000 Hz with 0.003% THD; THD 0.0008% at 1.000 Hz; IM 0.002%; FR 20-40,000 Hz +0, -1 dB; input sens 1 V; input imp 50 kilohms; S/N 112 dBA at 1 V; slew rate 15 V/µs; damping factor 400 from 20-1,000 Hz. 16 x 41/4 x 123/4 in \$795

DENON

POA-5000 400-W Amplifier

6-channel amplifier designed for use with AVP-5000 A/V preamp. Features Class A circuitry; power supply and toroidal power transformer for each channel pair; bridgeable to 3, 4, or 5 channels; remote power switching from Denon preamps. 100 W x 2 or 200 x 1 (front) + 50 x 2 or 100 x 1 (center) + 50 x 2 or 100 x 1 (rear) from 20-20,000 Hz; FR 1-150,000 Hz at 1 W; THD 0.02%; s/N 118 dBA\$1,500

POA-2800 200-W/ch Amplifier

Features MOSFET Class A circuitry; dual power supplies with toroidal transformers; RCA inputs. Remote power switching from Denon preamps; A/B speaker switching. 200 W x 2 into 8 ohms from 20-20,000 Hz with 0.01% THD or 300 x 2 into 4 ohms; FR 1-150,000 Hz at 1 W; THD 0.002% at -3 dB; s/N 123 dBA \$800

POA-800 50-W/ch Amplifier

Discrete MOSFET output transistors. Features 3way speaker terminals; peak-signal indicator; remote power switching from Denon preamps. 50 W x 2 into 8 ohms or 120 W x 1 bridged into 8 ohms; THD 0.05% \$320

DYNACO

Stereo 70 Series II 35-W/ch Tube Amp

Features EL34/6CA7 output tubes; precision 1% metal-film resistors; poly-composition capaci-tors; miniaturized high-capacity power-supply; double-sided fiberglass PC board; 6GH8A driver tubes; gold-plated RCA input; front-panel useradjustable LED biasing system; flat open-loop gain; 3-wire grounded power cord; gold-plated 30A-rated 5-way binding posts. 35 W x 2 cont avg into 4, 8, or 16 ohms; FR 20-20,000 Hz ±0.5 dB;



Forté Model 4

THD 0.25%; IM 1%; damping factor 15. Black finish. 3-yr parts-and-labor warranty. 13 x 7 x 91/2 in; 35 lb \$995

FORTÉ

Model 6 150-W/ch Amplifier

Noninverting design employing insulated gate bipolar transistors at power output stage and FET/ bipolar front-end design. Features pure Class A gain stages; glass-epoxy circuit boards; custom

toroidal power transformer; gold-plated input and output connectors. 150 W x 2 into 8 ohms from 20-20,000 Hz with 0.1% THD; bandwidth -3 dB at 3 and 100,000 Hz; slew rate: 50 V/µs; input imp 47,000 ohm; current capability 16 amps cont, 50 amps peak into 0.1 ohm. 17 x 61/4 x 91/4 in; 33 lb . \$1.590 Model 4. As above, 50 W x 2 into 8 ohms from 20-20.000 Hz with 0.1% THD. 17 x 634 x 914 in; 33 lb . \$1.490 Model 5. As above, high-bias Class AB output stage_ 100 W x 2 into 8 ohms from 20-20,000 Hz with 0.1% THD; current capability 10 amps cont; 30 anups peak into 0.1 ohm. 17 x 5 x 91/4 in; 26 lb \$990

FOSGATE-AUDIONICS Model 4100 240-W Amplifier

4-channel amp for designed for home-theater applications. Features 3-channel bridging. 60 W x 4 into 8 ohms or 100 x 4 into 4 ohms from 20-20,000 Hz with 0.05% THD; 225 W x 2 into 8 ohms or 300 x 2 into 4 ohms with 0.1% THD \$879

M-60 MKII 35-W Mono Amplifier

Designed for center-channel amplification in home-theater systems. Features fully-complementary discrete circuit design; input-level control. 35 W into 8 ohms, 60 W into 4 ohms with 0.2% THD; FR 20-20,000 Hz ±1 dB. 81/2 x 21/4 x 71/2 in; 6 lb \$199

HAFLER

Model 9500 250-W/ch Amplifier

Features 16 self-limiting lateral MOSFET output devices; patented Transnova circuitry utilizing extremely short signal paths; separate high-voltage power supplies for each channel; gold-plated RCA inputs; 5-way binding posts. 250 W x 2 into 8 ohms, 375 x 2 into 4 ohms, or 750 x 1 into 8 ohms; THD 0.03%; power bandwidth 0.7-300,000 Hz; S/N 100 dB; damping factor 300 from 20-20,000 Hz. Black finish. 17 x 51/4 x 121/2 in; 50 lb \$1,800 Model 9300. As above, uses 12 self-limiting lateral MOSFET output devices. 150 W x 2 into 8 ohms, 225 x 2 into 4 ohms, or 450 x 1 into 8 ohms; THD 0.025%. 17 x 31/2 x 121/2 in; 36 lb \$1,200

XL600 305-W/ch Amplifier

Excelinear circuitry with double-differential JFET push-pull cascoded input stage and current-mirroring driver stage. Features 8 power MOSFET's per channel; dual-mono construction; no current limiting; switchable bridging to mono; relay-protected speaker outputs; temperature-controlled DC fan cooling; 72,000-µF power-supply filter capacitance; gold-plated inputs/outputs. 305 W x 2 into 8 ohms with 0.08% THD, 450 x 2 into 4 ohms, or 900 x 1 into 8 ohms; FR 10-50,000 Hz ±0.1 dB at 1 W into 8 ohms; S/N 100 dB; slew rate 100 V/µs; damping factor 200 at 1,000 Hz. 19 x 7 x 13 in; 51 lb\$1,299

XL280 145-W/ch Amplifier

4-JFET double-differential push-pull cascoded input stage and 12-MOSFET output. Features goldplated inputs; switchable bridging to mono; speaker protection fuses. 145 W x 2 cont avg into 8 ohms with 0.05% THD, 200 x 2 into 4 ohms, or 400 x 1 into 8 ohms; FR 10-50,000 Hz ± 0.1 dB at 1 W into 8 ohms; S/N 100 dB; slew rate 75 V/us; damping factor 300 at 1,000 Hz. 17 x 51/8 x 101/2 in; 27 lb \$799



Model 9180 90-W/ch Amplifier

Features 8 self-limiting lateral MOSFET output devices; low-noise double-differential JFET front end; double-sided through-plated glass epoxy circuit boards with jumper-less layout; largelamination twin-core quasi-toroidal transformer; gold-plated RCA inputs; 5-way binding posts. 90 W x 2 into 8 ohms, 135 x 2 into 4 ohms, or 270 x 1 into 8 ohms; THD 0.025%; power bandwidth 0.3-116,000 Hz; S/N 100 dB; damping factor 300 to 1,000 Hz and 200 to 10,000 Hz into 8 ohms. 17 x 31/2 x 121/2 in; 33 lb . . \$600 Model 9270. As Model 9180, uses 12 selflimiting lateral MOSFET output devices. 135 W x 2 into 8 ohms, 200 x 2 into 4 ohms, or 400 x 1 into 8 ohms. 35 lb \$750

Model 9130 65-W/ch Amplifier

HARMAN KARDON

Citation22 200-W/ch Amplifier

HOME THEATER PRODUCTS

HC-800 90-W/ch Amplifier

90 W x 2 into 8 ohms or 140 x 2 into 4 ohms cont avg from 20-20,000 Hz; 260 W x 1 cont avg into 8 ohms bridged; THD 0.05% at rated power; damping factor 100; s/N 104 dBA. 17³/4 x 3³/4 x 11³/4 in; \$489

HC-500 50-W/ch Amplifier

50 W x 2 cont avg into 8 ohms or 75 x 2 into 4 ohms from 20-20,000 Hz; THD 0.25% at rated power; damping factor 100; s/N 100 dBA. 17¼ x 3¼ x 11¼ in; 16 lb \$329

HTG, BY MUSIC & SOUND IMPORTS SPA-100 100-W/ch Amplifier

Low-feedback DC-coupled design. Features 2

JRM

Power Tower 250-W/ch Amplifier

KINERGETICS

KBA-75 Platinum Series 75-W/ch Amp

Features dual-mono construction; Class A operation; 1-kVA power supply; multiple high-power output transistors; servo-controlled DC output; low-impedance drive capability. 75 W x 2 into 8 ohms, 150 x 2 into 4 ohms, or 300 x 2 into 2 ohms; slew rate 65 V/ μ s. 19 x 15½ x 17 in\$1,795

KBA-505 525-W Amplifier

KRELL

KSA-250 250-W/ch Amplifier

Features DC-coupled Class A circuitry; balanced and single ended inputs; self-adjusting bias; DC



Linn LK100

KST-100 100-W/ch Amplifier

Features DC-coupled Class A/B circuitry; balanced and single ended input. 100 W x 2 into 8 ohms or 400 x 2 bridged\$2,700

LINN

LK100 50-W/ch Power Amplifier

Can be used to biamplify or triamplify loudspeakers. Overcurrent and overtemperature protection; internal heat sink. 50 W x 2 into 8 ohms with 0.5% distortion \$695

L U X M A N M-117 200-W/ch Amplifier

M-111 100-W Amplifier

4-channel bridgeable design. Features voltagedriven amplification; Duo-Beta feedback; star circuit topology; 4-way binding posts. Rear-panel bridging switches; separate input-level controls. 25 W x 4 cont avg into 8 ohms or 75 x 2 into 8 ohms

MARANTZ

SM-80 120-W/ch Amplifier

Music Link Series

These products are designed for use with the Marantz Music Link SC-22 preamplifier and PH-22 phono preamplifier.

MA-24 30-W Mono Amplifier

MARK LEVINSON, BY MADRIGAL

Model 23.5 200-W/ch Amplifier

Model 27 100-W/ch Amplifier

Model 29 50-W/ch Amplifier

Dual-mono construction. Features AC filtering by two separate circuits to remove unwanted frequencies and reduce transformer core saturation

and mechanical hum; surge limiting circuit; 320-VA toroidal transformer in each channel; separate power supplies; signals processing through 2 Class A cascaded voltage gain stages and 3 current gain stages; cascoded differential input stage; Class AB output stage; Camac connector or 3-pin Neutrik XLR connector input. 50 W x 2 into 8 ohms, 100 x 2 into 4 ohms, or 175 x 2 into 2 ohms; sens 141 mV; voltage gain 26 dB. 171/2 x 61/8 x 145% in; 60 lb \$2,800

MCINTOSH

MC7300 300-W/ch Amplifier

Features Power Guard anti-clipping circuitry; peak power output meter. Bridgeable to 600 W mono. FR 20-20,000 Hz +0, -0.25 dB; input imp 20,000 ohms unbalanced; S/N 105 dBA; THD 0.005%; IM 0.005%; dynamic headroom 1.9 dB; damping factor 40; input sens 1.4 or 2.5 V. Glass and black-anodized aluminum front panel with black chassis. 161/4 x 71/8 x 151/8 in; 79 lb ... \$3,199

MC7200 200-W/ch Amplifier

Features dynamic anti-clipping circuitry; Sentry circuit to monitor output signal to prevent overload of output transistors; thermal, DC, and surge protection circuitries; bridgeable to 600 W mono. Peak power output meter; meter hold control; L/R gain control. FR 20-20,000 Hz +0, -0.25 dB; THD 0.005%; S/N 105 dBA; IM 0.005%; damping factor 200. 14¼ x 5¼ x 15% in; 53 lb \$2,779

MC7150 150-W/ch Amplifier

Features dynamic anti-clipping circuitry. L/R gain control; L/R power meters with peak hold; speaker connectors for 2-, 4-, and 8-ohm loads. 150 W x 2 cont avg into 2, 4, or 8 ohms from 20-20,000 Hz with 0.005% THD; FR 20-20,000 Hz +0, -0.25 dB at 1 W; damping factor 40. Glass and blackanodized aluminum front panel with black chassis. 161/8 x 51/4 x 151/4 in; 58 lb \$2,245

MC754 100-W/ch Amplifier

Features dynamic anti-clipping circuitry; digital overload corrector to prevent over 0.3% distortion; bridgeable to 200 W mono. FR 20-20,000 Hz +0, -0.25 dB; THD 0.02%; S/N 110 dB; IM 0.02%; damping factor 90 \$1,049

MOD SQUAD

McCormack DNA-1 100-W Mono Amp

Features hybrid JFET/MOSFET/bipolar circuitry; DC-servo control; Class A/AB mode; separate front-end and main power supplies; Distributed Node Current Reservoir to deliver power to each local output device; global feedback; 885-VA transformer for power supply with electrostatic shielding. Both units can be returned to factory for conversion into bridged pair for mono operation. 100 W into 8 ohms; FR 1-250,000 Hz; S/N 90 dB; distortion 0.01%; sens 1.2 V cont avg; current output 50 amperes peak. 19 x 7 x 16 in; 55 lb \$1,995/pr

MOTIF, BY CONRAD-JOHNSON MS2001 200-W/ch Amplifier

MOSFET output stage; extensive use of large-value polystyrene capacitors. 200 W x 2 cont avg into 8 ohms; THD 1.0%; FR 20-20,000 Hz ±0.1 dB; S/N 100 dB; input imp 100,000 ohms. 19 x 7 x 181/2 in; 63 lb MS1001. As above, 100 W x 2 \$3,295

MTX SOUNDCRAFTSMEN

Pro-Power Ten 820-W Amplifier

MOSFET design with 2-, 3-, or 4-channel configurations. Features power-output meter and clipping indicator for each channel. 205 W x 4 into 8 ohms. 300 x 4 into 4 ohms with 0.05% THD, or 600 x 2 into 8 ohms from 20-20,000 Hz with 0.05% THD. 19 x 5¼ x 12 in \$1,399

A5002 250-W/ch Amplifier

Class H Vari-Proportional circuitry and autobuffer for continuous operation into 2, 4, or 8 ohms. Features auto crowbar-protection circuit for output protection without current limiting; 20 LED indicators per channel; front-panel switching for 2 pairs of speakers; clipping indicators; inputlevel controls. 250 W x 2 into 8 ohms or 375 x 2 cont avg into 4 ohms with 0.09% THD; S/N 105 dB; slew rate 50 V/µs; IM 0.02%; dynamic headroom 2 dB \$949

Pro-Power Four 205-W/ch Amplifier

MOSFET design with dual 20-segment LED clipping indicators and speaker switching for 2 speaker pairs. 205 W x 2 cont avg into 8 ohms with 0.05% THD, 300 x 2 into 4 ohms, or 450 x 2 into 2 ohms; s/N 105 d B; slew rate 40 V/µs; IM 0.05%. 19 x 51/4 x 11 in: 28 lb \$849 Pro-Power Three. As above, without level controls and LED meters \$749

PCR800 205-W/ch Amplifier

Phase-control-regulated MOSFET amp. 205 W x 2 cont avg into 8 ohms; THD 0.05%; S/N 105 dB. 81/4 x 5 x 12 in: 18 lb \$499 Pro-Power. As above, 300 W x 2 into 4 ohms or 450 x 2 into 2 ohms \$579

MUSEATEX

Melior 100-W/ch Amplifier

Features Class AB design; floating-charge power supply and static-fan heat sink. 100 W x 2 cont avg into 8 ohms or 180 x 2 cont avg into 4 ohms; FR 0.1-65,000 Hz; THD 0.25%; slew rate 75 V/µs. Wood-veneer finish. 23 lb \$1,995

NAD

Model 208 250-W/ch Amplifier

N-channel MOSFET design bridgeable to 500 W cont avg mono. Features symmetrical balanced inputs. Fan and rack-mount front-panel kits optional\$1,199

Model 2400THX 100-W/ch Amplifier

Bridgeable amplifier with power-envelope circuitry. Features soft-clipping circuit; input level controls. 100 W x 2 cont avg; dynamic headroom 5.7 dB. Rack mountable \$599

Model 2100X 60-W/ch Amplifier

Bridgeable amplifier with power-envelope and soft-clipping circuitry; input-level controls; normal/lab inputs; connections for 2 speaker pairs with switching. 60 W x 2 cont avg; dynamic headroom 5.3 dB. Rack mountable \$429

NAIM

NAP 250 70-W/ch Amplifier

Features toroidal transformers; 4 regulated power supplies each rated at 40 V delivering 15 amperes; thermal protection. 70 W x 2 cont into 8 ohms; FR 3-40,000 Hz ±3 dB; input imp 22 kilohms. 16¾ x 3 x 11¼ in \$2,995

NAP 140 45-W/ch Amplifier

Features dual power supply rectification; 2 smoothing capacitors for each channel; thermal protection. 45 W x 2 cont into 8 ohms; FR 5-40,000 Hz ±3 dB; input imp 22 kilohms. 8 x 3 x 113/4

NAKAMICHI

PA-7All 225-W/ch Amplifier

Features Stasis topology; 2 internal amplifiers for high- and low-impedance sources; 700-W toroidal



McIntosh MC7150

power transformer; bridge rectifiers; electrolytic filters; 18 transistors per channel; Rib Framework chassis. 225 W x 2 cont avg into 8 ohms with 0.05% THD or 340 x 2 max into 8 ohms; FR 20-20,000 Hz +0, -0.2 dB; S/N 120 dB; damping factor 60; dynamic headroom 1.7 dB; power bandwidth 5-50,000 Hz into 8 ohms. 171/8 x 77/8 x 16% in; 62.7 lb \$2,300 PA-5AII. As above, 150 W x 2 \$1,650

NHT

MA-1 80-W Mono Amplifier

Feature Class AB design; 50-, 100-, or 200-Hz selectable low-pass filter; high-pass filter; variable gain. For use as center-channel or subwoofer amp. 80 W into 8 ohms or 100 W into 4 ohms; slew rate 100 V/µs; high-level sens 100 mV variable; dynamic headroom 2 dB. \$300

ONKYO

Grand Integra M-508 200-W/ch Amplifier Dual-mono design with low-imp drive capability. Features Real-Phase transformer to eliminate current fluctuations; high-current capability; variable inputs with left/right channel-level controls. Calibrated high-speed peak-power meters. 200 W x 2 cont avg into 8 ohms; dynamic power 460 W x 2 into 4 ohms, 685 x 2 into 2 ohms, or 860 x 2 into 1 ohm; THD 0.003%; S/N 120 dB; IM 0.003%; damping factor 140. 181/4 x 71/4 x 163/4 in; 55 lb\$1,200

Integra M-502 140-W/ch Amplifier

Dual-mono design with low-imp drive capability. Features 4-way speaker selector. 140 W x 2 cont avg into 8 ohms; dynamic power 290 W x 2 into 4 ohms or 425 x 2 into 2 ohms; THD 0.005%; S/N 120 dB; 114 0.004%; damping factor 140. 171/8 x 71/4 x 16% in; 41 lb \$650

M-501 150-W/ch Amplifier

Features protection circuitry; connections for 2 speaker pairs. 150 W x 2 cont avg into 8 ohms;



PARASOUND

HCA-2200 200-W/ch Amplifier

HCA-1200 200-W/ch Amplifier

HCA-800II 100-W/ch Amplifier

PIONEER

M-91 200-W/ch Amplifier

M-72 200-W Amplifier

4 channels. Auto output selector; 3 inputs (processing front, center, and rear) for 4-channel configuration; 2 or 4 speaker outputs. Urushifinish front panel and rosewood vinyl-covered sides. 100 W x 2 or 50 x 4 into 8 ohms; THD 0.01%. $18 \text{ x } 6\% \text{ x } 16\% \text{ in}; 53.9 \text{ lb} \dots \text{ s1},000$

PS AUDIO

PS 100 Delta 120-W/ch Amplifier

QUAD

Model 606 140-W/ch Amplifier

ROTEL

RB980BX 120-W/ch Amplifier

RB960BX 60-W/ch Amplifier

JEFF ROWLAND Model 8 200-W/ch Amplifier

Model 1 60-W/ch Amplifier

SHURE

HTS 50SPA 100-W/ch Amplifier

Bridgeable amplifier with 12 speaker modes for matched signal processing. Fully complementary, thermally matched hybrid modules in output stage; high-current toroidal power supply; dynamic bass extension; overload, thermal, lowfrequency-excursion, and short-circuit protection. Individual level controls; gold-plated connectors. 100 W x 2 cont avg into 8 ohms; FR 20-20,000 Hz ± 0.5 dB. 16% x 4 x 14 in \$899

SONANCE

Sonamp 260 60-W/ch Amplifier

Toroidal power transformer; discrete power output devices; defeatable remote turn-on lead; auto muting with on/off switching; independent L/R

SONOGRAPHE, BY CONRAD-JOHNSON

SA150 120-W/ch Amplifier

SONY

TA-N80ES 200-W/ch Amplifier

200 W x 2 into 8 ohms with 0.004% THD or 580 x 1 bridged into 8 ohms with 0.007% THD; IM 0.004%; slew rate 150 V/ μ s; damping factor 100. 18% x 7% x 17% in; 52.9 lb\$1,200

TA-N55ES 110-W/ch Amplifier

110 W x 2 or 300 x 1 bridged into 8 ohms; THD 0.004%; IM 0.004%; slew rate 120 V/µs; damping factor 100. 18¼ x 6 x 14½ in; 26.9 lb \$500

TA-N110 45-W/ch A/V Amplifier

Features 3 digital delay modes with variable delay times; video switching; input attenuator; 3way input switch; 2 sets of speaker terminals. 45 W x 2 into 8 ohms or 100 x 1 bridged; FR 5-200,000 Hz ± 0.3 dB; s/N 105 dBA; tM 0.08%. 17 x 4³/x x 10¹/₂ in; 11.7 lb. \$300

SOUNDSTREAM

DA-1 MkII 200-W/ch Amplifier

SA-100 50-W/ch Amplifier

Designed for multiroom systems. Features 1-ohm stability. 50 W x 2 into 4 ohms, 90 x 2 into 2 ohms,



Jeff Rowland Model 1

SPECTRAL DMA-80 100-W/ch Amplifier

Features DC-coupled circuitry; 300 VA power transformers; hand built Vishay precision resis-

SPECTRASCAN BPA-101B 100-W/ch Amplifier

Features proprietary nested multiple feedback loops; DC-coupling with highly regulated power supply; protection circuit; clipping indicator for

SSI

Powerflex V Modular 240-W Amplifier

SUMO

Andromeda II 240-W/ch Amplifier

Polaris II 120-W/ch Amplifier

Ulysses 60-W/ch Amplifier

TECHNICS

SE-M100 115-W/ch Digital Amplifier

THRESHOLD

S/450e Stasis 200-W/ch Amplifier

SA/6e Stasis 125-W Mono Amplifier

S/350e Stasis 150-W/ch Amplifier

Features power supply with single 800-W toroidal transformer and 124,000- μ F capacitance; 950- μ F front-end decoupling/channel. 150 W x 2 into 8 ohms with 0.1% distortion; current capability 25 amperes/ch cont, 100 amperes/ch peak ... \$3,950

S/160 Stasis 80-W/ch Amplifier

Class A amplifier featuring power supply with single 400-W toroidal transformer and 30,000- μ F capacitance. 80 W x 2 into 8 ohms with 0.15% THD; current capability 20 amperes/ch cont, 60 amperes/ch peak. 19 x 8 x 71/4 in; 30 lb ... \$2,250

YAMAHA

HCA refers to hyperbolic conversion amplification power circuitry.

MX-830 170-W/ch Amplifier

MX-35 80-W Amplifier

MX-M70 50-W Mono Amplifier

PREAMPLIFIERS

ADCOM

GFP-565 Preamplifier

Features 1% Roederstein metal-film resistors and metallized-film capacitors on double copper-plated glass-epoxy printed circuit board; Class A design for all stages; separate headphone amplifier; source-direct output; 5 line-level inputs and 1 MM/MC phono input. Record selector allowing taping of one source while listening to another; loudness contour control; signal-processor loop. FR 5-90,000 Hz ±0.5 dB; THD 0.009% phono, 0.0025% line; s/N 95 dBA phono, 100 dBA line; ch

GTP-500II Preamplifier/Tuner

GFP-555II Preamplifier

GTP-400 Preamplifier/Tuner

ARAGON BY MONDIAL 24K Preamplifier

Features external AC power supply; dual-mono DC supply; gold-plated connectors; OFC wiring with Teflon dielectric; silver-to-silver contact switches. s/N 95 dB. 19 x 3½ x 14 in; 25 lb 51,250

ARCAM

Delta 110 Digital Preamplifier

Features 1-bit D/A converter; separate toroidal power transformers for digital and analog sections; two switched digital inputs; 5 analog inputs; MM/MC phono inputs; 2 tape loops; standby mode; front-panel switching for 2 speaker pairs; remote control.......\$1,500

AUDIO BY VAN ALSTINE

Transcendence Two Preamplifier

Solid-state design. Features FET input pairs; current source pairs; Class A current-sourced predrivers; LH0002CN hybrid current amplifiers in feedback loop; regulated power supply; dual tape-monitor loops; switchable tone controls and processor loop; headphone jack; speaker selector switch. 13½ x 4½ x 12½ in; 11 lb \$795

AUDIO DESIGN ASSOCIATES DSP-8 Preamplifier

8 inputs with digital switching. Features 5 balanced source inputs; 3 balanced tape inputs;



signal processor input/output loop; 2 main outputs; 3 tape outputs; 8 source pulse outputs. Bass, mid, treble, and balance controls; 1 switched AC outlet. FR 5-30,000 Hz ±3 dB; THD 0.05%; s/N 90 dB. 19 x 31/2 x 111/4 in; 8 lb .. \$1,395

ADP-8 Preamplifier

Features 5 source inputs; 3 tape inputs; signalprocessor input/output loop. Bass, mid, treble, and balance controls; I switched AC outlet. FR 20-20,000 Hz ±0.25 dB; THD 0.05%; S/N 85 dB. 19 x 31/2 x 113/4 in; 8 lb \$995

AUDIO RESEARCH

SP-15 Hybrid Preamplifier

Design with FET's and 3 vacuum tubes. Features second chassis with toroidal power transformer; auto/manual muting; bypass control; absolutephase switch; gain and attenuation controls; 7 inputs including MM/MC phono; 7 sets of outputs; front-panel MC impedance selector. FR 0.1-200,000 Hz +0, -3 dB; THD 0.005% at 2 V cont avg; S/N 110 dB; max 80 V cont avg output. 19 x 5¼ x 10¼ in; 29 lb \$5,995

SP-14 Hybrid Preamplifier

Designed with FET's and vacuum tubes. Features shielded toroidal power transformer; auto/manual muting; bypass control; gain and attenuation controls; internally adjustable phono impedance and capacitance; 7 inputs. Allows recording of one input while listening to another. FR 1-200.000 Hz +0, -3 dB; THD 0.01% at 2 V cont avg; S/N 100 dB; max 50 V cont avg output; phono overload 200 mV cont avg at 1,000 Hz \$2,995

SP-9 MkII Tube Preamplifier

Vacuum tubes used in phono and line stages. Features shielded toroidal power transformer; auto mute circuit; switchable muting; 2 tape inputs/outputs; 2-position tape-monitor switching; gold-plated input/output jacks; MC phono input. FR 5-50,000 Hz ± 0.5 dB line; max output 2 V cont avg; distortion 0.01% at 2 V cont avg output; input imp 50 kilohms line. Black front panel extra\$1,875

AUDIOSOURCE

Pre-One Preamplifier

Features MC phono head amp; 6 FET inputs with electronic switching; 2 main outputs; bass EQ circuitry; tape-to-tape dubbing. s/N 100 dB; THD 0.008% \$250

AUDIRE

Diffet 3 Preamplifier

Features discrete circuitry; large power supply: MM/MC phono input. FR 5-100,000 Hz; S/N 94 dB; THD 0.005%. 19 x 21/4 x 7 in; 7 lb \$990

Legato Preamplifier

Features subsonic filter; 2 phono inputs, tape monitor loops, and line-level inputs; dubbing; 2 AC outlets. FR DC-100,000 Hz +0, -0.25 dB; S/N 90 dB. 19 x 13/4 x 7 in; 6 lb \$440

B&K COMPONENTS

Sonata Series MC-101 Preamplifier

DC-coupled discrete circuitry with selectable MM/ MC head amp. Features 6 inputs; 2 tape loops; rec selector; tone controls; balanced outputs. MM

sens 0.8 mV; S/N 70 dB MC; FR 1-150,000 Hz; THD 0.02%. 17 x 31/2 x 12 in; 22 lb \$998

CS-117 Preamplifier

Features bass and treble controls; 5 line-level inputs; I tape loop; selectable passive mode. FR 1-100,000 Hz; S/N 89 dB; THD 0.02%. 17 x 21/2 x 9 in; 10 lb \$448

REDINI **BC-866** Preamplifier

Class A preamp with 5 inputs including phono; balance and volume controls. FR 1-110,000 Hz



Carver Model CT-7

+0, -3 dB; THD 0.15%; IM 0.05%; RIAA phono deviation 20-25,000 Hz ±0.25 dB; S/N 90 dB phono, 100 dB line \$960

BERNING

TF-12-B Tube Preamplifier

Dual-mono construction with differential triode design. Features digitally-controlled switching matrix operating in 1-dB steps over 80-dB range for volume and balance; high-frequency resonant power supply; 6 inputs including MM/MC phono; balanced outputs. LED dot-matrix level displays; 32-dB high-gain line section; wireless remote control. FR 5-100,000 Hz ±3 dB; MM phono sens 0.38 mV for 0.5-V output at 1,000 Hz; line-level input sens 32 mV\$3,795

BGW SYSTEMS Model 2242 Preamplifier

Features 8 independent output amps; toroidal power transformer; barrier strip inputs and outputs. FR 20-20,000 Hz +0, -0.1 dB, 5-150,000 Hz +0, -3 dB; THD 0.01%; S/N 113 dB; noise imp -88 dBm. 19 x 1¼ x 11 in; 17 lb \$799

BOULDER

L3AE Preamplifier

Features rugged construction; gold-plated jacks and 3-pin output connectors. THD 0.0025% from 20-20,000 Hz, 0.005% at 20,000 Hz; max voltage gain 59 dB for high-level phono inputs and 79 dB for low-level phono inputs. 17 x 3³/₄ x 15³/₄; 13 lb \$1,499

BRYSTON Model 12B Preamplifier

Features MC input; polarity inversion for MM phono output. FR 22-20,000 Hz ±0.05 dB; highlevel sens 50 mV; MM phono sens 1.25 mV for 0.5 V output at 1,000 Hz; MM phono overload 200 mV; S/N 80 dB MC. Available with balanced outputs\$1,795

BP4.2 Preamplifier

Features 2 pairs of balanced inputs; 1 pair balanced outputs. FR 22-20,000 Hz ±0.05 dB; sens 50 mV\$1,095

Model .5B Preamplifier

Inverts polarity for phono outputs. FR 22-20,000 Hz ±0.05 dB; high-level sens 50 mV; MM phono sens 1.25 mV for 0.5 V at 1,000 Hz; MM phono overload 200 mV; S/N 80 dB MM/MC. Balanced outputs optional \$795

CAMBRIDGE AUDIO C70 Preamplifier

Features toroidal power transformer; headphone amp; dual active and passive outputs; passive EQ in RIAA stage; passive tone controls with tone defeat; gold-plated MM/MC phono jacks. 5 inputs; tape loop. S/N 75 dB MC, 80 dB MM, 95 dB line; input sens 0.5 mV MC, 4.5 mV MM, 300 mV line \$500

CARVER

Carver's Sonic Hologram Generator refers to an analog ambience- and image-enhancement circuit.

C-19 Preamplifier

Features Sonic Hologram Generator; 6DJ8 tubes; Wonder Caps; wide circuit traces; no IC's in primary signal path. Dual external processor loops; 5 inputs including MM/MC phono and CDdirect; dual tape-monitor loops with dubbing; individual L/R tone controls with variable turnover; headphone jack with switchable speaker defeat; subsonic filter; phase switch. FR 1-60,000 Hz +0, -0.3 dB; THD 0.07%; MM phono sens 1.5 mV; s/N 86 dB мм. 12 lb\$1,000

CT-17 Surround-Sound Preamplifier/Tuner

Combination asymmetrical charge-coupled detection AM/FM tuner and preamplifier with Sonic Hologram Generator. Preamplifier features Dolby Pro Logic processor with rear volume control and hall and stadium soundfields; 7 inputs including CD-direct and MM phono; simulatedstereo synthesis for mono video; 3-way tone controls; dual tape monitors; high-cut filter; remote control with separate input/record selector and remote volume control for multiroom applications; 20 AM/FM station presets with scan; stereo/mono and auto/manual tuner controls. Tuner: stereo sens 20.1 dBf; cap ratio 1.4 dB; AM rej 73 dB; alt-ch sel 58 dB; THD 0.02% FM; S/N 79 dB. Preamp: FR 1-60,000 Hz ±0.3 dB; THD 0.01%; max output 7 V. 16 lb \$800

C-16 Preamplifier

Features Sonic Hologram Generator; 5 inputs including MM and MC phono; dual external-processor loops; dual tape-monitor loops with dubbing. L/R tone controls with variable turnover; headphone output with speaker-defeat switch. FR 1-60,000 Hz +0, -0.3 dB; THD 0.01%; max output 7 V. 6 lb \$750

CT-7 Preamplifier/Tuner

Features asymmetrical charge-coupled FM detection circuitry; Sonic Hologram Generator; loudness EQ circuitry; 6 audio inputs; 16 AM/FM station presets with scan; stereo/mono and auto/manual tuner controls; 3-band tone controls; dual tape monitors with dubbing; headphone jack. FR 20-20,000 Hz; s/N 90 dBA; THD 0.01%; phono sens 1.5 V for 0.5 V at 1,000 Hz. 19 x 31/2 x 12 in; 15 lb \$600

CT-6 Preamplifier/Tuner

Features asymmetrical charge-coupled FM circuitry. 20 random AM/FM station presets with scan; auto-scan or manual tuning; 3-level signalstrength indicator; 4 audio inputs; 2 tape inputs with dubbing; MM phono input; bass, treble, and loudness EQ; balance and motorized volume controls; headphone jack; 28-key remote control. Preamp: FR 20-20,000 Hz ± 1 dB; THD 0.1%; SN 74 dBA. Tuner: IHF sens mono 10.3 dBf, stereo 21.3 dBf; AM rej 74 dB; cap ratio 1.5. 19 x 1³/₄ x 10 in \$550

CELLO

The Palette Preamplifier

Etude Preamplifier

Passive input preamp; 4-position input selector; 58-position output attenuator; 4 RCA inputs and 1 RCA output. 9½ x 3% x 8 in; 31 lb......\$1,500

CLASSÉ AUDIO

DR-5 MK11 Preamplifier

Balanced input/output; regular output; phono and direct balanced input; MC/MM phono input; 3 line-level inputs; aux inputs; mute. Sculpted onepiece handles. 22 x 101/4 x 183/4 in; 29 lb...\$2,295

CONRAD.JOHNSON

PV9 Tube Preamplifier

Features low-noise precision metal-film resistors; polystyrene capacitors; 2 tape loops for 2way dubbing; 2 line-level and 1 phono input; 2 amp outputs; mute button. FR 20-20,000 Hz ±0.25 dB phono; s/N 70 dB below 10 mV phono, 84 dB below 2.5 V line-level; THD 0.05%; IM 0.05%; gain 40 dB phono, 29 dB line; max output 25 V; phono overload 500 mV at 1 kHz. 14 x 4½ x 25 V; phono overload 500 mV at 1 kHz. 14 x 4½ x

PV11 Tube Preamplifier

Features cathode follower outputs and solid-state voltage regulator designed for minimal AC imp; regulated filament power supplies; audio circuits with 1% tolerance mil-spec-deposited tin-oxide resistors and polystyrene capacitors; ± 0.5 dB volume-control tracking; auto mute upon on/off; 2 tape loops for 2-way dubbing. Max output 40 V cont avg; FR 2-100,000 Hz; THD 0.5%; tM 0.5%; hum and noise: 72 dB below 10 mV input phono, 84 dB below 2.5 V output line; output imp 200 ohms. I6 x 3¹/₄ x 10 in; 15 lb ... \$1,895 **PV11L.** As PV11, line stage only... \$1,495

PF1 Preamplifier

PV10 Tube Preamplifier

Features zero-feedback circuits in both line and phono stages; 2 triode amps separated by passive RIAA EQ network; 5 vacuum tubes; discrete regulated power supply with polypropylene and polystyrene capacitors; 5 line-level inputs and phono input; 1 tape loop; balance-bypass switch. THD 0.01%; hum and noise: 72 dB below 10 mV input phono, 84 dB below 2.5 V output line; output imp 500 ohms. 16 x 11 x 3¼ in \$995

COUNTERPOINT

SA-5000 Hybrid Preamplifier

Tube/solid-state design using tubes for major audio amplification. Features separate-chassis regulated tube power supply; absolute phase control; phono stage with RIAA EQ; buffered output; 5 line-level inputs and switchable MM/MC



Crown International PSL-2

phono input. FR 4-60,000 Hz ± 0.1 dB; THD 0.01%. 19 x 4½ x 12½ in; 39 lb \$3,595 SA-3000. As above. FR 8-40,000 Hz ± 0.1 dB. 22 lb \$1,995

Solid-8 Preamplifier

FET design. 6 line-level inputs; 2 tape inputs allowing dubbing. FR 1-500,000 Hz ±1 dB; THD 0.03%; S/N 87 dB. 19 x 2¼ x 10 in; 14 lb... \$895

CROWN INTERNATIONAL PSL-2 Preamplifier

Features subsonic filter; loudness circuit; auto mute protect. Detented tone controls with defeat switch; balance control; overload, rumble, and signal-presence indicators; tape dubbing; adjustable phono input gain. FR 10-50,000 Hz ± 0.25 dB; THD 0.009% from 20-20,000 Hz; s/N 103 dB; input sens 250 mV; output level 2.5 V. 19 x 1½ x 11½ in; 111 b. S795

DB SYSTEMS

DB-1A/2A Preamplifier

Features separate DB-2A regulated power supply; 6-dB/oct switchable high-pass filter at 20 or 36 Hz for phono; 6-dB/oct low-pass filter at 5,000 or 10,000 Hz; gold-plated jacks; Alps 80-dB tracking volume control. THD ± 0.0008% from 20-20.000 Hz; IM 0.001%; FR 10-40.000 Hz ± 0.07 dB phono, 2-50,000 Hz +0, -1 dB line; S/N 89 dBA phono, 90 dBA line; output imp 1 kilohm; max output voltage 6 V into 10 kilohms/3,000 pF; input sens 2 mV into 50,000 ohms/100 pF phono, 120 mV into 50 kilohms line. 3-year warranty. 81/2 x 3¼ x 7 in. \$495 DB-1B/2A. As DB-1A, with low-noise linelevel stage (-94 dB ref 1 V). Features reduced crosstalk; tight-tracking volume control. Solidoak cabinet with hand-rubbed tung-oil finish. 12 x 3% x 7 in. . \$700 DB-1A-HL/DB-2A. As DB-1A, 5 line-level inputs; no phono section. FR 1-250,000 Hz ±3 dB; S/N 92 dB; THD 0.0006%; input sens 120 mV line. 3-year warranty \$375

DENON

AVP-5000 DSP/Surround-Sound Preamp

Uses two digital IC's to perform preamp, soundfield processing, Dolby Pro Logic, and surroundsound functions. Features 2 Lambda ladder-type

DAP-5500 Digital Preamplifier

PRA-1500 Preamplifier

DYNACO

FORTÉ

Model 40 Preamplifier

HAFLER

Iris Preamplifier



Model 915 Preamplifier

Pure Class A all-discrete primary signal path and JFET topology. Features C-MOS FET and relay switching; high-power transformer with large filter capacitance; 6 line-level inputs including one switchable to MM/MC phono; 3 line-level outputs; 4 switched and 1 unswitched outlets; bass and treble controls. THD 0.009% MC, 0.002% MM, 0.008% line; power bandwidth 8-170,000 Hz +0, -3 dB; s/N -80 dB MC, -87 dB MM, -100 dBA line; input imp 20,000 ohms; input sens 45 mV for 0.5 V cont avg. Black finish. 17 x 13/4 x 75/8 in; 8 lb \$700

Model 945 Preamplifier/Tuner

Pure Class A all-discrete JFET line amplifiers. Features dual-gate MOSFET RF amplifier; fully double balanced mixer; relay-muted line amplifier; MPx filter; 5 line inputs; 2 tape inputs; 2 record and 1 main outputs. Defeatable bass and treble controls; remote control. Power bandwidth 8-170,000 Hz +0, -3 dB; s/N -100 dBA line at 2V cont avg output; input imp 47,000 ohms; input sens 45 mV for 0.5 V cont avg. FM section: THD 0.3% at 1,000 Hz stereo; ch sep 40 dB at 1,000 Hz; IHF sens 6.5 dBf mono, 1.2 dBf stereo. Black finish. 17 x 21/2 x 101/2 in; 10 lb \$600

HARMAN KARDON **Citation25 Preamplifier**

Features discrete circuitry; high-cut filter; subsonic filter. Interactive A/V switching; tone defeat; switchable bass and treble turnover frequencies; mono switch; headphone jack; remote

HTG, BY MUSIC & SOUND IMPORTS

DCC-1 Digital A/V Preamplifier

Features 8x oversampling 18-bit D/A converter; upgradable digital section; separate power supplies for analog and digital sections; 3 digital inputs; 7 line inputs. Video switching with Svideo compatibility; switchable gain stage; independent source selection for listening and record-ing ACC-1. As above, no digital stage \$895 Remote control for DCC-1 and ACC-1 \$150

KRELL

KBL Preamplifier

Features DC-coupled Class A circuitry; external dual-mono power supply; 2 balanced and 4 singleended inputs; 2 tape loops; balanced and singleended output\$4,500

KSL Preamplifier

Class A circuitry; 2 balanced and 3 single-ended inputs; 1 tape loop; balanced and single-ended

KPE Preamplifier

Features discrete circuitry; MC/MM phono stage; external power supply; selectable gain and phono loading \$500

LINN

LK1 Preamplifier

Microprocessor-controlled preamp with independently-adjustable input-level matching. Features keyboard lockout; all switching and level-

adjustment electronics on board; MM/MC phono inputs; 4 line-level inputs; remote control. 101/2 x 3 x 10½ in; 9 lb \$1,295

LUXMAN TP-117 Dual Preamplifier/Tuner

Dual preamp sections in one chassis to provide independent source selection and volume control for two sets of components. Features RF TV modulator; separate regulated power supplies; AM/FM computerized tuner with 4-stage FM front end; signal processor loop; CD-direct input. 20 AM/FM station presets with auto-seek tuning; FM fine tuning in 25-kHz steps; motor-driven volume controls with auto preset; video switching with buffer amplifiers; multifunction remote control. Amp section: FR 20-20,000 Hz ±0.5 dB; THD 0.006%; S/N 86 dB phono, 96 dB line. FM tuner: 50dB quieting sens 38 dBf stereo; cap ratio 1.5 dB; alt-ch sel 68 dB. FM tuner: S/N 50 dB. 171/4 x 43/8 x 13 in; 11.4 lb\$1,250

TP-114 Preamplifier/Tuner

Features Duo-Beta feedback circuitry; Star circuit topology; voltage-driven amplification; fixed-level pre-out jacks. 20 AM/FM presets; auto seek; preset scan AM/FM tuning; FM fine tuning; motor-driven volume control; system remotecontrol compatible; remote repeater output; local/remote sensor selector; phono/aux input switching; multifunction remote control included. Preamp: FR 20-20,000 Hz ±0.5 dB phono, 5-160,000 Hz ± 3 dB line; S/N 78 dBA phono, 95 dBA line; THD 0.008% at 1 V output. Tuner: 50-dB quieting sens 14.8 dBf mono, 38 dBf stereo; cap ratio 1.5 dB; alt-ch sel 65 dB \$400

MARANTZ SC-80 Preamplifier

Features Class A circuitry; all-discrete primary signal path; multiple power supplies; source switching via 12 microprocessor-controlled relays; source-direct switching; balanced output coupling; 7 inputs including MM/MC phono input; dedicated signal-processor loop; phase-inverted output; record-output selector allowing taping of one source while listening to another; motorized volume control. Bass and treble controls with narrow Q; remote-control jack for operation with other Marantz components; remote control. FR 10-40,000 Hz ± 0.2 dB line; THD 0.015% line; S/N 75 dB MC, 91 dB MM, 95 dB line. Gold finish with die-cast alloy side panels \$649

Music Link Series

These products are designed for use with each other and the Marantz MA-22 and MA-24 Music Link power amplifiers.

SC-22 Preamplifier

Class A circuitry designed for maximum transparency from input to output with straight-line signal paths. Features transformer-balanced outputs to decouple output from input and powersupply noise; high-current toroidal power supply secured by tuned resonance dampers to reduce acoustic/mechanical interference; OFC wiring; phase-inverted output. FR 20-20,000 +0, -3 dB; THD 0.01%; S/N 105 dB; crosstalk 85 dB at 1,000 Hz. Heavy die-cast alloy chassis with thick extrusions and gold finish \$999

PH-22 Phono Preamplifier

Provides RIAA, Europe SP1, Europe SP2, and flat equalization. Features discrete-differential low-noise FET's for amplification; discrete Class A MM gain stage; subsonic filter; gain attenuator; permalloy-cored step-up transformer for low noise with MC signals; electrical/magnetic isolation between power supply and gain circuitry. Die-cast alloy chassis with heavy extrusion and gold finish \$999

MARK LEVINSON. **BY MADRIGAL** Model 28 Preamplifier

Dual-mono construction. Features single custom transformer with separate windings and grounding systems; distributed power supply regulation; separate power supply; switchable gain for line and phono inputs; 8 inputs including switchable phono/line input; 2 gold-plated XLR balanced inputs; 5 single-ended inputs; balanced and unbalanced main outputs; outputs for 2 tape recorders; low- and high-gain phono modules each with two gain settings. Output imp 10 ohms; line input imp 13 kilohms; phono input imp 825 ohms high-gain, 47 kilohms low-gain. Preamp: 171/2 x 23/4 x 101/4 in; power supply: 81/2 x 23/4 x 131/8 in; 29 lb ... \$3,300

MCINTOSH

C-34V A/V Preamplifier

A/V control center with compression/expansion system. Features 8 line-level inputs; phono inputs; 3 switched and 2 unswitched rear AC outlets; connections for 2 speaker pairs; record and monitor selectors; 5-band EQ. Preamp: FR 20-20,000 Hz +0, -0.5 dB; THD 0.01%; S/N 90 dBA phono, 100 dB line, Amp: 20 W/ch with 0.01% THD; FR 20-20,000 Hz +0, -0.2 dB; s/N 100 dBA. 161/8 x 51/2 x 13 in; 26 lb \$2,499

C-35 A/V Preamplifier

Features cascoded FET pair for input switching; 9 A/V inputs; tape-monitor switches for 2 recorders;



Hafler Iris

loudness control; 5-band EQ; headphone jack; FR 20-20,000 Hz +0, -0.5 dB; THD 0.007%; S/N 90 dB phono, 105 dB line\$1,995

MELOS

MA-111 Preamplifier

Heavy-aluminum chassis; external toroidal power supply. FR 2-300,000 Hz ±1 dB; THD 0.07%; max gain 67 dB; line gain 27 dB \$1,195

MERIDIAN

Model 603 Digital Preamplifier

Two pieces. Provides D/A conversion through 256x oversampling, PDM bitstream circuitry. Features auto sampling-rate-to-source matching (32

Model 201 Preamplifier

MOD SQUAD

Deluxe Line-Drive AGT Preamplifier

MOTIF, BY CONRAD-JOHNSON MP11 Preamplifier

MTX SOUNDCRAFTSMEN Pro-Control 422 Preamplifier/Equalizer

Pro-PT Five R Preamplifier/Tuner

Pro-Control Two Preamplifier

C-MOS switching. Features phono input; tone control; 1 switched and 1 unswitched AC outlet. FR 20-

MUSEATEX Melior Digital Preamplifier

Designed for optical or coaxial digital sources. Features programmable LCD interface; C-Lock jitter elimination circuitry; 4 inputs; 2 tape loops; signal processor loop; analog outputs; remote control. FR 1-20,000 Hz; SN 105 dB; THD 0.03%.



NAD Model 1000

5-yr warranty with guarantee of technology upgrades at nominal cost. 14 lb\$2,350

Melior A/V Preamplifier

NAD

Model 1600 Preamplifier/Tuner

Model 1300 Preamplifier

Features MC phono stage; external processor loop; infrasonic filter. Bass EQ; null switch; semiparametric tone controls at 50, 100, 250, 3,000, 6,000, and 12,000 Hz with ± 12 dB boost/cut; 2way tape dubbing. Rack mountable...... \$339

Model 1000 Preamplifier

NAIM

NAC 72 Preamplifier

Features matched and time-aligned filter; 2 tape, tape monitor, 2 phono, and 1 line inputs. Input sens: 2 mV into 47 kilohms MM, 100 μ V into 470 ohms MC; output sens 0.775 V into 47 ohms; overload margin 40 dB. 11½ x 3 x 8 in... \$1,395

NAC 62 Preamplifier

NAKAMICHI CA-7A Digital Preamplifier

Features separate digital and analog sections; isolated ground topology; acoustical fine-tuning system; motor-driven volume control, inputs for MM and MC phono; 6 line-level inputs; 2 outputs; multiroom remote control with RS-7 remote sensor. FR 1-100,000 Hz + Q, -3 dB; s/N 94 dBA; THD 0.002% from 20-20,000 Hz. 17¹/₈ x 3¹/₄ x 12¹/₄ in; 15.3 lb......\$2,750

CA-5AII Preamplifier

Features low-noise FET's: bipolar transistors; multiregulated isolated-ground power supply. Tape dubbing; gold-plated inputs and outputs; MM/MC phono input; 5 line-level inputs; outputlevel, tone, and balance controls. s/N 95 dBA; THD 0.002% from 20-20,000 Hz; FR 1-100,000 Hz + 0, -3 dB. 17/k x 21/2 x 111/4 in\$1,150

ONKYO

Grand Integra P-308 Preamplifier

Integra P-304 Preamplifier

P-301 Preamplifier

PARASOUND

C/PT-1000R Preamplifier/Tuner

P/FET-90011 Preamplifier

Class A discrete FET design. Features electronic logic switching; polypropylene capacitors; regulated power supply; gold-plated jacks; muting relay; variable loudness contour; 3 AC outlets; mono switch; 2 tape monitors. FR 10-80,000 Hz ± 0.5 dB; THD 0.005%; IM 0.005%; SN 80 dB phono, 104 dB line. 17/4 x 3 x 10/2 in; 11 lb \$425

P/HP-750 Preamplifier

PHILIPS

AV1001 Digital A/V Preamplifier

Features Dolby Pro Logic decoder; digital sound processor with bitstream D/A converter; 3 center-



channel modes; preset rear-channel delay time of 20 μ s; control adjustments for 5 hall sizes; adjustable reverberation time; adjustable left and right rear-delay time; surround-channel low-pass and high-pass filter; test-tone generator; S-video inputs/outputs; 9 audio inputs; 5 composite video inputs; video outputs; A/V recording outputs. Master switching matrix with display; 52-key universal programmable remote control. \$2,000

PIONEER

C-91 Reference A/V Preamplifier

Features independent power supplies for left and right channels and video; copper-foil PC boards; subsonic filter; high/low filter; 5 audio inputs; 3 video input only; 3 S-video inputs and outputs; 2 connectors for video enhancer. Record selector; motorized rotary volume control, programmable remote control. Urushi-finished front panel with rosewood vinyl side panels. 18 x 5½ x 15½ in; 22.8 lb\$1,300

C-72 Reference A/V Preamplifier

Features 2 power supplies; 5 audio inputs; 5 video inputs; A/V record selector; 2-way video dubbing; motorized rotary volume control; multiroom capability with optional MR-100; programmable remote control. Urushi-finish front panel, rosewood side panels. 18 x 6/2 x 16/2 in \$850

PS AUDIO

PS 5.6 Preamplifier

Features PS 6.0 line stage and PS Phono Link phono stage in single-chassis. Single militarygrade glass epoxy board; multiregulated diodeisolated power supply; MC/MM capability; passive phono EQ; straightwire and bypass switch; goldplated connectors; low-imp high-current output. FR 20-20,000 Hz ±0.1 dB; THD 0.1; S/N 74 dB MC, 85 dB MM, 100 dB line. 17 x 2½ x 9 in \$799

Model 6.0 Preamplifier

6 inputs and 4 outputs. Features active or straightwire/passive operation; selectable bypass to eliminate balance control and tape monitor circuits; touch-sensitive switching; gold plated



PS Audio Model 6.0

PSE

Studio SL Preamplifier

QUAD

The following models feature tilt control to provide flat, increasing, or decreasing FR slopes in 7 steps of 1 dB each and 5-dB bass control with rolloffs at 50 and 200 Hz.

Quad 66 Preamplifier

Features 7 analog inputs and tone controls; two steps of high-frequency filtering with rolloffs at 5,000 and 7,000 Hz; remote control with volume knob. FR 30-20,000 Hz \pm 0.5 dB phono, 20-20,000 Hz \pm 0.2 dB line; THD 0.05%; s/N 75 dB phono, 99 dB line. 12¼ x 3¼ x 10 in\$1,500

Quad 34 Preamplifier

REVOX

B240S Preamplifier

Microprocessor-controlled design with individually programmable input sens for MM/MC phono input and 5 line-level inputs. Dual bus structure allows listening to one source while recording another; balanced and unbalanced outputs; programmable power on and max volume; multiroom capability. THD 0.006%. 18½ x 6 x 14¼ in; 14.4 lb. \$2,200

ROTEL

RTC950AX Preamplifier/Tuner

RC980BX Preamplifier

Features high-quality toroidal power transformer; high-grade op amps; specially-selected filter capacitors; separate supply regulators for each channel; MM/MC phono stage with passive high-frequency and active low-frequency EQ. FR 20-20,000 Hz +0, -0.2 dB phono; THD 0.004%; sNN 70 dB MC, 85 dB MM, 100 dB line. 17% x 2³/x x 12⁷/s in; 9 lb \$499

JEFF ROWLAND

Consonance Preamplifier

SONOGRAPHE, BY CONRAD-JOHNSON SC22 FET Preamplifier

All-FET design with matched-FET polypropylene and polystyrene capacitors for all audio circuits.

SONY

TA-E1000ESD Digital Preamplifier

TA-E80ES Preamplifier

Features low-resonance G-chassis design; 7 inputs; 3-mode cartridge selector; record output selector; adaptor loop; source-direct switch; balanced output. FR 3-300,000 Hz \pm 0.2 dB phono; SN 83 dB MC, 95 dB MM, 105 dB line; THD 0.001% IM 0.001%. 15½ x 5¼ x 14½ in; 28.6 lb ... \$900

SOUNDSTREAM

C-1 MK II A/V Preamplifier

System 1 series component with dual-mono Class A circuitry and discrete component signal path. Features separate power supplies for audio and switching circuits to minimize noise; digital switching circuitry to link Soundstream products; 5 line-level inputs including 1 switchable to phono. A/V dubbing; CD-to-tape or tape-to-tape dubbing; ability to listen/view to one source while recording another. Includes programmable remote control. FR 20-20,000 Hz ± 0.1 dB; THD 0,05%; s/N 100 dBA; input imp 30,000 ohms; input sens 100 mV for 0.5 V out. 17 x 3% x 11½ in; 51,495

SPECTRAL

DMC-6 Preamplifier

SUMO

Athena II Preamplifier

SUPERPHON

Revelation II Preamplifier

Class A design with MOSFET current sourcing. Features fully discrete phono stage with JFET input; 10 zener-diode power regulators; adjustable bias setting; muting from front panel with auto muting for surge/line protection; metal-film resistors used throughout; 1 phono and 4 line inputs; 2 tape loops. Max output 5 V cont avg; FR 2-175,000 Hz; sN 95 dB; THD 0.5% at 3 V cont avg; MMC output 0.5 mV; 150 mV phono overload; 37 dB phono gain; 20 dB line gain ... \$749

TECHNICS SU-A40 Preamplifier

SU-A40 Preampliner

THRESHOLD

Model FET Ten/e Preamplifier

High-level noninverting FET design. Features external power supply; parallel input JFET's; cascoded MOSFET's in secondary gain stages; military-grade glass-epoxy circuit boards with goldover-nickel-over-copper-plated paths; precision metal-film and wire-wound resistors used throughout; gold-plated connectors with Teflon insulation; 5 line-level and 2 tape inputs; unbalanced/balanced stereo input and preamp output. Independent record and monitor selection; balance and level controls. Bandwidth DC-125,000 Hz +0, -3 dB; THD 0.01% from 20-20,000 Hz into 1,000-ohm load; crosstalk -75 dB at 20,000 Hz with 1,000-ohm source; noise -110 dBA

Model FET Nine/e Preamplifier

Noninverting FET preamp. Features external power supply; military-grade glass-epoxy circuit boards with gold-over-nickel-over-copper-plated paths; precision metal-film and wire-wound resistors used throughout; variable-gain phono stage; gold-plated connectors with Teflon insulation; MM/MC phono input; 3 line-level and 2 tape inputs. Independent record and monitor selection; balance and level controls. Bandwidth DC-125,000 Hz +0, -3 dB; THD 0.01% from 20-20,000 Hz into 10,000-ohm load. 19 x 14 x 11 in ... \$2,595

YAMAHA

CX-1000 Digital A/V Preamplifier

CX-830 Preamplifier

CX-630 Preamplifier

INTEGRATED Amplifiers

ACOUSTIC RESEARCH

AR A-07 75-W/ch Integrated Amplifier Features AV switching; dual power supplies; switchable feedback tone controls; MM/MC phono input. 110 W x 2 into 4 ohms; FR 15-20,000 Hz; THD 0.03% \$500

AR A-03 30-W/ch Integrated Amplifier

ARCAM

Delta 90.2 70-W/ch Integrated Amplifier

Features toroidal power transformer; aluminum casing; 3 inputs including MM/MC phono; 2 tape inputs; independent monitor and rec controls; mono switch; headphone output. 70 W x 2 into 8 ohms; THD 0.02% at 1,000 Hz. Black. 17 x 3/2 x 11½ in; 18 lb. \$799

Alpha2 30-W/ch Integrated Amplifier

Features toroidal power transformer; aluminum chassis; 3 inputs including MM/MC phono; tape inputs; full monitoring; headphone output. 30 W x 2 into 8 ohms; FR 20-20,000 Hz; THD 0.02% at 1,000 Hz. Charcoal finish. 17 x 3³/₈ x 9 in; 10 lb \$379

AUDIO BY VAN ALSTINE Omega 90-W/ch Integrated Amplifier

Includes Van Alstine Omega hybrid preamplifier circuitry. Features 300 V/ μ s custom hybrid amp modules with active-powered feedback; full complementary power MOSFET output circuits; toroidal power transformer; high-current preamp sections; phono, CD, tuner, and dual tape inputs; connections for 2 speaker pairs; headphone jack. Volume and balance controls; tape-to-tape dubbing capability. 90 W x 2 into 8 ohms; THD 0.01%. 13½ x 4½ x 12½ in; 22 lb.

AUDIO DESIGN Associates

CR-8A 25-W/ch Integrated Amplifier

Features 2-ohm stability; rear-panel fuse; toroidal power transformer; fan cooling; signal processor loop; line-level output. Front-panel gain control; LED volume, bass, and treble indicators; switched AC outlet. 25 W x 2 cont avg into 8 ohms from 20-20,000 Hz with 0.02% THD or 40 x 2 into 4 ohms; S/N 104 dB. 19 x $3\frac{1}{2}$ x 11 in; 13 lb ...\$1,750

CAMBRIDGE AUDIO

P70 60-W/ch Integrated Amplifier

CREEK AUDIO, By Music Hall

Model 6060 60-W/ch Integrated Amplifier Features 2 tape loops; 4 inputs including MM and MC phono; preamp out/in; tape monitor; tape-totape dubbing; active/passive tone controls; threeway speaker switching (A, A/B, B). 200 W

Model 4140S2 40-W/ch Integrated Amp

DENON

AVC-3020 300-W A/V Integrated Amp

6-channel amplifier with 6 discrete-component amps for 2 front, 2 center, and 2 rear speakers. Features Dolby Pro Logic decoder and Dolby Time Link digital delay circuitry; 4 Dolby modes; hall, simulated, live, synthetic, and spectarea surround modes; adjustable 0-130 ms digital delay; dialogue-enhancing EQ. 24-character by 10line display and FL alphanumeric front-panel display for control and set-up information; nonvolatile memory for preferred control settings: separate A/V-input and record-output selectors for dubbing; 5 video/S-video inputs; 3 video/Svideo outputs; 9 audio inputs; 9 audio outputs; auto input balance; videodisc-direct switch for 20-MHz bandwidth; 60-key Denon Integral System remote control with 5 keys each programmable to send string of 15 commands. 80 W x 2 + 35 x 4 into 8 ohms\$1,000

AVC-1000 210-W A/V Integrated Amp



HARMAN KARDON

The following feature discrete components in signal path, MM/MC phono inputs, and selectable power-supply voltage unless otherwise noted.

HK6900 170-W/ch Integrated Amplifier

HK6600 90-W/ch Integrated Amplifier

Features phase-correct loudness; 2-way dubbing; rec-out selector; tone defeat; mono switch; subsonic and high-cut filters; signal processor loop. $S/N \ 80 \ B$ phono, 98 dB line; slew rate 180 V/ μ s; damping factor 65; negative feedback 12 dB; high-current capability \pm 50 amperes \$699

HK6500 70-W/ch Integrated Amplifier

Features phase-correct loudness. Mono switch; 2 tape monitors; signal processor loop; subsonic filter. s/N 80 dB phono, 98 dB line; slew rate 90 V/ μ s; damping factor 65; negative feedback 20 dB; high-current capability ±40 amperes \$499

HITACHI

JVC

AX-V1050TN 400-W A/V Integrated Amp

5 channels. Features Dolby Pro Logic decoder with normal, wide, and phantom center-channel modes; symphony-hall, recital-hall, church, jazzclub, pavilion, and stadium digital ambience settings; 5 Dynamic Super-A power amps designed to eliminate transistor-switchoff distortion: 1-bit A/D and D/A converters with 4th-order noise shaping; 7 video inputs; 3 video outputs; 1 monitor output; 3 S-video terminals; 6 audio inputs; 2 audio outputs; 2 mono subwoofer outputs; 6 speaker outputs; parametric center-channel EO; adjustable center-channel delay; record monitor; CD- and D/A-converter-direct switches; large FL display; composite to S-video conversion; programmable remote control. 100 W x 2 cont avg into 8 ohms from 20-20,000 Hz with 0.08% THD + 80 x 1 (center) + 60 x 2 (rear) cont avg into 8 ohms at 1,000 Hz with 0.08% THD; dynamic power 300 W x 2 into 2 ohms; FR 5-70,000 Hz +0, -3 dB; S/N 67 dB MM, 80 dB line. 177/8 x 61/4 x 171/2 in; 35 lb\$1,500

AX-Z911BK 100-W/ch Integrated Amplifier

KENWOOD

KA-V9500 360-W A/V Integrated Amplifier 6 channels. Features DSP with 10 soundfield presets and variable parameters; Dolby Pro Logic decoder; 16-bit digital delay; Dolby 3 Stereo; normal, wide, and phantom surround modes; dual power transformers; amp-stabilizing circuit; digital parametric EO; auto input balance; 6 Svideo inputs and outputs; 6 A/V inputs; connections for dual center-channel speakers; subwoofer output. Digital bass and treble controls; 5 system preset memories; S-video to compositevideo dubbing and monitoring; on-screen display; motor driven volume control; programmable remote control. 80 W x 2 cont avg into 8 ohms from 20-20,000 Hz or 90 x 2 (front left, right) + 45 x 2 (center) + 45 x 2 (rear) cont avg into 8 ohms; FR 5-80,000 Hz +0, -3 dB; S/N 96 dB line; THD 0.08% into 8 ohms. 173/8 x 61/2 x 163/4 in; 38.5 \$1.499

KA-V7500 316-W A/V Integrated Amplifier

LINN

Intek 50-W/ch Integrated Amplifier

LUXMAN

LV-105U 80-W/ch Hybrid Integrated Amp Combines JFET's, twin-triode vacuum tubes, and high-current MOSFET output devices. Features Duo-Beta dual feedback loop; star circuit topology; optical and coaxial digital outputs; MM/MC phono inputs; signal processor loop. CD-direct button; tape and video dubbing; rec-out selector. 80 W x 2 cont avg into 8 ohms, 140 x 2 into 4 ohms, or 170 x 2 into 2 ohms; THD 0.25%; S/N 70 dB MC, 90 dB MM, 96 dB line; IM 0.03%. 17¼ x 5¼ x 13¼ in; 25 lb S1,200

LV-113 65-W/ch Digital Integrated Amp

MARANTZ

PM-700AV 190-W A/V Integrated Amp

5 channels with full A/V input/output source switching. Features Dolby Pro Logic decoder;

PM-80 100-W/ch Integrated Amplifier

Switchable Class A/AB operation modes. Features selected discrete topology; high-capacity power supplies; discrete output transistors; relay-controlled speaker selection; dedicated signal-processor loop; source-direct switching; record output selector allowing taping of one source while listening to another; 9 gold-plated inputs with MM/MC phono input and 3 tape-moni-



Kenwood KA-V9500

MISSION

Cyrus II 60-W/ch Integrated Amplifier

Features high peak current delivery; nonmagnetic polypropylene and polystyrene capacitors; separate record-out for all inputs; balance control for all inputs; 5 line-level inputs; MM/MC phono input; headphone jack. FR 20-20,000 Hz; THD 0.003% at 1,000 Hz into 8 ohms; s/N 83 dB; slew rate 10 V/ μ s; damping factor 100. Matte black or Nextel gray finish. 8½ x 3 x 13½ in; 16 lb. . \$899

NAD

Model 3240PE 40-W/ch Integrated Amp

NAIM

NAIT 2 18-W/ch Integrated Amplifier

Features 4 inputs including MM phono; tape monitor/mute function; bypassable amp section. Input sens 2.5 mV phono, 75 mV line; tape output level 75 mV into 1,000 ohms. 10³/₄ x 3 x 8 in \$895

NIKKO

NA 150 100-W/ch Integrated Amplifier

Class AB output operation. 100 W x 2 cont avg into 8 ohms or 144 x 2 cont avg into 4 ohms; THD 0.05%; slew rate 5 V/µs; sens 170 mV line, **2**.5 mV phono; power bandwidth 5-41,000 Hz; dynamic headroom 2 dB; input imp 47 kilohms; phono s/N 81 dBA \$249

ONKYO

A-SV810PRO 325-W A/V Integrated Amp 5 channels with Dolby Pro Logic decoder. Features 5 amplifiers with discrete outputs; dual power transformers; 8-mode DSP with 10 soundfield presets; adjustable digital delay; 6 video including 5 S-video inputs; 10 audio inputs; 4 video including 3 S-video outputs; 5 audio outputs; pre-out/subwoofer terminals. FL display; RI-system remote control. 75 W x 2 or 85 x 3 (front left, right, center) + 35 x 2 (rear) ...\$1,100

A-8800 100-W/ch Digital Integrated Amp

Features dual 18-bit linear D/A converters; 8xoversampling digital filter; discrete output section; high-speed switching power supply; optical and coaxial digital inputs; 10 audio inputs; preout/main-in terminals. 100 W x 2 cont avg into 8 ohms or 310 x 2 into 2 ohms; FR 20-20,000 Hz; FHD 0.008%; S/N 107 dB line; IM 0.005% \$850

A-807 80-W/ch Integrated Amplifier

Features discrete power supplies and subtransformers; dual-shielded block construction with 2panel chassis base; motorized volume control and input selector; 4-way speaker terminals; remote control. 80 W x 2 into 8 ohms or 210 x 2 into 2 ohms \$530

A-RV401 100-W/ch Integrated Amplifier

PHILIPS

FA-80 100-W/ch Integrated Amplifier

Features linear-drive power supply; Class A mode with 20 W x 2 output; source-direct switching with auto tone defeat; 11 inputs including 3 video, signal processor, and MM/MC phono. \$599

FA-50 70-W/ch Integrated Amplifier

PIONEER

Elite A-71 120-W/ch Integrated Amplifier

VSA-1000 290-W A/V Integrated Amplifier

5 channels. Features Dolby Pro Logic processor with digital delay and Dolby Surround, stadium, simulated stereo, and studio modes; two S-video input/outputs; 2 video monitor outputs with 1 Svideo terminal; pre-out/power-in for front, rear, and center; 7 video and 6 audio inputs; video signal selector; video adaptor loop; 3-position acoustic memory; on-screen display; programmable remote control. 100 W x 2 into 8 ohms with 0.005% THD + 30 x 3 (rear and center) into 8 ohms with 0.08% THD\$1,050

Elite A-51 100-W/ch Integrated Amplifier

Features Super Linear Circuit; Direct Connection II; anti-resonance honeycomb design; clean ground; direct switch; low-imp drive capability; high-gain phono EQ; gold-plated phono and CD inputs; 8 inputs; muting; loudness contour; record selector; A/B speaker switching \$850

PROTON

AM-656 60-W/ch Integrated Amplifier

AM-455 50-W/ch Integrated Amplifier

REVOX

H5 100-W/ch Integrated Amplifier

Features independent listening and recording source selection; 5 inputs including MM phono; independent preamp/power amp. Record bus



Yamaha DSP-A1000

ROTEL

RA980BX 100-W/ch Integrated Amplifier

RA960BX 60-W/ch Integrated Amplifier

SANSUI

AU-X911DG 100-W/ch Integrated Amp

AU-X611AV 210-W A/V Integrated Amp

4 channels. Features 6 surround-sound modes and four surround memories. 5 audio and 4 video inputs; monitor output; video processor terminals. 70 W x 2 into 8 ohms (front) + 35 x 2 (rear); FR 5 100,000 Hz; S/N 110 dB. 17 x 6½ x 17½ in; 32 lb\$1,000

AU-X301i 65-W/ch Integrated Amplifier

SONY

TA-AV650 240-W A/V Integrated Amplifier

TECHNICS SU-V660 90-W/ch Integrated Amplifier

YAMAHA

DSP-A1000 340-W A/V Integrated Amp



ACOUSTIC RESEARCH CD-07-CD Player

 I-bit
 D/A
 converters.
 Includes
 RC-05
 wireless

 remote
 converters.
 Includes
 RC-05
 dB; THD

 0.005%; S/N 100 dB; ch sep 100 dB.
 17 x 3½ x 13 in;
 13.2 lb.
 \$499

ADCOM GCD-575 CD Player

ARISTON

Ariston CD Player

AUDIO BY VAN ALSTINE Omega CD Player

BANG & OLUFSEN

Continuous Musie Module CD Changer 4x oversampling, dual 16-bit D/A converters, 10disc magazine. Features random and repeat play. Designed for integration into single or multiroom system. Remote control compatible with Beomaster 6500 receiver. FR 20-20,000 Hz ± 1.5 dB; THD 0.08%; dynamic range 96 dB; ch sep 75 dB at 1,000 Hz. 11¼ x 3½ x 7½ in; 13 lb\$1,250

Beogram 4500 CD Player

Dual D/A converters. Integrates with Beosystem 4500. Features Bessel elliptical analog filter; separate power supplies for digital and analog sections. Skip forward/back; direct access by track number; 3-in-CD compatibility. FR 3-20,000 Hz ±0.3 dB; S/N 110 dBA; THD 0.0025%; ch sep 101 dB; dynamic range % dB. Black and silver finish. 16½ x 3 x 12¼ in; 10 lb. \$900

CALIFORNIA AUDIO LABS

Aria mk III Hybrid CD Player

8x oversampling, 18-bit hand-trimmed D/A converters with hybrid analog output stage. Features laser pickup with precision-ground optical 

leon mk II CD Player

CAMBRIDGE AUDIO CD4 CD Player

Philips Bitstream 1-bit D/A converter. Features interpolating digital filter with 4-pole Butterworth filter; coaxial and optical digital outputs. FR 10-20,000 Hz ± 0.1 dB; THD 0.004% at 1,000 Hz; SN 96 dB \$600

CARRERA

CD-3400 6-Disc CD Changer

4x oversampling, dual 16-bit D/A converters. Features 3-beam laser pickup; fixed line outputs; headphone jack; direct track access; 32-track programming; track, disc, and program repeat; elapsed disc/track time display. FR 20-20,000 Hz ±0.5 dB; THD 0.009%; S/N 96 dB. 13 lb \$250

CD-3300R CD Player

2x oversampling, 16-bit dual D/A converters. Features music calendar; direct-track access; 3-in-CD compatibility; random play; remote control. FR 20-20,000 Hz; \$/N 100 dB; THD 0.0004%. 17 x 3/4 x 12 in; 9.9 lb. \$200

CARVER

MD/V-500 Combi-Player

SD/A-490t Tube CD Player

1-bit D/A converter. Features sound-enhancement EQ circuitry; analog tube output stage; optical and coaxial digital outputs. 24-track and index programming; random play; 4-way repeat; auto fade; AB-side time edit; remote with motorized volume control. 19 x 3½ x 11¼ in; 9 lb \$700 SD/A-450. As above, without analog tube output stage. Includes 10-key remote control with volume. 8.5 lb \$520

SD/A-350 5-Disc CD Changer

CREEK AUDIO CD60 CD Player

DENON DCD-3500RG CD Player

8x oversampling, four 20-bit Lambda ladder-type D/A converters. 80th-Anniversary Reference Class player features 4 MSB linearity adjustments per converter; 20-bit digital filter; linear-crystal OFC analog filters; separate power transformers, power supplies, and optically-isolated circuitry for digital and analog sections; centered-alloy feet, 4-layer bottom plate, and dual-construction chassis; switchable optical/coaxial digital outputs; balanced analog outputs. Motor-driven remote volume control; direct-track access; 20track programming; index and time search; 3-way repeat; auto space; auto edit; 8-digit FL display with music calendar; headphone jack with level control; 3-in-CD compatibility; remote control; Denon IS-system control compatibility. FR 2-20,000 Hz ±0.2 dB; S/N 120 dB; dynamic range 100 dB; THD 0.0015%; ch sep 110 dB. Champagne-gold finish, wood panels......\$3,000

DCD-3560 CD Player

8x oversampling, four 20-bit Lambda ladder-type DA converters. Features 20-bit digital filter with ½-sample delay; 4 MSB linearity adjustments per converter; optical isolation between digital and analog stages; optical and coaxial digital outputs. 20-track programming; random play; remote volume control; direct track access; index mode; time search; 3-way repeat; auto space; auto edit; timer play; music-calendar display; 3-in-CD compatibility; balanced analog outputs; remote control; Denon IS-system control compatibility. FR 2-20,000 Hz \pm 0.2 dB; S/N 120 dB; dynamic range 100 dB; THD 0.0015%; ch sep 110 dB at 1,000

LA-3000 Combi-Player

DCD-2560 CD Player

16x oversampling, four 20-bit Lambda laddertype D/A converters. Features 20-bit digital filter with ½-sample delay; MSB linearity adjustments; optical isolation between digital and analog stages; optical and coaxial digital outputs. Digital pitch control with ±9.9% range in 0.1% steps; digital fader; peak-search mode; 20-track programming; random play; remote volume control; There's something more powerful than what we see.

It's the music we hear.





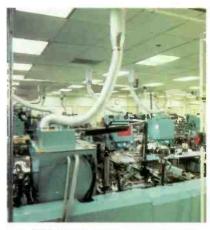
The World Of The Compact Disc

Remember vinyl? If you were collecting music before 1982, you probably do. The 33^{1/3} rpm Long Playing record, introduced in 1948, long reigned supreme as the king of home audio. But by the late 1970's, the LP was showing signs of age. And in 1982—a decade ago—the music business and the audio industry entered an entirely new world. The world of music that is the Compact Disc.

The Compact Disc was based upon the brilliance of digital audio, a then-new method of recording music with unprecedented fidelity. In a single stroke, digital technology overturned many previously-accepted limitations in high-fidelity reproduction. But bringing a digital audio disc format to the music lovers of the world would require more than just technology. It required an internationally-accepted standard.

A Worldwide Agreement.

The essential step toward standardization took place in June, 1980. That's when Sony Corporation and N. V. Philips formally announced a new digital audio disc format.



HIGH-PRECISION MANUFACTURING AT AMERICA'S FIRST CD REPLICATION FACILITY, SONY'S DIGITAL AUDIO DISC CORPORATION IN TERRE HAUTE, INDIANA.

Thanks to Philips work in optical laser discs, the new system would be virtually impervious to wear, dust, fingerprints and scratches. Thanks to Sony expertise in 16-bit digital coding and digital error correction, the new format would have a quality of sound unlike any other.

From this joint effort, the new format began to take shape: about 4¾ inches in diameter...over 74 minutes of music...44.1 kHz sampling rate...16-bit linear PCM audio. The resulting system soon won favor around the world, becoming the international standard we know today as the Digital Audio Compact Disc.



OVER 90% OF ALL THE COMPACT DISC TITLES EVER MADE WERE MASTERED ON SONY PCM-1600 SERIES DIGITAL MASTERING SYSTEMS.

Making CD A Reality.

9

Bringing the Compact Disc out of the laboratory and Into the living room required a monumental effort. It entailed new ways to record and master music. New technology to press discs. New machines to play them back. And Sony was there every step of the way. By October, 1982, digital audio discs were finally ready to come home. The world of music hasn't been the same since.



TEN YEARS AND MORE THAN A BILLION DISCS LATER, PEOPLE STILL ENJOY THE WORLD'S FIRST COMPACT DISC: BILLY JOEL'S *52ND STREET*.





THE WORLD'S FIRST COMPACT DISC PLAYER: THE CLASSIC SONY COP. ICI. IT WAS INTRODUCED IN _APAN IN OCTOBER 1982, AND THE U.S. MARKET FIVE MONTHS LATER.

A World Of Music and Sound.

When Sony introduced the Compact Disc back in 1982, it was with tremendous feelings of pride, anticipation and excitement. Ten years later, it appears that the excitement was contagious. People everywhere have taken the Compact Disc into their homes, their cars—even outdoors. Americans alone have bought nearly 40 million CD players and over one billion Compact Discs.

But sales figures alone can't do justice to the full impact of CD. Its unprecedented fidelity has transformed the way we hear music. Which in turn has transformed the way musicians compose, record, and release their life's work. For music lovers, this just might be the biggest thrill of all.



THE FIRST MACHINE TO TAKE THE EXCITEMENT OF DIGITAL AUDIO ONTO THE ROAD: THE SONY CDX-R7, THE WORLD'S FIRST CAR CD PLAYER.



WHAT COULD BE BETTER THAN A COMPACT DISC IN THE CAR? HOW ABOUT TEN DISCSI THE SONY CDX-A10 DISCJOCKEY* UNIT WAS THE WORLD'S FIRST CAR CD CHANGER.

A NEW GENERATION OF LISTENERS WERE INTRODUCED TO COMPACT DISC WHEN SONY INTRODUCED PORTABLE MUSIC SYSTEMS WITH BUILT-IN CD PLAYERS.



IN THE EARLY YEARS, RADIO WAS A KEY SHOWCASEFOR CD. NOW CD IS THE FIRST CHOICE FOR MUSIC PROGRAMMING ON THE AIR.



THE WORLD'S & RST PORTABLE COMPACT DISCPLAYER, THE SONY D-5 DISCMAN UNIT, BROUGHT THE CD INTO AN EYEMIWIDER RANGE OF LIFEST"LES.



IN THE MUSIC BUSINESS, THE COMPACT DISC HAS GONE FROM BEING A FOOTNOTE TO THE NUMBER ONE FORMAT IN DOLLAR VOLUME.



THE CD REVOLUTION TOOK ANOTHER HAPPY TURN WITH SONY'S CREATION OF THE CAROUSEL CD CHANGER.



"YOU THINK HE SOUNDED BETTER THAN HIS COMPACT DISC? WELL, NO, I WOULDN'T GO THAT FAR...."

> THE COMPACT DISC ISN'T JUST FOR THE MUSIC OF TODAY, IT'S ALSO FOR REDISCOVERING THE MUSIC OF YESTERDAY THROUGH HISTORIC REISSUES AND BOXED SETS.



COMPACIPISC

I D' ANNI VERSARY

"[CD IS] THE GREATEST THING THAT'S EVER HAPPENED TO RECORDED MUSIC... IT REALLY IS A MARVEL. I WAS LISTENING TO MY OWN REMASTERED 1966 VERSION OF VERDI'S FALSTAFF THE OTHER DAY IN MY CAR'S CD SYSTEM, AND THE SOUND WAS SOEXTRAORDINARY THAT WHEN I ARRIVED HOME, I COULDN'T TURN OFFTHE ENGINE, I JUST SAT THERE TILL THE END. AND THIS WRS AN ALMOST TWENTY-FIVE-YEAR-OLD RECORDING!"

A World Of Innovation.

An undeniable part of CD's success is the fact that it has been a consistent, universally compatible format. Think of it: any standard Compact Disc will play on any standard CD player-anywhere in the world. But while the fundamental format has not changed, the technology around that format is constantly moving forward. In fact, few products have seen such Intense technological refinement in so short a time as the CD player.

Building A Better CD Player.

While some manufacturers claimed that the first generation CD players had already achieved "perfect sound," Sony believed otherwise. And Sony engineers immediately rose to the challenge of refining the CD player. The resulting stream of advances has had one dramatic effect: even staunch audiophiles—some of whom originally greeted



SONY'S CD PLAYER REFINEMENTS INCLUDED UNILINEAR" CLOCK CIRCUITRY, PLUS THE FIRST 8X OVERSAMPLING FILTER AND 18-BIT CONVERTERS. WE ALSO CREATED DIGITAL SYNC" CIRCUITRY, ONE-BIT PULSE CONVERTERS, AND THE LINEAR MOTOR LASER TRANSPORT SHOWN. THE TRANSPORT WAS THE FIRST TO CUT TRACK ACCESS TIME TO UNDER ONE SECOND.



WITH SYSTEMS LIKE THE LASER LIBRARY, SONY IS IN THE FOREFRONT OF MAKING CD-ROM AVAILABLE AND AFFORDABLE.

the CD with hostility—have now embraced the CD format.

Taking The CD In New Directions.

With its durability and sound quality, the Compact Disc has won the hearts of music lovers. With its capacity to store over 6 billion bits of digital data, the Compact Disc has stimulated interest in disciplines far afield from music. New extensions of the Compact Disc format are creating exciting new possibilities.

CD+G, CD-I And More.

In the world of computing, CD is just coming into its own as a medium for high-density data retrieval. Thousands of CD-ROM (Read-Only Memory) titles are giving the computer user on-line access to vast quantities of information.

Another new concept is Sony's Data Discman[™] system. Extremely small and consummately portable, the Data Discman brings you fast



COMPARED TO USING CONVENTIONAL REFERENCE BOOKS, THE DATA DISCMAN SYSTEM IS FASTER, EASIER, AND MORE VERSATILE.

and easy access to encyclopedias, travel guides, baseball stats, medical reference and languages.

There's also Compact Disc + Graphics (CD + G), for music with the added attraction of still frame graphics and lyrlcs. And the new Compact Disc-Interactive (CD-I) format, which combines sound, pictures, text and action in a way that Involves you as never before. And coming soon is the Photo CD, your own family photo album on Compact Disc!

As you can see, the Compact Disc hasn't simply revolutionized the world of music. It's creating a whole new world of playback possibilities.





SONY INTRODUCED THE WORLD'S FIRST CD PLAYER WITH OUTBOARD D/A CONVERTER. AND WE TOOK THE CONCEPT TO A NEW LEVEL OF REFINEMENT WITH THE AWARD-WINNING CDP-R1/DAS-R1 SYSTEM.

The World Is Turning To Compact Disc.

In less than a decade, the Compact Disc has more than earned its amazing popularity. But while the number of converts continues to grow, some voices might suggest that the Compact Disc has settled into maturity.

Don't believe a word of it. Even after ten years, the Compact Disc remains the unchallenged champion of digital sound quality unsurpassed by any other prerecorded music format. And for durability, convenience and versatility, nothing else comes close. It's no wonder that Compact Disc continues to spark more innovation than anything else in the digital audio world.

And as the Leader in Digital Audio[™], Sony is about to introduce a new generation of home, car, and portable Compact Disc players that achieve entirely new levels of performance and value. So, if you don't own CD's, there's never been a better time to join the revolution and discover the incredible sound of Compact Disc for yourself.

After all, it's what the whole world is turning to.



LEONARD BERNSTEIN QUOTE FROM ROLLING STONE NO. 592, NOVEMBER 29, 1990, FROM AN INTERVIEW BY JONATHAM COTT. QUOTED WITH PERMISSION.

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SONY CORPORATION OF AMERICA NATIONAL OPERATIONS HEADQUARTERS SONY DRIVE, PARK RIDGE, NJ 07656 COMPACT DISC PLAYERS

direct track access; 3-way repeat; auto space; auto edit; timer play; music-calendar display; 3in-CD compatibility; remote control; Denon ISsystem control compatibility. FR 2-20,000 Hz ±0.2 dB; S/N 116 dB; dynamic range 100 dB; THD 0.0018%; ch sep 110 dB at 1,000 Hz \$750

LA-2000 Combi-Player

CD Changers

The following changers feature a bidirectional retracting-tray carousel design which allows 4 discs to be changed while one is playing.

DCM-520 5-Disc CD Changer

DCM-420 5-Disc CD Changer

8x oversampling, dual 18-bit D/A converters, 5disc carousel. Features coaxial digital output; volume-level memory for up to 100 discs; 20track programming for each disc; 5-way repeat; 3mode random playback; motor-driven volume control; FL status display; remote control; Denon



Denon DCM-520

DUAL CD-5150RC CD Player

4x oversampling, dual 16-bit D/A converters. Features motor-driven disc loading; digital output. Audible 3-speed forward/reverse scan; 20-track programming; disc/track repeat; random play; 3in-CD compatibility; headphone jack; 10-key remote control with direct-track access. FR 20-20,000 Hz ±1 dB; s/N 100 dB; dynamic range 95 dB. Black anodized finish

CD-1070RC CD Player

8x oversampling, dual 18-bit D/A converters. Features motor-driven disc loading; 3-beam laser

FISHER

DAC-145 5-Disc CD Changer/Turntable

AD-743 CD Player

8x oversampling, dual 16-bit D/A converters. Features 18-bit digital filter; 16-track programming; 2-mode repeat; 2-speed scan/search; 16-function remote control. FR 20-20,000 Hz \pm 0.5 dB; S/N 105 dB; ch sep 95 dB; THD 0.03% at 1,000 Hz. 17½ x 3½ x 11½ in; 6.8 lb \$250

DAC-7000 5-Disc CD Changer

Dual 1-bit D/A converters, 5-disc carousel. Features front-loading drawer; 32-track programming; random and repeat play; intro scan; 3-way program edit; 3-in-CD compatibility; FL display; wireless remote control. FR 2-20,000 Hz \pm 0.5 dB; s/N 90 dB; dynamic range 90 dB; ch sep 80 dB; distortion 0.07% \$200

HARMAN KARDON HD7600II CD Player

I-bit PWM D/A converter. Features separate power supplies for display, transport, analog, and digital sections; 3-beam laser pickup; optical and coaxial digital input/output; gold-plated fixed and variable analog outputs. 30-track programming; index search; A/B repeat; audible 2-speed cue/review; headphone jack; remote control \$679

TL8500 5-Disc CD Changer

HD7450 CD Player

I-bit PWM D/A converter. Features separate power supplies for display, transport, analog, and digital sections; 3-beam laser pickup. 30-track programming; audible 2-speed cue/review; remote control \$399

HD7400 CD Player

4x oversampling, dual 18-bit D/A converters. Features direct coupling from D/A converter to audio output jacks; 3-beam laser pickup. 36-track programming; audible 2-speed cue/review; remote control \$299

HITACHI VIPRY6EX Combi

VIP RX6EX Combi-Player

DAC-70SW 12-Disc CD Changer

DAC501 5-Disc CD Changer

8x oversampling 5-disc carousel. 32-track programming; one/all-disc random play; CD-to-tape auto edit \$300

DA8200SW CD Player

Features 3-beam laser pickup; 24-track programming: random play; 4-way repeat; FL display; remote control. Rosewood end caps \$280

JVC

All CD players and changers (except XL-R304TN) feature auto edit to organize CD tracks to fit a specified tape length, and 32-track 1-disc randomaccess programming.

XL-Z1050TN CD Player

Dual 1-bit PEM D/A converters. Features 4th-order noise shaping with 64x oversampling; K2 interface to eliminate signal ripple and jitter; independently suspended pickup-drive assembly; 3-beam laser pickup with 3-point suspension; separate power supply for digital circuitry; separate digital and analog circuitry; optical and coaxial digital outputs; headphone output with volume control. Index play; skip and search; 4 repeat modes; motor-driven volume control; Compu Link system compatibility; remote control. FR 2-20,000 Hz; THD 0.0014%; s/N 114 dB; ch sep 110 dB at 1,000 Hz. 17% x 4½ x 13½ in; 17 lb \$800

XL-G512NBK CD + G Player

XL-M705TN 7-Disc CD Changer

Dual 1-bit PEM D/A converters, 6-disc magazine plus auto-loading single tray. Features 4th-order noise shaping; 3-beam laser pickup with 3-point suspension; optical digital output; headphone output with volume control. Programmed edit; index play; auto/manual search; continue, program, delete-program, and magazine-program random-play modes; 10-character magazine/disctitle memory; 4 repeat modes; delete-program play; FL display; DDRP system to establish optimum recording level for compatible JVC cassette decks; 3-in-CD and Compu Link-system compatibility; remote control. FR 2-20.000 Hz; THD 0.0016%; s/N 111 dB; ch sep 94 dB at 1,000 Hz; dynamic range 99 dB at 1,000 Hz. 171/4 x 51/8 x 125/8 in; 12 lb \$480

XL-R304TN 5-Disc CD Changer

Dual 1-bit PEM D/A converters, 5-disc carousel. Features 4th-order noise shaping; 3-beam laser pickup with 3-point suspension; ability to change



XL-V241TN CD Player

KENWOOD

All players feature Kenwood's Digital Pulse Axis Control (DPAC) system to reduce jitter and its Computer-Controlled CD Recording System.

LVD-300 Combi-Player

DP-M7730 7-Disc CD Changer

l-bit D/A converter, 6-disc magazine plus single drawer. Features noise shaping; 20-track programming; timer play; random play; 42-magazine memory capacity supporting 8 characters per name, 6 discs per magazine; and 20 tracks per program per magazine; 20-key direct track access; 3-in-CD compatibility; 4-mode time display; remote control with LCD and 10-key direct access \$379

DP-R4430 5-Disc CD Changer

I-bit D/A converter, 5-disc carousel. Features 2nd-order noise shaping; 20-track programming; 4-mode time display; 20-track music calendar; random play; 3-in-CD compatibility; gold-plated headphone jack with level control; remote control \$299

DP-5030 CD Player

1-bit D/A converter. Features file memory to store programming sequences for 80 CD's with auto program recall upon disc insertion; program edit; 20-track programming; 20-key direct track access; 4-mode time display; timer play; random play; multifunction wireless remote control; 3-in-CD compatibility; optical digital output ... \$299

LUXMAN

The following components are compatible with Luxman's integrated-system remote control and carry a 5-year parts-and-labor warranty.

D-105U Tube CD Player

8x oversampling, dual 18-bit D/A converters. Features twin-triode vacuum-tube amplification in

DC-114 7-Disc CD Changer

DZ-111 CD Player

MAGNAVOX

CDV-305 CD Combi-Player

CDC552 5-Disc CD Changer

CDB502 CD Player

MARANTZ CD-11 Mk II CD Player

I-bit PDM D/A converter. Features 3rd-order noise shaping; professional all-alloy Radialinear floating die-cast single-beam laser pickup on magnetically-actuated swing arm; all-alloy die-cast copper-plated chassis for critical mechanical and electrical components; balanced XLR outputs; toroidal power supply. 195-disc favorite-track memory. FR 2-20,000 Hz ± 0.5 dB; s/N 110 dB; ch sep 90 dB; THD 0.002% \$2,500

CD-72 CD Player

1-bit D/A converter. Features 3rd-order noise shaping; professional all-alloy Radialinear float

MCINTOSH MCD 7007 CD Player

MELOS

CD-T Bitstream CD Player

l-bit D/A converter. Features dual-chassis vacuum-tube design; toroidal transformer-regulated power supplies in aluminum chassis; gold-plated Tiffany connectors. FR 20-20,000 Hz ± 0.2 dB; THD 0.07%; S/N 90 dB; output 3 V cont avg; output imp 100 ohms \$1,695

MERIDIAN

Model 208 CD Player/Preamplifier

Dual PDM bit-stream D/A converters. Features passive differential analog filters; high-stability master clock; high-speed tracking servo; computer-grade 4-layer circuit boards; two-box construction separating transport and electronics; analog preamp with 3 inputs and 64-step volume control; two optical digital outputs; coaxial digital output; analog input convertible to phono preamp with optional MC/MM board. LED display; lighted control keys; remote control. FR 20-20,000 H2; S/N 106 dBA; THD 0.004%. Matte-black finish with glass front. 12¼ x 4 x 12¼ in \$2,950

Model 206 CD Player

2-piece design with 4x oversampling, 16-bit D/A converters. Features physical and electrical iso-



lation between transport, power supply, and digital and analog electronics; passive analog filter; optical and coaxial digital outputs. Track skip; index search; continue button to restart CD at last location; multifunction display. 12½ x 4 x 12 in; 20 lb......\$1,990

MITSUBISHI

M-V6021 Combi-Player

1-bit D/A converter. Plays 3- and 5-in CD's and 8and 12-in videodiscs. Dual-side play; A/V output;

M-C4030 5-Disc CD Changer

M-C2050 CD Player

MOD SQUAD

Prism II CD Player

MUSEATEX

Melior CD Deck CD Player

NAD

Model 5000 CD Player

Model 5060 6-Disc CD Changer

Model 5425 CD Player

l-bit	MASH	D/A conver	rter. Feat	ures full	pro-
gram	mability	; low-imp	output;	remote	con-
trol .					\$299

NAKAMICHI

CDPlayer4 CD Player

8x oversampling, 18-bit D/A converter. Features linear-phase 3rd-order Bessel-type analog filtering; regulated power supply; isolated ground topology; floating disc-drive mechanism. 3-inCD compatibility: memory play; repeat play; system remote terminal; digital output terminal; headphone output with level control; wireless remote control. FR 5-20,000 Hz \pm 0.5 dB; S/N 100 dBA; THD 0.0035%; ch sep 95 dB. 17 x 4 x 12% in; 11 lb \$349

CD Changers

The following changers feature Nakamichi's MusicBank system, a fixed internal mechanism that accepts 6 discs and includes a single-disc tray.

CDPlayer1 7-Disc CD Changer

20-bit D/A converters. Features fully-discrete 3rdorder linear-phase Bessel analog filters; high-



rigidity 2-layer steel chassis; acoustic stabilizer reinforcement plate; coaxial digital output. FR 5-20,000 Hz ±0.5 dB; dynamic range 100 dB; S/N 105 dBA; THD 0.0025% at 1,000 Hz \$2,000

CDPlayer2 7. Disc CD Changer

CDPlayer3 7-Disc CD Changer

NIKKO

NCD 2500R 5-Disc CD Changer

NCD 910R CD Player

4x oversampling, 16-bit D/A converter. Fixed line inputs; 20-track programming; remote control; headphone jack. FR 20-20,000 Hz ± 3 dB; S/N 95 dBA; THD 0.07%. 7.3 lb \$169

NSM

CD 3101-AC 100-Disc CD Changer

Bitstream D/A converters. Requires PC or CD 3101-H (listed below). Features RS-232 computer

CD 3101-H CD Player

Bitstream D/A converters. Features controls for					
CD 3101-AC changer including storage and recall					
of 99 playlists; coaxial and optical digital outputs;					
analog output; random play. FR 20-20,000 Hz					
±0.1 dB; S/N 102 dB; THD 0.0015 \$500					
System 3101. Includes CD 3101-H and CD					
3101-AC					

ONKYO

The following components are compatible with Onkyo's RI integrated-system remote control.

Integra DX-708 CD Player

DX-C510 6-Disc CD Changer

DX-704 CD Player

DX-201 5-Disc CD Changer

DX-702 CD Player

OPTIMUS, BY RADIO SHACK SCT-50 CD/Cassette Player

CD-6200 5-Disc CD Changer

8x oversampling, dual 18-bit D/A converters, 5disc magazine. 32-track programming; random play; intro scan; auto search; 5-way repeat; headphone jack with volume control; 3-in-CD com-



CD-1760 CD Player

PANASONIC

LX-101 Combi-Player

SL-PC364 5-Disc CD Changer

I-bit MASH D/A converter, 5-disc carousel. Features high-speed linear-access system; 3-in-CD compatibility. 32-track programming; auto program edit; random and repeat play; bidirectional rotation for rapid disc access. FR 2-20,000 ± 1 dB; S/N 100 dB. 17 x 4% x 4% in; 10 lb \$220

SL-PG354 CD Player

PARASOUND

C/DX-98 5-Disc Changer

C/DX-88 CD Player

PHILIPS CDV-600 CD Combi-Player

CDV-400 Combi-Player

Model 875 7-Disc CD Changer

4x oversampling, 16-bit D/A converter, 6-disc magazine plus single-disc tray. Features aluminum front; metal chassis. 40-track programming with calendar-type display; favorite-track selection; random play; A/B repeat; scan play; remote volume control; headphone jack with volume control; remote control with LCD \$499

CD-40 CD Player

PIONEER

CLD-3090 Combi-Player

Dual 1-bit D/A converters. Features digital timebase corrector to reduce jitter; dual-side play. 3 sound-scan modes; S-video output; optical digital output; 2 A/V outputs: TV/monitor output; defeatable FL display; jog-and-shuttle control on remote and front panel; 24-chapter/track programming; auto program edit for CD-to-cassette recording; CD-deck synchro recording with select Pioneer cassette decks: peak-level search; last-picture memory; multispeed and still/step videodisc/CDV play; random play; 8-mode repeat play; 10-key direct-track/chapter access; CAV frame-number search; CLV time-number search; CD/CDV track/time search; intro track/ chapter scan; remote control. Audio: FR 4-20,000 Hz ± 0.2 dB; s/N 115 dB; dynamic range 99 dB; ch sep 105 dB; THD 0.0018%. Video: hor res 425 lines; S/N 50 dB. 165/8 x 51/8 x 171/4 in \$1,200

CLD-M90 Combi-Changer

I-bit D/A converter, 5-disc tray. Features simultaneous loading of 5 CD's and one videodisc; videodisc play without removing CD's; auto output-level matching for 5 CD's; defeatable video circuitry; 2 audio and 2 video outputs; TV/monitor output; RF adaptor out; auto program edit for CD-deck recording; one-disc, all-disc, and all-chapter random play; random and repeat modes; 10-key direct track/chapter access; CD-deck synchro recording with select Pioneer cassette decks; 3-speed dual-mode video scan; intro/highlight scan; 24-track/chapter programming; onscreen display; FL display; last-picture memory; remote control. Audio: FR 4-20,000 Hz ± 0.3 dB; S/N 112 dB; dynamic range 99 dB; ch sep 105 dB;



Pioneer Elite CLD-95

PD-TM1 18-Disc CD Changer

PD-7700 CD Player

PD-M650 6-Disc CD Changer

Elite Series CLD-95 Combi-Player

8x oversampling, dual 20-bit D/A converters. Features dual-side play; digital time-base corrector to reduce jitter; separate A/V circuits; brushless motor; S-video output; optical digital output; 2 A/V outputs. Random play; auto program edit; 8bit digital picture memory; one-shot memory; remote control with jog and shuttle \$2,000

PD-75 CD Player

Dual 1-bit D/A converters. Features Stable Platter Mechanism design to reduce disc vibration and wobble; separate power transformers for analog and digital circuitry; Class A FET buffer amp; discrete push-pull power supply; brushless spindle motor; copper-shielded crystal clock; copperplated chassis; optical digital output. Peak-level search; auto program edit to minimize unused space on cassette when dubbing; time-fade edit; highlight scan; 20-key direct-track access; motordriven output level; CD-deck synchro recording; delete, random, and delete-random play modes; defeatable FL display with 20-track music calendar; headphone output with motor-driven volume control. Urushi finish \$1,200 PD-41. As above, no discrete push-pull power supply, brushless spindle motor, copper-plated chassis, or Urushi finish \$600

PD1M95 6-Disc CD Changer

CLD-31 Combi-Player

PROTON

AC-425 5-Disc CD Changer

AC-422 CD Player

QUAD

Quad 66 CD Player

4x oversampling, D/A converters hand-selected for linearity/low noise. Operation from Quad 66 series control panel; RCA and coaxial digital outputs; remote control. FR 20-20,000 Hz ± 0.03 dB; THD 0.003%; dynamic range 98.7 dB; ch sep 121 dB at 1,000 Hz; s/N 112 dB. 12¾ x 3¼ x 10 in; 7.7 lb. \$1,200

QUASAR

LD500 Combi-Player

1-bit MASH D/A converter. Features precision aspheric glass pickup lens; magnetic disc-clamping mechanism; low-vibration low-cogging brushless direct-drive motor; digital time-base corrector; digital Y/C separation circuit. S-video output; 2 A/V outputs; RF input/output. Shuttle dial control; clear visual scan; edit function; intro scan; 20-track programming; 38-key remote control. \$650

CD891 5-Disc CD Changer

CD831 CD Player

4x oversampling, dual D/A converters. Features high-speed linear motor access system; 20-track programming; edit guide; FL display with music calendar; skip; search; repeat; 3-in-CD and remote control compatibility. FR 2-20,000 Hz ± 1 dB; s/N 96 dB. 14/x 3³/x x 11 in; 7.3 lb ... \$180

REVOX H2 CD Player

n2 CD Flayer

Dual 1-bit D/A converters. Auto selection of 50- or 15-µs de-emphasis; digital output; remote-con-



Revox H2

ROTEL RCD965BX CD Player

Dual 1-bit D/A converters. Features Philips PDM bitstream technology; power supply with large tuned power transformer; selected high-quality capacitors; analog and digital outputs. Track programming; random play; repeat; indexing; track search; remote control. FR 20-20,000 Hz ± 0.05 dB; S/N 100 dB; THD + noise 0.0025% at 1,000 Hz. 17% x 3% x 12½ in; 12.8 lb \$549

RCD955AX CD Player

SAMSUNG CD-44R CD Player

SANSUI CD-X711 CD Player

Four 1-bit D/A converters. Features 3rd-order noise shaping; free-floating suspension made of 4 oil-damped coiled-spring insulators; optical and coaxial digital outputs. 20-track random programming; random play; variable-time music scan; auto spacing; 4-mode repeat; auto program search; timer start; index search; defeatable FL display; multifunction remote control. FR DC-200,000 Hz ± 0.3 dB; THD.003% at 1,000 Hz; sNJ 103 dB. Black. 17 x 5 x 15% in; 22 lb ... \$1,200

CD-X617 CD Player

CD-X211 CD Player

CD-3100M 5-Disc CD Changer

CD-2700 CD Player

Four 1-bit MASH D/A converters. Features magnetic clamper in transport; springs and rubbercushioning pickup assembly support; single-lens laser, 16-track programming; 3-mode repeat; program search; 2-speed manual search; 10-key remote control. Black. 16⁷/₈ x 3⁷/₈ x 10⁴/₄ in; 8.1 lb. \$200

SANYO

CPM510 5-Disc CD Changer

CP791 CD Player

SHARP

MVD-2000 Combi-Player

DX-C1800 6-Disc CD Changer

DX-200 CD Player

2x oversampling, 16-bit D/A converter. Features 3-beam laser pickup. 20-track programming; program search; auto program locate; repeat; multi-



SHERWOOD

CDC-3010R 5-Disc CD Changer

CD-3010R CD Player

8x oversampling, dual 18-bit D/A converters. Features multiregulated power supply; 3-beam laser pickup. 20-track programming; random and repeat play; intro scan; auto space; music calendar display; gold-plated headphone jack with volume control; wireless remote control; Sherwood Digi-Link system remote-control compatibility. FR 20-20,000 Hz ± 0.5 dB; SN 103 dB; dynamic range 95 dB; ch sep 100 dB. 17/4 x 3/4x 9/2 in \$180

SONOGRAPHE, BY CONRAD-JOHNSON SD22 CD Player

Bitstream DA converter. Features discrete FET audio circuits and power supplies. Track/index cueing; scan; repeat; track-number and elapsedtime displays; wireless remote control. 18 x 3³/4 x 12 in; 8.5 lb \$895

SONY

MDP-333 Combi-Player

8x oversampling, dual D/A converters. Plays 3and 5-in CD's and 8- and 12-in videodiscs. Features comb filter; CAV/CLV-disc compatibility; auto videodisc-spindle disengagement upon stop button press to prevent warping; optical digital output; S-video output; headphone output with level control. Audio: music sensor; auto pause/ space; 6 repeat modes; intro scan. Video: dualmode scan with shuttle; 10x/30x forward/reverse scan for CAV discs; 11-speed fast/slow play, stillframe, and frame-by-frame for CAV discs; frame/ time search; auto chapter sensor, 20 track/chapter programming; 10-key direct track/chapter access; custom track/chapter indexing; remote control. Includes A/V connecting cords and RF adaptor. Audio: FR 4-20,000 Hz ±0.2 dB; S/N 112 dB; THD 0.002% at 1,000 Hz; ch sep 110 dB. Video: hor res 425 lines; S/N 48 dB. 17 x 43/8 x 153/4 in; 16.8 lb \$650

CDP-C910 10-Disc CD Changer

CDP-C715 5-Disc CD Changer

1-bit D/A converter, 5-disc carousel. Features digital signal processing with 7 soundfield presets; noise shaping; servo stabilizer; optical digital output; variable line output. 184-disc Custom File memory; 10-key direct access on unit; 20-key direct access on remote; 32-track programming; multidisc, time, and program edit modes; 7 repeat modes; random play; music calendar; peak-level search; headphone jack with volume control; remote control. FR 2-20,000 Hz ±0.3 dB; S/N 110 dB; distortion 0.003%. 17 x 41/8 x 151/8 in; 14.5 \$470 CDP-C615. As above, 5 DSP soundfield presets, no Custom File memory. FR 2-20,000 Hz ±0.5 dB; s/N 100 dB; distortion 0.004%. 13.2 lb . \$380 CDP-C515. As CDP-615, no DSP. FR 2-20,000 Hz ±0.5 dB; S/N 100 dB; distortion 0.005%. 17 x 47/8 x 151/8 in; 14.5 lb \$330

CDP-991 CD Player

Dual I-bit D/A converters per channel. Features noise shaping; servo stabilizer; aluminum frontpanel construction; optical digital output; variable line output. 185-disc Custom File memory for track selection and volume setting; 24-track programming; 20-key direct-track access from remote or player; index search; auto space; 8mode repeat; random/delete play; peak-level search; fader with adjustable fade time; 20-track music calendar; defeatable display; headphone jack with volume; remote control. FR 2-20,000 Hz ±0.3 dB; s/N 113 dB; distortion 0.0025%. 17 x 4/% x 13/% in; 10 lb.



CDP-491 CD Player

Dual 1-bit D/A converters per channel. Features noise shaping; servo stabilizer. 20-track music calendar; 5-mode repeat; 12-key direct-access programming; 2 custom-edit modes; random/delete play; headphone jack with volume; remote control. FR 2-20,000 Hz ±0.5 dB; S/N 100 dB; distortion 0.005%. 17 x 4¹/₄ x 11 in \$190

ES Series CDP-X777ES CD Player

CDP-X555ES CD Player

1-bit D/A converter. Features 45-bit processing; noise shaping; jitter-reduction circuitry; 2-transformer multiregulated power supply; optical digital output; variable line output. 185-disc Custom File memory; 20-key direct access; 24-track programming; 8 repeat modes; music scan; auto space; index search; random/delete play; fader control; peak-level search; 20-track music calendar; remote control. FR 2-20,000 Hz ± 0.3 dB; S/N

CDP-C87ES 5-Disc CD Changer

CDP-C90ES 10-Disc CD Changer

CDP-C67ES 5-Disc CD Changer

SOTA

Vanguard CD Player

Dual bit-stream D/A converters. Coaxial and optical digital outputs; fixed and variable output; line input. 30-track programming; repeat track/disc; Headphone output with level control; remote control. FR 20-20,000 \pm 0.2 dB; s/N 100 dB. 24 lb.....\$1,995

SYLVANIA

CD1552 5-Disc CD Changer

4x oversampling, dual 16-bit D/A converters, 5disc carousel. Features ability to change nonplaying discs while one is playing; 50-track programming; random play; 3-speed cue/review; 15-key wireless remote control. FR 2-20,000 Hz ± 0.5 dB; s/N 100 dB; dynamic range 90 dB; THD 0.015% at 1,000 Hz; IM 76 dB. 16½ x 4½ x 15 in \$300

CD1502 CD Player

4x oversampling, dual 16-bit D/A converters. Pivoting laser scanning assembly; 20-track programming; random play; 3-speed cue/review; headphone jack; 15-key remote control. FR 2-20,000

TEAC

AD-3 CD/Cassette Player

CD-P3000 CD Player

1-bit MASH D/A converter. Features 20-track programming; multifunction remote control. FR 1-20,000 Hz $\pm 0.5\%$ dB; s/N 105 dB; THD 0.002%; ch sep 100 dB. 17% x 4½ x 11% in; 9.5 lb ... \$310

PD-D700 5-Disc CD Changer

TECHNICS SL-PI300 CD Player

Four 1-bit MASH D/A converters. Separate digital and analog power supplies; high-speed linearmotor access system; optical and coaxial digital outputs; phono line output. Auto cue; A/B repeat; ±8% pitch control; 2-speed search dial; audible pause; rocker switch for mixing; cueing by CD time code; balanced outputs; skip keys; 2-speed audible search; track, disc, and program repeat; headphone jack with level control; cue search; remote control. 16/a x 6/a x 14/a in \$1,900

SL-PS900 CD Player

SL-PS700 CD Player

Four 1-bit MASH D/A converters. Features digital-servo laser-pickup system; linear motor transport; optical digital output. Function-management system for assigning functions to special keys. Peak-level search; time fade; auto space; synchro editing with select Technics cassette decks; random play; auto cue; headphone jack with volume; 30-key remote control with 10-key direct access. FR 2-20,000 Hz ± 0.3 dB; THD 0.0028% at 1,000 Hz, 0 dB; s:N 114 dB; dynamic range 98 dB. 17 x 5½ x 13½ in; 12 lb \$340

SL-PD807 5-Disc CD Changer

Four 1-bit MASH D/A converters, 5-disc drawer-

SL-PC505 5-Disc CD Changer

Four 1-bit MASH D/A converters, 5-disc toploading carousel. Features digital-servo laserpickup system; linear motor transport; dual-direction turntable. Sequential play and repeat; ability to change any nonplaying disc without interrupting play; direct disc access; all-disc random play; 32-track programming; 4 repeat modes; synchro edit with select Technics cassette decks; remote-control capability with select Technics receivers. FR 2-20,000 Hz ±1 dB; THD 0.009% at 1,000 Hz, 0 dB; s/N 100 dB; dynamic range 92 dB. 17 x 4¼ x 14¼ sin; 10 lb \$220

SL-PG300 CD Player

VECTOR RESEARCH VCD-410R CD Player

YAMAHA CDX-1050 CD Player

CDC-815 5-Disc CD Changer

Dual 1-bit D/A converters per channel, 5-disc carousel. Features ability to change 4 discs while 5th is playing; 2nd-order noise shaping: 2-way



Technics SL-PG300

digital servo tracking system; coaxial digital output. Classical, vocal, rock, jazz, and flat digital-EQ modes; 2-mode relay play for two CDC-815 changers; 100-disc program-and-EQ file to store and recall EQ setting and track order for each disc; 40-track programming; random play; all-disc direct track access: disc skin: index search: headphone jack; wireless remote control; RS-system compatibility. S/N 110 dB; dynamic range 100 dB. 171/8 x 41/4 x 151/4 in \$499 CDC-715. As above, without 2nd-order noise shaping, digital EQ, 2-mode relay play, or coaxial digital output. Features 100-disc program file. S/N 108 dB; dynamic range 98 dB. 171/8 x 41/4 x 151/4 in \$429

CDX-750 CD Player

Four 1-bit D/A converters. Features 2nd-order noise shaping; digital servo system; optical and coaxial digital outputs; gold-plated terminals; fixed/variable analog output. 100-disc program file; 3-mode tape edit; 10-key direct access; 4 repeal modes; random play; 25-track programming; index search; 3-mode music search; motordriven volume control; headphone jack with motor-driven level control; 4-mode time display; 31key RS-system-compatible remote control with volume. S/N 106 dB; dynamic range 100 dB \$399

CDC-615 5-Disc CD Changer

CDX-550 CD Player

CDX-450 CD Player

ZENITH LDP510 Combi-Player



TINFRS

ADCOM

GFT-555II AM/FM Tuner

Quartz-referenced digital-synthesis tuning with 8 AM/8 FM presets. Buffered output stages using Class A amplifier; 1% Roederstein metal-film resistors and metal-film capacitors. Auto up/ down scan; FL digital display; 5-LED signal-strength display; switchable high-blend circuit; mono/mute switch. THD 0.1% at 1,000 Hz; 50-dB quieting sens 36 dBf; S/N 78 dB stereo; FR 30-15,000 Hz ± 3 dB; cap ratio 1.7 dB; AM suppression 70 dB \$\$350\$

ARCAM

Delta 80 AM/FM Tuner

Analog tuner with 6 AM/FM presets. Features flywheel-assisted rotary knob; 3-color FM tuning indicator and logarithmically-scaled signalstrength meter; AFC and mono switches; digital frequency display. FM tuner: sens 1.4μ V; S/N 70 dB stereo; cap ratio 1.5. AM tuner: S/N 50 dB. Black. 17 x 2½ x 10½ in _______ \$699

AUDIO BY VAN ALSTINE

Transcendence Series Two AM/FM Tuner

AUDIO DESIGN ASSOCIATES MT-3000 AM/FM Tuner

Designed as 3 independent tuner modules, one AM and two FM, with 10 station presets per module for multiroom applications. Modules are interchangeable and upgradable for future shortwave, cable, and digital modules. Features digital-synthesis tuning with auto analog phase frequency detector; pulse inputs for remote control of each module and additional input to access all 3 modules and presets; stereo dynamic noise blend; 1 RF input per module; 1 line-level output per module and 1 for all-module access. 4-character title for each preset; mute; 120- or 220-V operation. 50-dB quieting sens 34 dBf stereo; cap ratio 1.4; AM rej 54 dB; alt-ch sel 80 dB; ch sep 50 dB at 1,000 Hz; S/N 69 dB stereo; FR 30-50,000 Hz ±0.5 dB; THD 0,09% at 1,000 Hz stereo. 19 x 31/2 x 11 in; 8 lb \$2,500

AUDIOSOURCE

Tnr-One AM/FM Tuner

Quartz-PLL tuner with 20-station memory pre-

B&K COMPONENTS TS-108 FM Tuner

Digital-synthesis tuner with 8 presets. Features programmable selectivity; mono/stereo and local/Dx switches. Cap ratio 1.5 dB; signal-strength 15 dBf mono, 36 dBf stereo; sens 10.8 dBf mono, 12.8 dBf stereo; stereo sep 55 dB. 17 x 2½ x 9 in; 10 lb. \$398

CAMBRIDGE AUDIO T50 AM/FM Tuner

Features 8 AM/16 FM presets; manual scan; auto sweep search. FM sens $1.8 \,\mu$ V; s/N 75 dB mono, 70 dB stereo. 1674 x 31/4 x 127/6 in; 9 lb \$350

CARVER

TX-11b AM/FM Tuner

TX-12 AM/FM Tuner

TX-10 AM/FM Tuner

Digital quartz-synthesis tuner with 20 AM/FM station presets. Features asymmetrical charge-coupled FM circuit; wide/narrow bandwidth selector; preset scan; digital signal-strength meter; indoor AM/FM antenna. Sens 23.5 dBf IHF stereo; cap ratio 1.6 dB; AM rej 72 dB; alt-ch sel 58 dB; THD 0.2% at 1,000 Hz stereo; s/N 74 dB stereo. \$300

CREEK AUDIO, BY MUSIC HALL T40 FM Tuner

140 PM IUN

DAY SEQUERRA FM Reference FM Tuner

Analog tuner. Features 100-Hz tuning accuracy; multiple IF processors with variable Q circuitry; selectable IF bandwidths; absolute-phase and phase-compensation circuitry; dual-mono balanced outputs; oscilloscope display\$4,800

DENON TU-660 AM/FM Tuner

Quartz-lock digital tuner with 30 station presets. Features switchable wide/narrow IF bandwidth; switchable AM filter. Manual-step tuning; laststation memory. FM section: 50 dB sens 37.2 dBf stereo; cap ratio 1.3 dB; FR 20-15,000 Hz +0.5, -1 dB; S/N 80 dBA stereo; THD 0.1% stereo; sep 50 dB at 1,000 Hz; wide IF 50 dB, narrow IF 75 dB. AM section: FR 85-7,500 Hz +1.5, -3 dB wide IF; S/N 53 dB \$330

TU-460 AM/FM Tuner

Quartz-lock digital tuner with 30 station presets. Features last-station memory; auto scan tuning; manual step tuning; RF-attenuator switching. FM section: 50-dB quieting sens 15.3 dBf mono, 38.5 dBf stereo; S/N 82 dB mono, 78 dB stereo; cap ratio 1.5 dB; sep 45 dB at 1,000 Hz \$240

HAFLER

Iris FM Tuner

SE130 AM/FM Tuner

HARMAN KARDON

Citation Twenty-Three AM/FM Tuner

TU9600 AM/FM Tuner

TU9200 AM/FM Tuner

Digital-synthesis quartz-locking design with 16 AM/FM station presets. Hi-blend circuitry; seek and manual up/down tuning; rear-panel remote jack \$229

JVC

FX-1100BK AM/FM Tuner

PLL tuner with 40 AM/FM presets. Features micro-

Hafler SE130



KENWOOD KT-5020 AM/FM Tuner

MARANTZ

ST-50 AM/FM Tuner

M c I N T O S H MR-7083 AM/FM Tuner

MTX SOUNDCRAFTSMEN Pro-Tuner Four AM/FM Tuner

MUSEATEX

Melior FM Tuner



Museatex Melior

NAD

Model 4225 AM/FM Tuner

14 random AM/FM presets. Features IF filters; switchable blend circuit. s/N 75 dB \$249

NAKAMICHI ST-7 AM/FM Tuner

NIKKO NT 150 AM/FM Tuner

Digital-synthesis FM design with 24 station presets. IHF sens 11.2 dBf mono; signal strength 28 dBf mono, 47 dBf stereo; cap ratio 2 dB wide; AM rej 55 dB; alt-ch sel 60 dB wide; sep 38 dB at 1,000 Hz; THD 0.4% mono, 0.6% stereo at 1,000 Hz with 100% modulation; S/N 15 dB mono, 36 dB stereo. 6 lb \$129

ONKYO

Grand Integra T-G10 FM Tuner

Integra T-909011 FM Tuner

Integra T-4700 FM Tuner

40 station presets. 4-mode proprietary auto precision reception system with manual override; 7varactor/MOSFET RF section; Isohex power supply; dual antenna inputs; variable output. 6category classified scan with programmable alphanumeric ID; full or category preset scan; FM

Integra T-407 FM Tuner

PARASOUND T/DO-260 II AM/FM Tuner

Quartz-referenced PLL digital-synthesis tuner with 8 AM/8 FM presets. Features regulated power supply; scan/manual tuning; mono switch. 50-dB quieting sens 37.7 dBf; alr-ch sel 66 dB; THD 0.05% mono, 0.1% stereo; FR 20-15,000 Hz \pm 0.5 dB; cap ratio 1.2 dB. 17¼ x 2½ x 9½ in ... \$295

PHILIPS FT-50 FM Tuner

PIONEER

Elite F-93 AM/FM Tuner

Digital Direct Decoder type IV tuner with 40 AM/ FM presets. Features spectrum simulated stereo; MPX NR (auto/mono); IF band switch; rotary tuning; direct access; 100-kHz step FM and 10-kHz step AM variable fine tuning; digital signal meter; RF attenuator; auto search level; preset scan; variable/fixed output; random preset; antiresonance honeycomb design. Urushi finish \$900

Elite F-51 AM/FM Tuner

Digital Direct Decoder type IV tuner with 36 AM/ FM presets. Features spectrum simulated stereo; MPX NR (auto/mono); IF band switch \$350

PROTON

AT-670 AM/FM Tuner

Quartz-PLL tuner with 9 AM/18 FM presets. Features Schotz II circuitry with NR; 5-gang GASFET RF amp. Variable output level; mono/stereo switch; wide/narrow IF bandwidth switching; auto/manual rotary tuning. Remote controllable. FM section: 50-dB quieting sens 3.2 μ V mono, 30 μ V stereo; cap ratio 1.0 dB at 45 dBf; AM rej 65 dB; SN 83 dBA mono, 74 dBA stereo at 65 dBf; stereo sep 45 dB at 1,000 Hz. AM section: sel 50 dB; SN 45 dB at 10 mV. 18½ x 4¼ x 15½ in \$400

AT-470 AM/FM Tuner

8 AM & FM presets; mono switch \$220

QUAD

Model 66 FM Tuner

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FM4 FM Tuner

eren

Designed for use with Quad 34 preamplifier. Features microprocessor control with auto muting and frequency control; 8 presets; switchable $50/75 \mu s$ de-emphasis; signal strength and centerchannel tuning bar-graph display; 5-yr memory backup. Distortion 0.05% mono, 0.1% stereo; cap ratio 2.5 dB; sel 53 dB; image rej 80 dB; IF rejection 100 dB; FR 20-15,000 Hz + 0, -1 dB; crosstalk 40 dB at 1 kHz; pilot-tone suppression 60 dB. Gray finish. 8 x 1% x 5% in; 6 lb ... \$795

REVOX

H6 FM Tuner

Features 35 station presets and Radio Data System compatibility. Auto tuning at 50,000 Hz and selectable IF bandwidths. IF rej 110 dB; S/N 80 dB; AM rejection 72 dB; distortion 0.07 % \$2,290

ROTEL

RT970BX AM/FM Tuner

Features separate regulators for stereo decoder; active filters; regulated power supplies; adjustable bandwidth. FM section: 50-dB quieting sens 37.2 dBf stereo; s/N 75 dB; FR $30\text{-}15,000 \text{ Hz} \pm 0.5$ dB; cap ratio 1 dB; alt-ch sel 60 dB wide, 80 dB narrow. $17\% \times 2\% \times 13$ in; 8.6 lb \$399

RT950BX AM/FM Tuner

SANSUI TU-X711 AM/FM Tuner

TU-X111 AM/FM Tuner

Quartz-synthesis PLL tuner with 20 station presets. Features numeric keypad for station recall; preset scan. Usable sens 10.8 dBf; 50-dB quieting sens 14 dBf mono; THD 0.15% mono, 0.2% stereo; si N 98 dB mono, 91 dB stereo; alt-ch sel 60 dB wide, 75 dB narrow. Black. 17 x, 3 x 11 in. . \$250

SONY ST-S730ES AM/FM Tuner

ST-S730ES AM/FM Tuner

FR 15-15,000 Hz ± 0.2 dB mono, ± 0.5 dB stereo; S/N 82 dB mono, 78 dB stereo; THD 0.04% mono, 0.05% stereo; sens 10.3 dBf/0.9 μ V mono; sel 80

0 STEREO REVIEW FEBRUARY 1992

SOUNDSTREAM T-1 AM/FM Tuner

SUMO

Aurora AM/FM Tuner

TECHNICS

ST-G460 AM/FM Tuner

Quartz-synthesis tuner with 39 AM/FM presets. Features DC circuit construction; DC linear switching MPX filter; 19,000-Hz pilot signal auto canceler; wide-band quadrature detector. Multifunction FL display; switchable FM mode. FM section: sens 10.8 dBf; 50-dB quieting sens 38.1 dBf stereo; THD 0.1 stereo; S/N 73 dB stereo; FR 4-18,000 Hz + 0.5, -1.5 dB; alt-ch sel 65 dB; cap ratio 1.0; image rej 55 dB; AM rej 55 dB; stereo sep 50 dB at 1,000 Hz

YAMAHA TX-950 AM/FM Tuner

TX-550 AM/FM Tuner

TX-350 AM/FM Tuner

TURNTABLES

ARISTON

m

Icon II Semiautomatic Turntable

Q-Deck Mk II Semiautomatic Turntable

Belt-drive. Features remote power supply; antistatic mat; 4 isolating feet. 33¹/₃- and 45-rpm play speeds; w&F 0.08%; rumble 75 dB \$369

BANG & OLUFSEN

Beogram 4500 Automatic Turntable

Beogram 9500 Turntable

Beogram TX-2 Automatic Turntable

CARRERA

LT-120 Automatic Turntable

Belt-drive. Features linear tonearm. 33¹/- and 45rpm play speeds; w&F 0.05%; rumble 69 dB; recommended tracking force 1.25-3 g \$170

CT-1155 Semiautomatic Turntable

DENON

The following Denon turntables are microprocessor controlled and employ a Dynamic Servo Tracer tonearm.

DP-59L Semiautomatic Turntable

DP-47F Automatic Turntable

Direct-drive with thick wood base. Features flattwin design. w&F0.01%; S/N 78 dB; speed accuracy 0.002% \$450

DP-23F Automatic Turntable

W&F 0.02%; S/N 75 dB \$275

DP-7F Automatic Turntable

P-mount design. W&F 0.018%; S/N 75 dB; speed accuracy 0.01%. Black finish \$200

DÚAL

Golden-1 Semiautomatic Turntable

Features 24-karat gold-plated metal components; gyroscopic gimbal tonearm with low-mass track-

CS-750S Semiautomatic Turntable

Belt drive. Features microprocessor-controlled quartz drive mechanism; aluminum tonearm. 33½-, 45-, and 78-rpm play speeds; S/N 80 dB; W&F 0.014% wrms. Cartridge not included \$750

CS-5054S Semiautomatic Turntable

CS-450G Semiautomatic Turntable

CS-431S Semiautomatic Turntable

CS-410S Semiautomatic Turntable

ESOTERIC SOUND V3 Manual Turntable

Vintage Semiautomatic Turntable

JVC

AL-A155TN Semiautomatic Turntable

LINN

LP12/Lingo Turntable

Separate direct-coupled power supply. Features low noise oscillators; separate drive for both motor phases; isolated power supply. 33½- and 45-rpm play speeds.....\$2,740

LP12/Valhalla Manual Turntable

Axis Manual Turntable

Basik Turntable

Two-speed version \$595

NUMARK

TT1600 Manual Turntable

Direct-drive. Features quartz synthesis and phase-lock-loop circuit; remote starting; digital speed display; $33\frac{1}{3}$ - and 45-rpm play speeds. 17%x 5 x $14\frac{1}{8}$ in; 26 lb. \$709

ONKYO

CP-1500F Automatic Turntable

CP-1200A Semiautomatic Turntable

OPTIMUS, By RADIO SHACK

LAB-2250 Automatic Turntable

LAB-460 Automatic Turntable

Belt drive. Features aluminum die-cast platter; straight-pipe tonearm; dual-magnet cartridge; diamond stylus; 2 speeds. w&F 0.1%; S/N ratio 55 *URNTABLES*

ORACLE

100

The following turntables do not include tonearms.

Delphi MK IV Manual Turntable

Belt-drive. 33¹/₂- and 45-rpm play speeds; variable speed control; adjustable spring-suspension; record-coupling system. Includes strobe disc. Silver. 19 x 14¹/₂ in; 28 lb\$1,995

Alexandria Mark IV Manual Turntable

Belt-drive. 33¹/₂- and 45-rpm play speeds; variable speed control; adjustable spring suspension; record-coupling system. Includes strobe disc. Black piano finish. 19¹/₄ x 14¹/₈ in; 19 lb...\$1,195

Paris Manual Turntable

PIONEER

Elite PL-90 Automatic Turntable

PL-600 Automatic Turntable

Belt-drive. Features DC servomotor with stablehanging rotor; statically-balanced straight tonearm; universal MM type cartridge; 0.6-mil diamond stylus. 33%- and 45-rpm play speeds; w&F 0.06%; s/N 68 dB. 16% x 3% x 14 in \$140

REALISTIC, By RADIO SHACK

LAB-340 Semiautomatic Turntable Belt drive. Features straight tonearm; dual-mov-

ing-magnet cartridge; die-cast aluminum platter; 0.6-mil diamond stylus. w&F 0.15%; tracking error + 3° , -1° ; s/N 45 dB; rec tracking force 2.5 g; effective tonearm length 203 mm. 13% x 4 x 137/ in; 5.8 lb. \$100

REVOLVER, By Music Hall

Revolver Turntable

Revolver Rebel Turntable

REVOX

H9 Direct Drive Turntable Tangential-tracking design featuring Linatrack tonearm. Features $\pm 9.9\%$ pitch adjustment in 0.01% increments; compatibility with H8, H208, and H210 remotes. Tracking force 0.8-2 g; tangential tracking error 0.5%. 17¼ x 5½ x 15½; 20.1 lb. 52,890

SANSUI

P-1100 Semiautomatic Turntable

Belt-drive design with P-mount cartridge; aluminum platter; cueing control. s/N 72 dB. 16^{1/2} x 3³/k x 13 in; 8.8 lb \$100

SOTA

The following turntables are upgradable, run at 33¹/s and 45 rpm, and are belt driven. Each features a 1-piece 11.2-lb cast platter in a unified suspension system, a platter pivol point turning at its center of gravity, and a brushless DC motor. Runble 60 dB at 1,000 Hz; w&F 0.04% wrms. 7¹/₂ x 20¹/₄ x 16¹/₂ in; 44 lb.

Cosmos Turntable

Nova Turntable

Star Turntable

TECHNICS

SL-1200MKII Manual Turntable

Direct-drive design with gimbal-suspended tonearm. Features quartz control; brushless DC motor; aluminum die-cast cabinet; antiresonant viscoelastic base. ± 8% quartz-locked pitch control; quick start/stop; pop-up stylus light; tonearmheight adjustment. 33¹/₃- and 45-rpm play speeds; w&F 0.025%. \$600

SL-QD33 Automatic Turntable

Direct-drive 2-motor design. Features P-mount cartridge; quartz lock; ultra-low-speed brushless DC motor for platter drive; pivoting arm; end-ofdisc detection; soft-touch front-panel controls; strobe. Remote-control compatible with select Technics receivers. 33%- and 45-rpm play speeds; W&F 0.012%; rumble -78 dB; effective tonearm mass 7.5 g, length 230 mm; max tracking error $\pm 2^{\circ}$. 17 x 4% x 14% in; 10 lb \$220

SL-L20 Automatic Turntable

Belt-drive linear-tracking design. Features Pmount cartridge; front-panel soft-touch controls;

SL-DD22 Semiautomatic Turntable

THORENS, By BLR ELECTRONICS

All Thorens turntables are belt-driven units with straight tubular tonearms for maximum rigidity. They feature gimbal suspension, anti-skate control, 9.12-in effective tonearm length, and tracking $error < 0.18^{\circ}/cm (< 0.46^{\circ}/in)$.

TD 520 Semiautomatic Turntable

TD 320 MK II Semiautomatic Turntable

TD 318 MK II Semiautomatic Turntable

TD 280c MK II Semiautomatic Turntable

WELL TEMPERED LABS The Well Tempered Classic Turntable

Belt-drive design with 0-clearance-bearing fluiddamped arm. Features 3-layer MDF base construction; vertical tracking and azimuth controls; isolated damped motor assembly. Fountainhead base.....\$2,875

The Well Tempered Record Player

Belt-drive design with 0-clearance-bearing fluiddamped arm. Features 3-layer MDF base construction; vertical tracking, antiskate, and azimuth controls; isolated damped motor assembly. Glossy finish \$1,195



ACOUSTAT

Spectra 6600 Electrostatic Speaker

SPEAKERS

ACOUSTIC RESEARCH

M6 3-Way Speaker

TSW 610-B 3-Way Speaker

Acoustic-suspension design with 12-in woofer, $6\frac{1}{2}$ -in midrange, and $\frac{3}{4}$ -in titanium liquid-cooled dome tweeter. Tetra-Helix tweeter mounting plate and acoustic lens. Power handling 20-200 W; FR 40-40,000 Hz + 0, -3 dB; sens 90 dB sPL/ W/m; imp 4-8 ohms; crossovers 700 and 5,000 Hz. $14\frac{1}{2}$ x $32\frac{7}{8}$ x $13\frac{3}{8}$ in; 57 lb ea \$1,000/pr

TSW 410-B 3-Way Bookshelf Speaker

AR Subwoofer/Satellite System

M4 3-Way Speaker

Acoustic-suspension design with 6-in polypropylene woofer, 6-in paper cone midrange, and $\frac{3}{4}$ in ferrofluid-cooled dome tweeter. Power handling 20-150 W; FR 50-20,000 Hz + 0, -3 dB, sens 88 dB SPL/W/m; crossover points 100 and 3,600 Hz; imp 4 ohms. Charcoal-gray vinyl finish. 7³/₄ x 28¹/₈ x 15¹/₄ in; 26.5 lb ea. \$599/pr

TSW 210-A 2-Way Bookshelf Speaker

Powered Partner 420 2-Way Speaker

Powered 4-in long-throw woofer and 2-in liquidcooled tweeter. Features magnetic shielding; selectable input impedance. Input imp 10,000 or 120 ohms; FR 90-20,000 Hz \pm 0, -3 dB; crossover point 5,000 Hz. Amplifier: 10 W from 60-20,000 Hz. ABS plastic case and cloth grille. 6 x 10⁴x x 7⁴ in; 5 lb \$275/pr

M1 2-Way Speaker

Acoustic-suspension design with 6-in polypropylene woofer and $\frac{1}{4-in}$ ferrofluid-cooled dome tweeter. Power handling 10-100 W; FR 65-20,000 Hz +0, -3 dB; sens 88 dB SPL/W/m; crossover point 3,600 Hz; imp 4 ohms. Charcoal-gray vinyl finish. $\frac{7}{4}$ x 10% x 11¼ in; 12 lb ea \$249/pr

A/D/S/

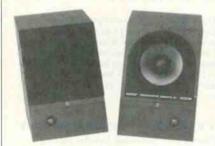
M20 3-Way Speaker

Two 8-in copolymer woofers, one 6-in copolymer midrange, and 1-in copolymer dome tweeter. Features butyl rubber surrounds and OFC voice coils. Auto solid-state protection; multiway binding posts; dual-tuned band-pass design. Biwirable. Power handling 20-250 W; FR 23-22,000 Hz ± 3 dB; sens 91 dB SPL/W/m; nom imp 4 ohms; crossovers 24 dB/octave at 200 and 2,500 Hz. Rosewood or matte black finish with mesh-steel grille. 10³/₈ x 43¹/₄ x 16¹/₂ in; 88 lb 54,000/pr

SAT6 2-Way Speaker

L400e 2-Way Speaker

Acoustic-suspension design with 7-in Stifflite woofer and 1-in copolymer tweeter. Features aluminum enclosure (black-textured urethane with convex-steel grille). Power handling 100 W



Acoustic Research M-1

L200e 2-Way Speaker

Acoustic-suspension design with 4-in Stifflite woofer and 1-in copolymer tweeter. Features brushed-aluminum enclosure (textured urethane with convex-steel grille). Power handling 50 W cont; FR 85-20,000 Hz ± 3 dB; crossover 12 dB/ oct at 2,000 Hz; sens 86 dB spt/W/m; imp 4 ohms. Wall mountable. 4½ x 6% x 8% in \$400/pr

Model 300i/s 2-Way In-Wall Speaker

5¼-in copolymer woofer and 1-in copolymerdome tweeter in minimum diffraction-baffle en

Subwoofer Systems SW5 Powered Subwoofer

12-in subwoofer with active crossover network and dedicated 350-W amp. Linkwitz-Riley crossover with adjustable crossover points; output level control \$1,000 ea

SUB6 Subwoofer

6½-in dual-voice-coil woofer in dual-tuned bandpass enclosure. Features passive high/low-pass crossover. Compatible with L200e speaker. Available in black or white finish. 19 x 8½ x 8 in ______\$295 each sector.

ADVENT

Advent Laureate 2-Way Speaker

Dual 6½-in woofers and one 1-in ferrofluid-filled parabolic soft dome tweeter. Power handling 125 W cont; sens 90 dB W/m; nom imp 6 ohms; crossover point 3,000 Hz; THD 1% above 80 Hz at 1 W, 1.5% above 100 Hz at 10 W; resonance 50 Hz ± 3 Hz. Oiled solid pecan wood finish. 9 x 37% x 12 in; 46 lb \$\$550/pr

Advent Gallery 2-Way In-Wall Speaker

Mini-Advent Subwoofer II/Satellite System

Features 2 Mini-Advent speakers and bass module with two 5¼-in aluminum-coil woofers and ½in polycarbonate ferrofluid-filled hard dome tweeter. Power handling 40 W cont; FR 110-21,000 Hz \pm 3 dB; sens 91 dB W/m; imp 6 ohms; satellite crossover point 4,500 Hz; THD 1.5% above 200 W at 1 W. Black-textured vinyl over fiberboard. 15½ x 13 x 18¼ in; 10 lb \$290

Advent Baby II 2-Way Bookshelf Speaker

ALLISON

IC-10 3-Way Speaker

Triangular-shaped acoustic-suspension tower with two 8-in push-pull woofers, two 3½-in convex midranges, and two 1-in convex tweeters. Features adjustable radiation pattern options; separate biamping inputs for woofers, midranges,



SPEAKERS

and tweeters; auto-resetting polyswitches in each crossover; ³/₄-1¹/₄-in-thick cabinet panels braced front to back and between panels; glass-fiber damped interior. Power handling 200 W; crossover points 350 and 3,750 Hz; sens 87 dB sPL/W/ ch; nom imp 6 ohms. Walnut or black veneer finish. 48 x 21 x 12 in; 73 lb \$2,500/pr

AL-120 2-Way Speaker

MS-205 Subwoofer/Satellite System

3-piece system with 8-in subwoofer and two MS-200 speakers. Power handling 100 W \$550

AL-115 2-Way Speaker

ALTEC LANSING

Model 510 3-Way Speaker

AHT-2100 3-Way In-Wall Speaker

Model 515 3-Way Speaker

Model 315 3-Way Speaker

System 3 Subwoofer/Satellite System

Model 215 3-Way Speaker

ITW 260 Subwoofer

Model 105 2-Way Bookshelf Speaker

ITW 265 2-Way In-Wall Speaker

 $\begin{array}{l} 6\frac{1}{2}\text{-in woofer and }\frac{3}{4}\text{-in polyester dome tweeters.}\\ \text{Power handling 40 W nom, 100 W max; FR 40 Hz-}\\ 20,000 Hz \pm 3 dB; sens 90 dB; imp 6 ohms; crossover 12 dB/oct at 3,500 Hz. 8\% x 11\% x 3\% in $$300/pt. $$300/pt. $$300/pt. $$300/pt. $$$

Model 115 2-Way Speaker

Acoustic-suspension design with 6-in woofer and 1-in dome tweeter. Power handling 50 W nom, 100 W max; FR 50-20.000 Hz ± 3 dB; sens 91 dB. Black or walnut wood-grain vinyl \$275/pr

APOGEE

Duetta Signature 2-Way Ribbon Speaker

Stage 2-Way Ribbon Speaker

Trapezoidal woofer ribbon and midrange/tweeter ribbon. Features internal crossover. Power handling 150 W cont avg; FR 35-20,000 Hz; sens 107 dB SPI/W/m; imp 3 ohms. Anthracite with basswood or mahogany trim, taupe with mahogany trim. 26 x 36 x 2 in; 60 lb ea \$2,395/pr

Centaur 2-Way Ribbon Speaker

Hybrid design featuring 8-in long-throw polypropylene woofer and dipole midrange-tweeter ribbon in acoustic-suspension enclosure. Power handling 150 W cont avg; FR 38-20,000 Hz; sens 107 dB sPL/W/m; imp 5 ohms. Black grille with agate or walnut fascia. 15 x 46 x 11 in; 65 lb ea. \$1,595/pr

ATLANTIC TECHNOLOGY

Pattern 200 Surround Sub/Sat System Subwoofer with dual 8-in long-throw woofers, 5 satellites each with two 3-in drivers, 6-channel 120-W amplifier, and Dolby Pro Logic decoder. Features 4 attached pivoting dual-enclosure satellites; I dual-enclosure center-channel satellite; biamplification for subwoofer and satellites; magnetic shielding; wireless remote control; theater compensation for bright soundtracks; 30-ms digital delay; dynamic EQ/limiter to protect subwoofer and enhance bass at low levels; 1 highand 3 line-level inputs with auto source selection; test signal for center- and surround-channel balancing; individual volume for subwoofer, center, and surround channels; master volume control. FR 38-20,000 Hz ± 3 dB \$1,200/sys

Pattern 100 Powered Sub/Sat System

Vented subwoofer with dual 61/2-in woofers, 2 satellites each with two 3-in drivers, and 60-W amplifier. Features rotating dual-enclosure satellites; biamplification for subwoofer and satellites; magnetic shielding; satellite mounting brackets. Amplifier features dynamic EQ/limiter to protect subwoofer and enhance bass at low levels; I highlevel and 3 line-level inputs with auto source selection; dual-mode connectors for RCA and miniplug inputs; ± 6 dB bass control. FR 38-20,000 Hz ± 3 dB \$479/sys

AUDIOSOURCE

SW Three Subwoofer

Bass-reflex design with 12-in downward-firing dual-voice-coil driver. Features crossover network. Power handling 150 W; FR 25-160 Hz; sens



Atlantic Technology Pattern 100

VS-1 2-Way Speaker

Ported design with two 4-in woofers and one 1-in ferrofluid-cooled dome tweeter. Features magnetic shielding. Power handling 50 W; FR 70-20,000 Hz; sens 93 dB SPL/W/m; imp 8 ohms. Wood composite with matte-black finish and metal grille. $5\frac{1}{8} \times 13\frac{1}{4} \times 5\frac{1}{2}$ in; 8.8 lb ... \$100 ea

AVID

Model 232CP 3-Way Speaker

AXIOM

AX 5 3-Way Speaker

10- and 5-in woofers and 1-in dome tweeter. FR 29-22,000 Hz ±2 dB; sens 87 dB; imp 4 ohms; crossover points 180 and 3,000 Hz. Dark, natural, or black oak finish with black knit grille. 12 x 36 x 12 in; 80 lb/pr. \$1,699/pr

AX Subwoofer

Two 10-in woofers and active crossover. FR 29-120 or 29-250 Hz ± 3 dB; sens 87 dB; imp 4 ohms; selectable crossover points 120 and 250 Hz. Dark, natural, or black oak finish with black knit grille. 15 x 33 x 16 in; 80 lb ea \$1,099 ea

AX 2 2-Way Speaker

AX 1.5 2-Way Bookshelf Speaker

B & W

Matrix 801 Series 2 3-Way Speaker

Matrix 804 3-Way Speaker

Bass-reflex design with one 6½-in Cobex-cone woofer, one 6½-in Kevlar cone bass/midrange, and one 1-in ferrofluid-cooled metal-dome tweeter. Features bass-alignment filter. Power handling 50-200 W; FR 31-20,000 Hz ± 2 dB; sens 89 dB SPL/W/m; imp 8 ohms. Black-ash, oak, rosewood, walnut veneer, or semi-gloss black/white. 10¼ x 36% x 10¼ in; 43 lb \$2,200/pr

CM2 Matrix Mini 3-Way Speaker

CM1 2-Way Bookshelf Speaker

Acoustic-suspension design with 5-in Kevlar woofer and 1-in metal dome tweeter. Features matrix construction. Power handling 50-120 W; FR 90-20,000 Hz ± 1.5 dB; sens 85 dB SpL/W/m; imp 8 ohms. White/black semi-gloss or graymatte Nextel finish. 6% x 9% x 8% in ... \$800/pr

DM 310 2-Way Speaker

4th-order bass-reflex design with 7¹/₄-in woofer and 1-in metal-dome tweeter. Biwirable and biamplifiable. Power handling 25-100 W; FR 70-20,000 Hz ± 2 dB; sens 90 dB SPL/W/m; imp 8 ohms; crossover 2,500 Hz. A nthracite, black ash, or walnut finish. 10¹/₄ x 18¹/₄ x 8¹/₄ in ..., \$500/pr

CWM 8 2-Way In-Wall Speaker

BANG & OLUFSEN

Beolab 3000 Powered Wall Speaker Bass-reflex design with 55-W amp in each cabinet, 5-in woofer and 1-in dome tweeter. Features

auto bass-level switching; auto turn on/off with B&O Beolink system; digital display of source, volume, and recording status. Power handling 45 W cont; FR 75-20,000 Hz; sens 87 dB SPL/W/m; crossover point 3,500 Hz; imp 8 ohms. Amplifier: FR 20-20,000 Hz; THD 0.1%; S/N 97 dBA. Finished in brushed stainless steel with blue or gray grille cloth. 17³/ x 21¹/ x 3 in; 20 lb ea..... \$1,700/pr

Beovox 3000 2-Way Speaker

RL 35 2-Way Bookshelf Speaker

IWS 2000 2-Way In-Wall Speaker

B-I-C AMERICA

Venturi V830 3-Way Speaker

Venturi V820 2-Way Speaker

Venturi V620 2-Way Speaker

6-in woofer and $\frac{3}{4}$ -in polylaminate soft-dome tweeter. Power handling 10-120 W; FR 49-20,000 Hz - 6 dB at 43 Hz; sens 90 dB SPL/W/m; nom imp 8 ohms; crossover point 3,000 Hz. 9 x 22 $\frac{3}{2}$ x 11 $\frac{3}{4}$ in; 24 lb ea. \$329/pr

Venturi M6 2-Way In-wall Speaker

Venturi V62 2-Way Bookshelf Speaker

BOSE

Model 901 Concerto Speaker

Direct/reflecting Acoustic-Matrix design with active EQ and 8 rear- and front-facing 4½-inch fullrange drivers. Features pentagon-shaped cabinet

Acoustimass 5 Series II Sub/Satellite System

Compact modular system with Acoustimass bass module and 2 magnetically-shielded direct/reflecting cube satellite speakers. Each cube features 2 separate enclosures adjustable for direct or reflecting configuration. Bass module features two 5¼-in drivers. Auto protection circuitry. Power handling 100 W cont. Optional wall/ceiling mount brackets. Black or arctic white finish. 5year warranty. Cube: 3% x 6% x 4% in. Bass module: 7% x 14 x 19 in; 33 lb \$799/sys

Model 401 2-Way Speaker

Column-type direct/reflecting enclosure with two 6-in woofers and 2-in magnetic liquid-cooled tweeter. Features stereo space array design; thermal protection circuit. Power handling 100 W cont avg; nom imp 4 ohms. Walnut- or blackvinyl finish. 5-year warranty. 12 x 30 x 12 in; 31 lb ea. \$599/pr

Model 6.2 2-Way Bookshelf Speaker

Model 301 Series II Bookshelf Speaker

Ported direct/reflecting two-way design with 8-in woofer and two 3-in tweeters. Features dualfrequency crossover; tweeter-protection circuit. Power handling 75 W cont avg; imp 8 ohms; Walnut-grain or black-vinyl finish. 5-year warranty. 10½ x 17 x 9½ in; 18.5 lb ea \$399/pr

Model 4.2 2-Way Bookshelf Speaker System

RoomMate Powered Speaker

BOSTON ACOUSTICS

T1030 3-Way Speaker

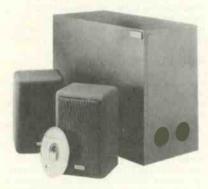


Boston T6 Subwoofer/Satellite System

6-piece system with 5 satellites, including one for center-channel, and PV12 PowerVent bass module. Each satellite features one 4-in copolymer woofer/midrange, one $\frac{3}{4}$ -in dome tweeter, and two 6½-in subwoofers. Power handling 15-100 W; FR 46-20,000 Hz ± 3 dB; imp 8 ohms; crossover points 130 and 3,500 Hz. White or black-ash vinyl veneer. Satellite: 8 x 4½ x 4½ in; 4 lb ea. Bass module: 13½ x 7½ x 16½ in; 17 lb \$900/sys

SubSat Six Subwoofer/Satellite System

Three-piece system with compact subwoofer with 2 drivers in scaled and vented chambers and 2 satellites each with one 4-in midrange and one ¼-in ferrofluid-cooled tweeter. Power handling



Cambridge SoundWorks Ensemble II

T830 3-Way Speaker

Model 360 2-Way In-Wall Speaker

PowerVent 300 Subwoofer

Two $6\frac{1}{2}$ -in woofers with configurations for mounting to floor or ceiling joists. Features one vented and one sealed chamber. Power handling 15-100 W; sens 89 dB W/m; imp 8 ohms stereo, 4 ohms mono; crossover point 140 Hz. $7\frac{1}{4}$ x $13\frac{1}{2}$ x 24 in \$400 ea

HD9 3-Way Speaker

Model 404v Full-Range Speaker

Two 4-in drivers in magnetically shielded cabinet. Power handling 5-50 W; FR 100-17,000 Hz \pm 3 dB; sens 90 dB W/m; imp 8 ohms. Black-ash vinyl with black grilles. 5% x 17 x 6½ in \$150 ea

CAMBER

Camber 4.5ti 2-Way Speaker

Camber LS9 2-Way Speaker

Acoustic-suspension design with two $6\frac{1}{2}$ -in woofers and $\frac{3}{4}$ -in ferrofluid-damped titanium dome tweeter. Power handling 250 W cont; FR 38-22,000 Hz ± 3 dB; sens 91 dB sPL/W/m; imp 8 ohms. 8 x $35\frac{1}{2}$ x 11 in; 55 lb ea \$599/pr

Camber LS-SUB Subwoofer

Camber 2.0ti 2-Way Speaker

Bass-reflex design with 6½-in woofer and ½-in titanium-dome tweeter. Biwirable. Power handling 125 W cont; FR 55-20,000 Hz ± 2 dB; sens 90 dB sPL/W/m; imp 8 ohms. 9 x 16½ x 11¼ in; 22 lb ea. \$429/pr

Camber LS-1AV 2-Way Speaker

CAMBRIDGE PHYSICS G-66 II 3-Way Speaker

Two 8-in polycone woofers, 3-in dome midrange, and 1-in ferrofluid-cooled dome tweeter. FR 26-22,500 Hz; sens 92.5 dB; crossover points 450 and 4,000 Hz. 18 x 44 x 12 in; 90 lb ea \dots \$1,000 ea

G-11 II 2-Way Speaker

8-in polycone woofer and 1-in dome tweeter. Power handling 100 W cont; FR 44-22,500 Hz; sens 90 dB; imp 6 ohms; crossover point 1,500 Hz. 12 x 19½ x 8½ in; 20 lb ea \$400/pr

K-5 2-Way Speaker

CAMBRIDGE SOUNDWORKS

Ensemble Subwoofer/Satellite System 3-way subwoofer/satellite system consisting of 2

The Surround Speaker

Dipole radiator in acoustic-suspension enclosure with one 4-in woofer and two 3-in terrters. Features THX certification; separate enclosures for each driver. High-frequency drivers wired out of phase and mounted on side of each cabinet. Gray Nextel or primer finish.......\$399/pr

CANTON

Ergo 120 4-Way Speaker

Karat 980 3-Way Bookshelf Speaker

Plus E Subwoofer

Fonum 600 3-Way Speaker

Karat 920 2-Way Bookshelf Speaker

GL 300 F 2-Way Speaker

Acoustically tuned for wall mounting. Longthrow 6¼-in cone woofer and 1-in fabric dome tweeter. Power handling 60 W cont avg; FR 48-30,000 Hz; imp 4 ohms; crossover point 1,700 Hz; sens 87.3 dB spL/W/m. Permafix spring clamps; 5-m connecting cable; removable grille. 8¼ x 13¼ x 3¼ in; 8 lb. \$500/pr

In-Wall 6 2-Way Speaker

6-in woofer and ½-in aluminum/manganese-dome tweeter. FR 45-22,000 Hz; imp 8 ohms; sens 89 dB SPL/W/m; crossover point 2,500 Hz. White, brass or chrome grille. 7 x 3 x 7 in; 5 lb ea \$450/pr

CARVER

The Amazing Loudspeaker, Silver Edition

1½-in-thick planar design with 40-in full-range ribbon driver and integral subwoofer section consisting of 3 long-throw 12-in-cone woofers. Power handling 600 W; FR 23-40,000 Hz +0, -3 dB; sens 89 dB; SPL 119 dBA max. Black piano finish. 22 x 54 x 10 in (at base); 75 lb ea \$2,300/pr Oiled oak-veneer finish\$1,900/pr

CELESTION

Celestion 600 Si 2-Way Speaker

6½-in Cobex woofer and copper-dome tweeter. Features aerolam sealed enclosure with aluminum honeycomb construction and figure-8 brace. Biwirable. Dark-gray Nextel finish ... \$1,999/pr

Celestion 100 2-Way Speaker

Celestion SL-6 Si 2-Way Speaker

Celestion 11 3-Way Bookshelf Speaker

Vented design with 6-in woofer, 4¹/₂-in midrange, and 1-in tweeter. FR 48-20,000 Hz \$599/pr

Celestion 5 2-Way Bookshelf Speaker

CERWIN-VEGA

Q-1 2-Way Speaker

DX-9 3-Way Speaker

Bass-reflex design with 15-in woofer, $6\frac{1}{2}$ -in cone midrange, and 1-in dome tweeter. Features push terminals; self-resetting tweeter protection. Power handling 5-400 W cont avg; FR 30-20,000 Hz \pm 3 dB; sens 101 dB W/m; imp 4 ohms; crossovers 12 dB/oct at 250 and 5,000 Hz. Scuff-resistant woodgrain vinyl. 18 x 36 x 18 in; 85 lb ea... \$555 ea

AT-15 3-Way Speaker

DX-7 3-Way Speaker

Bass-reflex design with 12-in woofer, 6¹/₂-in cone midrange, and 1-in dome tweeter. Features push

terminals; self-resetting tweeter protection. Power handling 5-255 W cont avg; FR 34-20,000 Hz ± 3 dB; sens 98 dB W/m; imp 4 ohms; crossovers 12 dB/oct at 250 and 5,000 Hz. Scuff-resistant woodgrain vinyl. 15 x 34 x 15 in; 64 lb ea... \$410 ea

SW-12B Subwoofer

Vented design with 12-in floor-facing woofer on die-cast aluminum frame with 7-lb magnet. Power handling 5-125 W; sens 92 dB W/m. Woodgrain vinyl finish. 13¼ x 25½ x 16¼ in; 48 lb .. \$320 ea

L-9 2-Way Speaker

CLEMENTS

Classic Series CCS800 2-Way Speaker

Little d Wood 2-Way Speaker

Compression-line bass-loaded design with 5¼-in polypropylene cone woofer and 5-in.direct-inductance planar-ribbon midrange/tweeter. Features 3rd-order woofer slope. Power handling 20-100 W; FR 42-40,000 Hz ± 3 dB; sens 87 dB sPL/W/m; imp 6 ohms; crossover point 2,400 Hz. Oak or black finish. 8 x 17 x 11½ in \$1,199/pr

DAHLQUIST DQ-28 3-Way Speaker

Vertical decoupled phase array design with 8-in Kevlar/paper-cone woofer, 4-in polypropylene midrange, and $\frac{1}{10}$ -in metal-alloy dome tweeter. Features 2nd-order Dahlquist/3rd-order hybrid vented alignment. Min power handling 30 W; sens 91 dB W/m; crossover points 470 and 3,000 Hz; system bandwidth -6 dB at 37 and 27,000 Hz; pair-matching accuracy $\pm \frac{1}{2}$ dB; imp 6 ohms \$1,350/pr

DQ-8 2-Way Speaker

DQ-6c 2-Way Speaker

DCM

TimeWindow Three 3-Way Speaker

Folded transmission-line design with 8-in cone woofer, 6^{1/2}-in cone midrange, and two ^{3/4}-in softplastic dome tweeters. Features time-coherent point-source configuration; acoustic antidiffraction lenses; adjustable treble and midrange levels; narrow/wide image control. Power handling 10-500 W cont avg; FR 24-20,000 Hz; sens 90 dB spt/W/m; imp 8 ohms. Oak finish with fabric grille. 16/4 x 39/4 x 12/4 in; 45 lb \$1,499/pr

TimeFrame TF600 3-Way Speaker

TripleTime Subwoofer/Satellite System

TimeFrame TF275 2-Way Speaker

CX-17 2-Way Bookshelf Speaker

DEFINITIVE TECHNOLOGY

BP20 2-Way Speaker

Bipolar system featuring symmetrically concentric driver arrays on front and rear baffles. Two 1in aperiodic dome tweeters and four 6%-in mineral-filled polymer woofers. Features computermodeled transmission-line tuning; phase-coherent Linkwitz-Riley crossover network. Power



Dahlquist DQ-6c



BP10 2-Way Speaker

DR7 2-Way Speaker

DENNESEN

Dennesen Class A 3-Way Speaker

Slot-loaded bass module/electrostatic hybrid design with 10-in downward firing woofer, $6\frac{1}{2}$ -in midrange, and four 3-in electrostatic tweeters. Features phase correction; time alignment. Power handling 200 W cont; FR 25-35,000 Hz ± 2.5 dB; sens 90 dB SPLW/m; imp 8 ohms. OileddB; sens 90 dB SPLW/m; imp 8 ohms. Oiledwalnut finish. 14 x 54 x 12 in; 80 lb ... \$3,500/pr

Dennesen Class B 2-Way Speaker

Electrostatic hybrid design with 6¼-in woofer/ midrange and four 3-in electrostatic tweeters. Power handling 200 W cont; FR 35-20,000 Hz; sens 89 dB SPL/W/m; imp 8 ohms. Oiled-walnut finish. 14 x 48 x 8 in; 60 lb \$1,600/pr

DESIGN ACOUSTICS

PS-10A 3-Way Speaker

PS-3 Subwoofer/Satellite System

PS-9 3-Way Speaker

PS-6A 2-Way Speaker

Acoustic-suspension design with 6½-in woofer and ¼-in ferrofluid-cooled soft-dome tweeter. Features magnetic shielding; acoustically treated baffle. Power handling 10-100 W; crossover point

DESKTOP

DYNACO

FL-525 2-Way In-Wall Speaker

51/4-in polypropylene woofer and 1-in soft-dome tweeter with high-pass filter. Features waterproof diaphragms. Power handling 70 W; FR 68-20,000 Hz; sens 90 dB SPL/W/m; nom imp 5 ohms; crossover point 3,000 Hz. Flush-mounting hardware included; optional bracket for new construction. Matte-white grilles and trim ... \$250/pr

Amazing Bass Subwoofer

Magnetically shielded tuned-port design with 8-in dual-voice-coil subwoofer. Power handling 100 W max; FR 20-150,000 Hz ± 3 dB; sens 90 dB SPL/ W/m; imp 8 ohms; crossover point 150 Hz. Blackmatte finish. Five-year limited warranty. I3 x 16½ x 8¼ in; 15 lb. \$150 ea

A20 Type II 2-Way Bookshelf Speaker

DYNAUDIO

Special One 2-Way Speaker

Aperiodic design with 6½-in woofer and 1-in dome tweeter. Features Esotar 330D high-frequency transducer; special magnetic fluid; largecoil and polypropylene capacitors. Power handling 50 W min; imp 4 ohms; crossover slope 6 dB/oct. Rosewood finish with black knit grille. 9 x 16 x 11 in; 22 lb \$\$2,500/pr

Contour 1 MK II 2-Way Speaker

Aperiodic design with $6\frac{1}{2}$ -in woofer and 1-in dome tweeter. Imp 4 ohms. Rosewood finish with black-knit grille. 9 x 14 x 11 in; 17 lb . . \$1,800/pr

Audience 102-Way Speaker

ELECTRO-VOICE Sentry 100A 2-Way Speaker

Vented design with 8-in direct-radiated woofer and dome tweeter. Features 4th-order Butterworth tuning; 12-dB/oct passive crossover; treble control. Power handling 30 W cont avg; FR 45-18,000 Hz ± 3 dB; sens 91 SPL/W/m; imp 6 ohms; crossover point 2,000 Hz. Optional mounting

S-40 2-Way Speaker

Vented design with 5¼-in polypropylene woofer and 1-in ferrofluid-cooled soft-dome tweeter. Features protection circuit; flexible tinsel-lead wiring. Power handling 160 W cont avg; FR 85-20,000 Hz ± 3 dB; sens 85 dB SPL/W/m; imp 4 ohms; crossover point 3,500 Hz. Optional mounting brackets. Available in black or white. 7 x 9¼ x 5½ in; 5.7 lb ea. \$280

ENERGY

Model 22.3 3-Way Speaker

Front-vented design with spherex front baffle supporting two 6^{1/2}-in woofers and one ^{1/4}-in dualhyperdome tweeter. Biamplifiable; adjustable spiked feet. Power handling 150 W cont avg; FR 30-23,000 Hz; sens 87 dB SPL/W/m; imp 6 ohms. Walnut or black-ash veneer finish with black cloth grille. 10 x 40 x 16 in; 67 lb ca ... \$2,000/pr

Model 22.1 2-Way Bookshelf Speaker

Model 4. le 2-Way Speaker

Energy Satellite Speaker

Designed for surround-sound systems. 2-way acoustic-suspension design with 4½-in spherex cone woofer and ¾-in cloth dome tweeter. Magnetic shielding; sculpted spherex baffle. Power handling 125 W cont avg; FR 140-22,000 Hz ± 3 dB; sens 84 dB SPL/W/m; crossover 2,500 Hz; nom imp 6 ohns. 5 x 8 x 5 in; 5 lb ea... \$349/pr

Energy Subwoofer

Energy Center Channel

Designed for surround-sound systems. Dualvented design with two 4½-in woofers and one $\frac{1}{2}$ in polycarbonate flared-dome tweeter. Features magnetic shielding; sloped-baffle mounting. Power handling 100 W cont; FR 60-22,000 Hz ± 3 dB; sens 86 dB SPL/W/m; crossover point 2,500 Hz; min imp 8 ohms. Black-ash vinyl veneer with black cloth grille. 6 x 20 x 8 in \$169 ea

EPI

Model 120 Series 3 3-Way Speaker

ESS

AMT-Monitor 2-Way Speaker

12-in-cone passive radiator, 12-in cone woofer, and Heil air-motion transformer tweeter with mylar diaphragm. Power handling 35-400 W cont avg; FR 28-23,000 Hz \pm 3 dB; sens 91 dB SPL/W/ m; imp 6 ohms. Oiled walnut or black walnut finish. 18½ x 41 x 12 in; 82 lb ea \$1,298/pr

PS-1222 3-Way Speaker

PS-922 2-Way Bookshelf Speaker

8-in woofer, rear-mounted 8-in passive radiator, and Heil air-motion transformer tweeter-midrange. Power handling 5-125 W cont avg; FR 38-23,000 Hz \pm 1 dB; sens 91 SPL/W/m; imp 6 ohms. High-gloss black finish. 11½ x 22 x 11½ in; 38 lb ca. \$498/pr

PS-722 2-Way Bookshelf Speaker

FISHER

STV-910 2-Way Speaker

FOCUS

Model .7 High-Definition 2-Way Speaker

Model .5 High-Definition 2-Way Speaker

FOSGATE · AUDIONICS

MC 220 Home-Theater Speaker System

Left, center, and right speakers, each featuring 2nd-order crossover with dual midbass/midrange drivers and dual tweeters. Designed to improve dialogue reproduction and stereo imaging. For use with FS200 subwoofer via an active cross-



Genesis Servo 12 and Servo 10

FS 200 Subwoofer

SD 180 Dipole Surround Speaker

LF 212 Subwoofer

AS 820 2-Way In-Wall Speaker

LF 280 In-Wall Subwoofer

FRIED

R/4 3-Way Speaker

A/3a 2-Way Speaker

Vented design with 8-in polypropylene woofer and 1-in dome tweeter. Features multilayer damping. Power handling 25-100 W cont avg; FR 32-20,000 Hz ± 3 dB; imp 8 ohms; sens 89 dB. Walnut-veneer finish. 13 x 23 x 10¹/₂ in ... \$688/pr

Q/4 2-Way Speaker

Vented design with 8-in polypropylene woofer and 1-in dome tweeter. Multilayer damping. Power handling 25-100 W cont; FR 37-20,000 Hz ± 3

Beta IV 2-Way Bookshelf Speaker

GENESIS

Genesis III 3-Way Speaker

IM 8300 3-Way Speaker

Servo 12 Powered Subwoofer

GOODMANS OF ENGLAND Model 440 3-Way Speaker

Model 110 2-Way Speaker

Bass-reflex design with $8\frac{1}{100}$ in woofer and 1-in tweeter. Imp 4-8 ohms; power handling 100 W cont; sens 98 dB SPL/W/m; FR 60-20,000 Hz. Black-vinyl finish. $20\frac{1}{100} \times 10\frac{1}{100} \times 11\frac{1}{100}$ in . \$499 ea

Maxim 2 3-Way Speaker

B-Max Subwoofer

HARTLEY

The Reference Tower 2-Way Speaker



SW-24 Subwoofer

HOME THEATER PRODUCTS

Model 5350S Surround Speaker System

Model 62 2-Way Surround Speaker

HUGHES

Orb-2 2-Way Speaker

4-in fiber woofer and ¼-in silk tweeter. Features patended wide-dispersion baffle for 180° lateral dispersion; magnetic shielding. FR 70-22,000 Hz ±3 dB; sens 89 dB W/m; nom imp 4 ohms; crossover point 3,000 Hz. Black or white finish. 6½ x 10¼ x 9% in \$399/pr **Orb-1.** As above, ½-in polycarbonet tweeter. FR 55-22,000 Hz ±3 dB; sens 88 dB W/m; crossover point 4,500 Hz. Black finish\$299/pr

Baser-1 Subwoofer

Two 8-in fiber woofers. Features patented Acoustic Piston Chamber to synchronize drivers. FR 30-80; sens 89 dB W/m; nom imp 4 ohms. Black or white finish. 8½ x 15 x 22½ in.. \$379 ea

ICON ACOUSTICS

Icon Parsec 3-Way Speaker

10-in graphite-impregnated woofer, 6½-in polypropylene midrange, and 1-in metal-dome tweeter. Features crossovers with polypropylene and polystyrene capacitors; AudioQuest internal wiring; 2 pairs of gold-plated biwirable 5-way binding posts. Power handling 50-350 W cont avg; FR 25-22,000 Hz ± 3 dB; sens 87 dB SPL/W/m; imp 8 ohms; crossover points 350 Hz and 1,500 Hz. Available in braced cabinets with walnut, oak, or black-oak veneer finishes. Optional carpet spikes. 12 x 47 x 16 in; 95 lb ea \$1,795/pr

Icon Lumen 2-Way Bookshelf Speaker

INFINITY

IRS Beta 5-Way Speaker

Includes (per side) four servo-controlled 12-in woofers, each with polypropylene/graphite injection-molded cones; 2 upper bass/midrange planar push-pull drivers that act as dipole; low-mass EMIT transducer with neodymium magnets for upper midrange; low mass/neodymium EMIT's from IRS V (in dipole configuration) for lower treble; SEMIT (smaller aperture EMIT) which extends response beyond 44 kHz; Monster Cable internal wiring. The system operates in bi-amp mode and includes IRS V servo control unit; active and passive crossover control. Power handling 75 W/ch min; FR 25-44,000 Hz ±2 dB; sens 87 dB spL/W/m; imp 4 ohms; crossover points 70, 700, 4,000, and 8,000 Hz. Santos finish, black cloth grille. Woofer module: 161/2 x 643/4 x 141/2 in; mid/tweeter module: 17 x 64¼ x 1 in; base footprint 18 x 17 in; 483 lb \$11,950/sys

SSW-10 Servo Subwoofer

Renaissance Series Renaissance 90 4-Way Speaker

10-in dual-voice-coil woofer, 6-in midbass coupler, planar midrange, and planar tweeter. Power range 75-400 W cont avg; FR 27-45,000 Hz \pm 3 dB; sens 87 dB SPL/W/m; nom imp 4 ohms; crossover points 200, 600, and 3,000 Hz. Black high-gloss finish. 17/4 x 49 x 12½ in\$3,800/pr With oak or limited-edition finish.....\$3,200/pr

Renaissance 80 3-Way Speaker

Kappa Series

7 Kappa 3-Way Speaker

12-in woofer, 3-in dome midrange, and EMIT k tweeter. Monster Cable internal wiring. Power handling 40 W cont avg min; FR 37-45,000 Hz; sens 88 dB SPL/W/m; imp 4 ohms; crossover points 800 and 4,500 Hz. 17 x 37 x 12 in; 138 lb per pair \$1,298/pr



Infinity Renaissance 80

Modulus System Modulus Powered Subwoofer

modulus rowered Subwooler

Modulus 2-Way Bookshelf Speaker

Sealed design with 5-in graphite woofer and EMIT tweeter. Features tweeter control; wall bracket/self-damping isolation mounting plate. Power handling 25 W min; FR 82-45,000 Hz + 0, -3; sens 84 SPL/W/m; imp 4 ohms; crossover 4,000 Hz. Wall/pedestal mount. Optional lacquer finish; black grille. 7 x 12 x 11 in \$1,000/pr

Reference Series

Reference Six 4-Way Speaker

Sealed-box design with 6- and 10-in woofers, 5-in cone midrange, and EMIT R tweeter. Power handling 35 W min; FR 35-40,000 Hz \pm 3 dB; sens 90 dB SPL/W/m; imp 6 ohms; crossovers 200, 1,500, and 4,000 Hz. Black or oak vinyl finish with black cloth grille. 13 x 40 x 14 in . \$1,000/pr

Reference Four 3-Way Speaker

Sealed-box design with 8-in woofer, 5-in cone midrange, and EMIT R tweeter. Power handling 25 W min; FR 44-40,000 Hz ±3 dB; sens 90 dB SPL/W/m; imp 6 ohms; crossover points 400 and 4,000 Hz. Black or oak vinyl finish with black cloth grille. 11 x 31 x 10 in; 82 lb pr ... \$600/pr

Reference Two 2-Way Speaker

Sealed-box design with 8-in woofer and 1-in dome tweeter. Power handling 15 W min; FR 50-25,000 Hz ±3 dB; sens 90 dB SPL/W/m; imp 6 ohms; crossover 3,000 Hz. Black or oak vinyl finish with black cloth grille. 11 x 18 x 10 in \$350/pr

SM Series

SM 102 2-Way Speaker

Ported design with 10-in woofer and 1-in dome tweeter. Power handling 10 W min; FR 65-25,000 Hz ± 3 dB; sens 100 dB SPL/W/m; imp 8 ohms; crossover point 3,300 Hz. Vinyl finish with black grille. 12 x 21 x 12 in; 68 lb pr\$558/pr

SM 62 2-Way Surround-Sound Speaker

Ported design with 6½-in polypropylene woofer and ¼-in dome tweeter. Power handling 10-100 W; FR 78-25,000 Hz \pm 3 dB; sens 94 dB SPL/W/m; imp 8 ohms; crossover point 5,000 Hz. Black walnut, or rosewood vinyl finish with black cloth grille. 8 x 13¼ x 13½ in; 26 lb pr \$278/pr

Environmental Reference Standard Series ERS 800 2-Way In-Wall Speaker

8-in graphite woofer and EMIT k tweeter; tweeter control. Power handling 20 W min; FR 45-45,000 Hz; sens 89 dB SPL/W/m; imp 4 ohms; crossover point 3,500 Hz. Beige ABS finish with metal grille. 11 x 16 x 4 in; 17 lb pr....\$552/pr

ERS 400 In-Wall Speaker

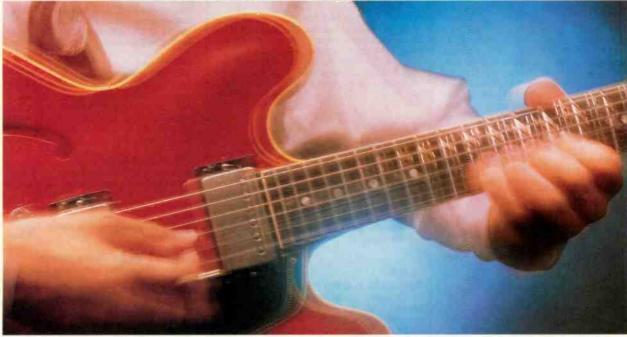
Glass-filled ABS baffle. Power handling 30 W cont avg; FR 90-15,000 Hz; sens 85 dB SPL/W/m; nom imp 4 ohms. Steel-mesh grille. 6¼-in-square mounting space. Baffle: 7 x 7 x 2½ in ... \$160/pr

Infinitesimal Series

Infinitesimal Micro Sub/Sat System

Bass module with 8-in dual voice-coil subwoofer; satellite with 3½-in cone midrange and ¾-in dome

Our Speakers Are So Sensitive, You Can Hear The Subtleties Of People Who Communicate With Their Hands.



Music, quite simply, is a mood-altering substance. With that in mind, we've built our DX loudspeakers on the belief that the more you hear, the more you'll feel.

Consequently, our DX midrange is designed to achieve such natural presence and



clarity, you'll feel every stretch and strum in a guitar solo. Perhaps it's because of

our midrange voice coil, in which we've used an aluminum "former" to dissipate heat. Or the free-edge

surround that ingeniously dampens cone movement. Then again, maybe it's our distortion-free crossover network. The com-

bined result is a loudspeaker with the highest power handling and widest

dynamic range of anything you might hear in the demo

room. Of course, the DX also has something else you won't hear in other

loudspeakers.

Cerwin-Vega bass. Which for over 35 years has been the ultimate mover and shaker in audio.

In fact, the DX-9 takes bass response all

the way down to an earth-shaking 25Hz. All of which is encouragement to drop

by a Cerwin-Vega dealer and listen closely to our DX loudspeakers. And see how a totally instrumental piece of music

can actually speak to you.



ADX loudspeaker can make a room the size of, say, an outhouse, sound very much like an opera house.

©1991 Cerwin-Vega, Inc., 555 East Easy Street, Simi Valley, CA 93065 805-584-9332 Cerwin-Vega Canada, 2360 MIdland Avenue, Unit 21, Scarborough, Ontario MIS 4A9 Cerwin-Vega Europe, Grynderupvej 12, P.O. Box 40, DK-9610 Norager, Denmark CIRCLE NO. 38 ON READER SERVICE CARD



JAMO

Concert V 3-Way Speaker

Bass-reflex design with $6\frac{1}{2}$ -in polypropylene woofer, $6\frac{1}{2}$ -in midrange, and 1-in super-alloy dome tweeter. Features overload protection. Biwirable. Power handling 110 W; sens 88 dB SPL/ W/m; FR 30-22,000 Hz ± 3 dB; crossover points 150 and 3,500 Hz; imp 6 ohms. Light-walnut, mahogany, or black-ash finish. 14 x $3\frac{1}{2}$ x 11 in; 42 lb \$649 ea

Concert II 2-Way Bookshelf Speaker

CL-30A 3-Way Speaker

Subwoofer Series

SW-300 Subwoofer

Adjusted bass-reflex design with two 8-in subwoofers in push-pull configuration. 24-karat goldplated screw terminals; bass-level control. Power handling 100 W; FR 30-200 Hz; sens 90 dB spt/W/ m; imp 8 ohms; crossover point 200 Hz. Black or white finish. 8% x 131/4 x 18% in; 30 lb... \$399 ea

SAT-300 2-Way Bookshelf Speaker

4-in polypropylene woofer and ¼-in polypropylene dome tweeter. Features round baffle edges; 24-karat gold-plated screw terminals. Power handling 50 W; FR 80-20,000 Hz; sens 90 dB SPL/W/ m; imp 8 ohms; crossover point 3,500 Hz. Black or white finish. 5% x 8 x 3 in; 3 lb \$129 ea SW-300 System. Two SAT-300 satellites and one SW-300 subwoofer. Available in black or white finish. 5699/sys

SW-100 Subwoofer

Modified bass-reflex design with two 6½-in woofers in push-pull configuration. Power handling 100 W; FR 35-200 Hz; sens 90 dB SPL/W/m; crossover point 200 Hz; imp 8 ohms. Black or white finish. 13½ x 7½ x 1½% in; 29 lb ... \$349 ea

S-100 2-Way Bookshelf Speaker

4-in woofer and 2-in cone tweeter. Power handling 50 W; FR 80-20,000 Hz; crossover point 4,500 Hz; imp 8 ohm. Black or white finish; mounting kit included. 5¼ x 7% x 3¼ in ... \$99 ea **SW-100 System**. Two S-100 satellites and one SW-100 subwoofer. Black or white \$499/sys

Lifestyle Series

Atmosphere 2-Way Speaker

Bass-reflex design with 5¼-in woofer and 1-in dome tweeter. Features overload protection; standard low-voltage halogen light with UL-approved transformer and separate on/off switch. Includes special wall bracket allowing 360° rotation. Power handling 60 W; FR 40-20.000 Hz; sens 88 dB; imp 8 ohms; crossover 3,000 Hz. Black or white finish. $14\frac{1}{2} \times 10\frac{1}{2} \times 7$ in . . \$399 ea

Art 2-Way On-Wall Speaker

Converta 2-Way Speaker

JANIS

Janis System 3a Powered Subwoofer

JBL

Model 250 Ti 4-Way Speaker

HP520 3-Way Speaker

Dual 8-in woofer in band-pass enclosure, frontmounted 5-in midrange, and 1-in tweeter on neoprene-treated baffle. 7-sided tower-shaped enclosures. Power handling 20-200 W; nom imp 4 ohms. Black wood-veneer finish with black glass top and grille. 14% x 39 x 12% in \$795 ea

Prose P50 3-Way Speaker

Prose P30 3-Way Bookshelf Speaker

8-in woofer, 5-in midrange, and 1-in tweeter. Power handling 10-80 W; nom imp 8 ohms. Walnut wood-grain finish with charcoal grille. 10% x 21¼ x 10% in\$225 ea

S-4 2-Way In-Wall Speaker

L Series

L7 4-Way Speaker

L3 2-Way Speaker

8-in composite cone die-cast woofer and 1-in titanium-dome tweeter. Power handling 250 W max; FR 35-27,000 Hz; sens 89 dB SPL/W/m; imp 8 ohms. Black-ash veneer finish. 30 lb \$425 ea

L1 2-Way Speaker

6¹/₂-in polymer-laminate die-cast woofer and 1-in titanium-dome tweeter. Power handling 200 W max; FR 45-27,000 Hz; sens 87 dB SPL/W/m; imp 8 ohms. Black-ash veneer finish. 20 lb \$300 ea

XPL Series

XPL 200 4-Way Speaker

XPL 160 3-Way Speaker

10-in aquaplas-laminate woofer, 3-in titanium midrange, and 1-in titanium-dome tweeter. Biwirable and biamplifiable. Power handling 600 W; sens 90 dB; imp 6 ohms. Black-lacquer finish. 62 lb \$\$1,249 ea XPL 140. As above, 8-in woofer. Power handling 400 W; sens 87 dB. 55 lb \$\$999 ea

XPL 90 2-Way Bookshelf Speaker

LX Series

LX55 3-Way Speaker

10-in polymer-laminate woofer, 5-in midrange, and 1-in titanium-dome tweeter. Power handling 200 W cont avg; FR 40-20,000 Hz; sens 92 dB SPL/ W/m; imp 8 ohms; crossover points 800 and 4,000 Hz. Black finish. 13¼ x 26¼ x 12 in \$419 ca

ProPerformer Series Pro III 2-Way Speaker

Center Channel Pro III 2-Way Speaker

5-in high-polymer-laminate woofer and 1-in puretitanium dome tweeter. Features magnetic shielding; die-cast polypropylene foam enclosure. Power handling 100 W max; sens 90 dB; imp 4 ohms. Includes L-bracket and safety chain for wall mounting. Black finish. 7.5 lb \$169 ea

JENSEN

Model 3152 3-Way Speaker

Bass-reflex design with 15-in woofer, 5-in cone

WE MAKE SOUND LOOK GREAT PERIOD.

Introducing Period loudspeakers. Designed and engineered to provide exciting audio solutions for discriminating tastes. • Featuring angled front baffles for lifelike imaging • Accoustically dampened midrange chambers allowing seamless transitions between mineral-filled polypropylene woofers and titanium dome tweeters
This combination plus painstakingly designed crossover networks provide superior definition and greater frequency response
All models feature striking majestic oak and slate gray finishes • We make your sound look great. Period.



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96013

96012

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CIRCLE NO. 25 ON READER SERVICE CARD



Model 3080 2-Way Speaker

KEF

Model 105/3 4-Way Speaker

Model 104/2 3-Way Speaker

Vertically aligned 8-in cone woofers in coupled cavity, two $4\frac{1}{2}$ -in cone midranges, and one 1-in ferrofluid-cooled dome tweeter. Features conjugate load-matching network. Power handling 200 W max; FR 35-20,000 Hz ± 2 dB; sens 92 dB SPL/ W/m; imp 4 ohms. 11 x 35 $\frac{1}{2}$ x 16 $\frac{1}{8}$ in; 70.5 lb. Walnut, rosewood, or black ash \$2,400/pr

Model 101/2 2-Way Bookshelf Speaker

Q80 2-Way Speaker

K160 2-Way Speaker

K120 2-Way Wall/Shelf-Mount Speaker

6¹/₂-in woofer with 1-in coil and 1-in fluid-cooled dome tweeter. Power handling 10-80 W; FR 65-20,000 Hz ±3 dB; sens 87 dB; nom imp 8 ohms; max output 107 dB. 8¹/₈ x 13¹/₄ x 9³/₄ in ... \$249/pr

KLH

Calibre 3 Subwoofer/Satellite System

3-piece system with two 6½-in polymer voice-coil woofers, 4½-in polypropylene cone woofers, and 1-in ferrofluid-cooled dome tweeter. Power handling 5-200 W; FR 45-20,000 Hz \pm 3 dB; nom imp 6

Accord Series

Model 382 2-Way Speaker

Model 21 2-Way Speaker

Heritage Series Model 802 2-Way Speaker

Model T312D 3-Way Speaker

KLIPSCH

Klipschorn 3-Way Speaker

Horn-loaded design featuring K-33-E woofer, K-55-M midrange, and K-77-M tweeter. Power handling 100 W cont avg; FR 35-17,000 Hz ± 3 dB; sens 104 dB SPL/W/m; imp 8 ohms. 31¼ x 52 x 28½ in; 167 lb \$\$3,598/pr

Chorus II 3-Way Speaker

Vented design featuring 15-in subwoofer (K-48-E), horn-loaded tractrix midrange (K-61-E), and horn-loaded tweeter (K-79-K). Features built-in riser base. Power handling 100 W cont avg; FR 39-20,000 Hz ± 3 dB; sens 101 dB spL/W/m; imp 8 ohms. 18½ x 39 x 15½ in; 89 lb \$1,790/pr

Forté II 3-Way Speaker

kg 5.2 2.Way Speaker

kg¹ 2-Way Bookshelf Speaker

Sealed design with $6\frac{1}{2}$ -in polymer cone woofer (K-1) and horn tweeter (K-83). Power handling 50 W cont avg; FR 50-20,000 Hz ± 3 dB; sens 90 dB SPL/W/m; imp 8 ohms; crossover point 2,000 Hz. SPL/W/m; inp 8 ohms; crossover point 2,000 Hz. S300pr

KOSS

KCS/350 2-Way Speaker

KCS/150 2-Way Speaker

M/100 Plus 2-Way Powered Speaker

Two 4½-in woofers and 1-in dome tweeter. Builtin 20 W/ch amp. FR 50-30,000 Hz. Connects to headphone jack of any sound source including portable CD players. 6 x 15 x 12 in \$260 ea

KCS 65 2-Way Surround Speaker

 Two 4½-in woofers and l-in dome tweeter. FR

 100-30,000 Hz; sens 84 dB/W/m; nom imp 8

 ohms. 4¼ x 8¼ x 5½ in

 \$150 ea

LINN

Kaber 3-Way Speaker

Tower design with two 5-in woofers and one ³/₄-in tweeter. Woofers operate at different resonance and crossover points. Triamplifiable and triwira-



KLH Accord 382

KAN II 2-Way Bookshelf Speaker

Acoustic-suspension design with 5-in woofer and $\frac{3}{4}$ -in dome tweeter. FR 70-20,000 Hz ± 3 dB; imp 8 ohms. $7\frac{1}{2}$ x 12 x $6\frac{1}{2}$ in \$895/pr

MAGNEPAN

MG 2.6/R 2-Way Speaker

Combination planar-magnetic and ribbon speaker featuring 609-sq-in bass section and ¼-in x 40in ribbon tweeter. Power handling 200 W cont: FR 37-40,000 Hz ± 3 dB; sens 87 dB sPL/W/m; crossover point 1,000 Hz; imp 4 ohms. Available in a variety of finishes. 22 x 71 x 1¼ in; 110 lb per

MG .5/QR 2-Way Speaker

Planar-magnetic speaker featuring 370-sq-in bass section and 11/2 x 40-in quasi-ribbon tweeter. Power handling 200 W cont; sens 86 dB SPL/W/m; imp 4 ohms. Various finishes \$1,075/pr

SMGa 2-Way Speaker

Planar-magnetic speaker featuring 370-sq-in bass section and 11/2 x 38-in tweeter. Power handling 30 W cont; FR 50-18,000 Hz ± 3 dB; sens 90 dB SPL/ W/m; crossover point 2,400 Hz; imp 4 ohms. Available in a variety of finishes. 19 x 48 x 13/4 in; 60 lb per pair \$575/pr

M&K

MX-1000CC Subwoofer/Center-Channel System

Center-channel system with two 5-in polypropylene midranges, three 1-in soft-dome tweeters and powered subwoofer with two 12-in drivers. Designed for surround-sound systems. Features independent level control for bass; upper roll-off frequency control \$1,795/sys

MX-1000 Pedestal Powered Subwoofer

Acoustic-suspension pedestal design with two 12-in drivers. Magnetic shielding for use as TV stand. 26 x 28 x 22 in; 115 lb \$1,295 ea

V-100 Powered Subwoofer

Features 200 W cont power amp to drive 12-in dual voice-coil subwoofer. Externally mounted filter adjustment. FR 20-125 Hz. Walnut, oak, or black-oak finish. 16 x 1814 x 1514 in \$995 ea

Satellite 1B 2-Way Speaker

Acoustic-suspension design with two 5-in polypropylene woofers and two 1-in soft-dome tweeters. Features selector for 36 tonal balances: midrange/treble character switches. Power range 71/2-400 W; impedance 4 ohms. Walnut-oak or blackoak finish with black grille. 73/4 x 21 x 75/8 in; 19 \$795/pr S-1B TV. As above, magnetically shielded. Walnut, oak, or black-oak finish \$895/pr

V-90 Powered Subwoofer

Acoustic-suspension design with 12-in dualvoice-coil driver and 90-W integral power amp. Features independent level control; adjustable (50 to 125 Hz) low-pass filter. 90 W cont avg; FR 25-125 Hz ±3 dB. Available in walnut, oak, or black-oak finishes. 16 x 181/4 x 151/4 in ... \$750 ea

Satellite 3B 2-Way Speaker

Acoustic-suspension design with 5-in polypropylene woofer and 1-in soft-dome tweeter. Features selector for 4 tonal balances. FR 100-20,000 Hz ±3 dB; power range 15-100 W. 7 x 101/2 x 61/2 in; 9 lb. Black finish, with black grilles . . \$475/pr Walnut-veneer with black grilles \$525/pr S-3B TV. As above, magnetically shielded. Black finish \$525/pr Walnut finish \$575/pr

VX-7 Subwoofer

Acoustic-suspension design with 50-W amplifier and 8-in woofer. FR 40-125 Hz ±3 dB. Black finish. 10 x 11¾ x 9½ in; 25 lb..... \$425 ea

SX-7 2-Way Bookshelf Speaker

Acoustic-suspension design with 4-in paper-cone midrange; 34-in soft-dome tweeter. Features castaluminum box with perforated metal grille; circuit-breaker protection. FR 100-20,000 Hz ±3 dB; power range 5-100 watts; sensitivity 87 dB SPL/W/m; imp 4 ohms. Black finish. 41/2 x 73/8 x 41/2 in; 6 lb \$257/pr

MARTIN-LOGAN **CLS II Electrostatic Speaker**

Curved visually transparent 2 x 4-ft electrostatic cell: 30° seamless horizontal dispersion in vertical



MB Quart 490MCS

line-source format; arc-free diaphragm. Power handling 150 W cont; FR 50-22,000 Hz ±2 dB; sens 85 dB SPL/W/m; imp 6 ohms. Variety of finishes. 26 x 48 x 2 in; 75 lb ea..... \$3,500/pr

Sequel II Hybrid Electrostatic Speaker

Visually transparent electrostatic transducer operating from 200-24,000 Hz and 10-in subwoofer in tuned chamber with matrix voice coil. 30° seamless horizontal dispersion in vertical linesource format; 1 x 4-ft electrostatic cell. Power handling 300 W cont; FR 30-24,000 Hz ±2 dB; sens 89 dB SPL/W/m; imp 6 ohms. Available in oak or black finish. 141/2 x 74 x 131/2 in; 110 lb ea.....\$2,650/pr

MB QUART

Quart 690MCS 2-Way Speaker

Tower design with 8-in woofer and 1-in titanium dome tweeter. Power handling 100 W cont; FR 35-32,000 Hz. Oak, walnut, black or white lacquer, pine, cherry, granite, marble, raw oak, and highgloss black or white finishes. 101/8 x 331/8 x 111/4 in; 39 lb \$1,500/pr

Quart 490MCS 2-Way Bookshelf Speaker

8-in woofer and 1-in titanium dome tweeter. Power handling 100 W cont; FR 37-32,000 Hz. Oak, walnut, black or white lacquer, pine, cherry, or raw oak finishes. 11 x 173/8 x 111/2 in; 22 lb \$850/pr

Quart 290 2-Way Bookshelf Speaker

8-in woofer and 1-in titanium dome tweeter. Power handling 90 W cont; FR 40-32,000 Hz. Oak, walnut, black or white lacquer, pine, cherry, or raw oak finishes. 11 x 17 x 111/2 in \$699/pr

Quart 90M 2-Way In-Wall Speaker

8-in woofer and 1-in titanium dome tweeter. Power handling 100 W cont; FR 46-32,000 Hz. White finish. 10% x 12 x 3¼ in \$599/pr

MCINTOSH XR-250 3-Way Speaker

Two 10-in woofers, 5-in midrange, and 1-in dome tweeter. Solid-state current protectors for system and tweeter. Power handling 300 W peak; FR 20-20,000 Hz; sens 84 dB spL/W/m; imp 8 ohms; crossover points 450 and 1,300 Hz. Oak, walnut, or black-lacquered hardwood finish. 14 x 471/4 x

125% in; 79.5 lb \$1,499 ea

XR-230 3-Way Speaker

10-in woofer, 5-in midrange, and 1-in dome tweeter. Schid-state current-sensor protection system and tweeter. Power handling 300 W max; FR 20-20,000 Hz; sens 86 dB SPL/W/m; imp 8 ohms; crossover points 375 Hz and 1,200 Hz. Oak, walnut, or black-lacquered hardwood finish. 13 x 401/4 x 111/4 in; 56.6 lb \$750 ea

WS-200 2-Way In-Wall Speaker

6-in woofer and 1-in dome tweeter. Solid-state current protectors for system and tweeter; 3rdorder crossover with 18-dB/oct slope. Power handling 80 W peak; FR 60-20,000 Hz; sens 86 dB SPL/W/m; imp 8 ohms; crossover point 1,300 Hz. Hardware for new or existing construction available. White grille. 85% x 12 x 31/4 in \$649/pr

MEMOREX, BY MEMTEK

TS-5 Subwoofer/Satellite System

Obelisk-shaped subwoofer with two 51/4-in and two 61/2-in drivers and satellites each with two 4-in cone midrange drivers and four 11/2-in dipole tweeters with dual %-in diaphragms for front and rear-firing tweeter. Power handling 10 W min; sens 91 dB SPL/W/m; imp 8 ohms; crossover points 300 and 6,000 Hz. Black lacquer finish with knit grille \$650/sys

TRC-905 Speaker

Acoustic-suspension design with 8-in woofer, 5in polymer reinforced cone midrange, and 34-in polycarbon dome tweeter. Power handling 10 W min; FR 40-20,000 Hz; sens 91 dB SPL/W/m; imp 8 ohms; crossover points 700 and 4,400 Hz. Ebony walnut finish with black knit grille. 91/4 x 351/8 x 131/2 in; 27.3 lb ea \$499/pr

M-4100 2-Way Speaker

Acoustic-suspension design with 8-in woofer and 2-in cone tweeter. Power handling 10 W min; FR 55-20,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms; crossover point 3,200 Hz. Oak finish with black grille. 101/4 x 91/8 x 231/2 in \$279/pr

TRC-505 Speaker

Acoustic-suspension design with 61/2-in woofer and ³/₄-in polycarbonate dome tweeter. Power handling 10 W min; FR 70-20,000 Hz; sens 88 dB SPL/W/m; imp 8 ohms; crossover point 3,400 Hz. Ebony walnut finish with black knit grille. 71/2 x 191/2 x 101/2 in; 12.5 lb ea..... \$259/pr

MERIDIAN

D600 Powered Speaker System

Triamplified vented-box design with digital processor featuring 4x-oversampling digital filter and 16-bit D/A converter. 61/2-in woofer, 61/2-in midbass, and 1-in metal-dome tweeter. 2 analog, 2 digital, and 1 digital/optical input. Display with CD track number and FM tuner information when connected to 200 Series components. Includes wireless remote control with frequency-shaping control. 70 W x 3; FR 36-20,000 Hz; sens 110 dB





SPL/W/m. Rosewood, walnut, or black-ash finish. 8¼ x 35½ x 11% in; 70 lb ea \$5,500/pr M60. As above, without digital processor, analog preamp, or display. 60 lb ea \$3,500/pr

M30II 2-Way Powered Speaker

Biamplified vented-box design with twin 70-W internal amps, 61/2-in midbass driver, and 1-in metal-dome tweeter. Features PVC surround; balanced/unbalanced inputs; remote turn-on with music. FR 40-20,000 Hz; sens 106 dB spL/W/m. Walnut or black-ash finish \$1,990/pr

MIRAGE

Mirage M3 3-Way Speaker

Bipolar radiator design with 10-in polyflex-treated carbon-filled polypropylene woofer, two 41/2in trilaminated carbon-filled polypropylene cone midranges (1 front, 1 rear), and two 3/4-in cloth dome tweeters (1 front, 1 rear). Biwirable and biamplifiable. Power handling 250 W cont; FR 25-23,000 Hz ±2 dB; sens 85.5 dB SPL/W/m; crossover points 400 and 2,200 Hz; imp 6 ohms. 19 x 53 x 9 in; 130 lb ea \$2,500/pr

Mirage M7 3-Way Speaker

Bipolar radiator design with 1 front-radiating 8-in injection-molded polypropylene cone woofer with rubber surround, 1 rear-radiating 5-in midrange, and 1 front-radiating 1-in pure-titanium tweeter with cloth suspension. Biwirable and biamplifiable. Power handling 125 W cont; FR 35-22,000 Hz ± 3 dB; sens 88 dB SPL/W/m; nom imp 6 ohms; crossover points 500 and 2,000 Hz. 14 x 45 x 7 in; 80 lb ea \$1,100/pr

Model 760 2. Way Speakers

Bass-reflex design with two 8-in carbon-filled polypropylene woofers with stitched butyl surround and one 1-in ferrofluid-cooled soft-dome tweeter. Power handling 200 W cont; FR 20-20,000 Hz ±3 dB; sens 89 dB spL/W/m; imp 6 ohms. Black-ash or walnut vinyl-veneer finish. 12 x 37 x 15 in; 62 lb \$1,000/pr

Mirage M-790 3-Way Speaker

Bipolar-radiator design with vented 8-in injection-molded polypropylene cone woofer with rubber surround, rear-radiating 5-in midrange, and 1-in titanium tweeter with cloth suspension. Biwirable and biamplifiable. Power handling 150 W cont; FR 38-22,000 Hz ± 3 dB; sens 87 dB SPL/ W/m; nom imp 6 ohms; crossover points 500 and 2,000 Hz. 10 x 39 x 11 in; 60 lb ea \$900/pr

Model 460 2-Way Bookshelf Speaker

Bass-reflex design with 8-in carbon-filled polypropylene woofer with stitched butyl surround and 1-in ferrofluid-cooled soft-dome tweeter. Power handling 100 W cont; FR 35-20,000 Hz ±3 dB; sens 87.5 dB SPL/W/m; crossover point 2,500 Hz; imp 8 ohms. Black-ash or walnut vinylveneer finish. 10 x 25 x 11 in; 32 lb \$600/pr

Mirage M-290 2-Way Speaker

Front-vented design with 61/2-in injection-molded polypropylene cone woofer with rubber surround and 1-in pure-titanium tweeter with cloth suspension. Power handling 100 W cont; FR 45-22,000 Hz; nom imp 6 ohms. Black-ash vinyl finish with gray grille. 9 x 16 x 9 in \$450/pr

Mirage 2-Way Speaker

Designed for use as center-channel speaker in home theater systems. Dual front-vented design with two 41/2-in woofers and one 1/2-in polycarbonate flared-dome tweeter. Features magnetic shielding and angled enclosure. Power handling 100 W cont; FR 60-22,000 Hz ±3 dB; sens 86 dB SPL/W/m; nom imp 8 ohms; crossover point 2,500 Hz. Black-ash vinyl-veneer finish with slate-gray grille cloth . 6 x 20 x 8 in; 15 lb \$170 ea

MISSION

Mission 765 2-Way Speaker

Two 8-in polypropylene woofers and one 1-in ferrofluid-cooled elliptical-dome tweeter. Features 2-in woofer voice coils; 1-in MDF criticallybraced viscoelastically-damped cabinet. Biamplifiable and biwirable. Power 250 W cont; FR 35-20,000 Hz ± 3 dB; imp 4 ohms; sens 93 dB SPL; crossover point 2,500 Hz. Natural walnut and black-ash wood veneers. 37% x 101/4 x 131/2 in; 110 lb ea \$1,499/pr

Cyrus 782 2-Way Speaker

Bass-reflex design with two 61/2-in mineral-loaded polymer woofers and 34-in ferrofluid-cooled fabric-dome tweeter. Features 3/4-in MDF baffle board. Biamplifiable and biwirable. Power handling 150 W cont; FR 49-20,000 Hz ±3 dB; sens 91.5 dB SPL; max SPL 109 dB; nom imp 4 ohms; crossover point 3,200 Hz, Natural walnut, blackash, Nextel gray and rosewood veneers. 9¼ x 19¾ x 13½ in; 30.8 lb \$799/pr

Mission 762 2-Way Bookshelf Speaker

Bass-reflex design with 8-in Plastiflex woofer and 34-in ferrofluid-cooled fabric-dome tweeter. Features 3/4-in viscoelastically damped transversefolded cabinet; flared-tuned port; inverted driveunit geometry; 5-way binding posts. Power handling 125 W cont; FR 50-20,000 Hz ± 3 dB; sens 93.5 dB SPL/W/m; max SPL 106 dB; nom imp 8 ohms; crossover point 4,300 Hz. Simulated walnut and black-ash veneers. 97% x 1934 x 111/8 in; 21 lb ea \$429/pr

MONITOR AUDIO MA1200 Gold 2-Way Speaker

Ported design with 6-in polypropylene woofer and I-in gold metal-dome tweeter. Features sandfillable cabinet. Power handling 15-200 W; FR 35-30,000 Hz ± 3 dB; imp 8 ohms; sens 89 dB spL/W/ m. Black-ash, oak, walnut, rosewood finishes. 8 x 36 x 10 in \$1,999/pr

MA852 Gold 2-Way Speaker

Infinite-baffle design with 8-in polypropylene woofer and 1-in gold metal-dome tweeter. Features internally braced cabinet. Power handling 15-120 W; FR 50-30,000 Hz ±3 dB; imp 8 ohms; sens 89 dB SPL/W/m. Black-ash, Kenya-black, oak, walnut finishes. 10 x 18 x 11 in ... \$1,399/pr

MA700 Gold 2-Way Bookshelf Speaker

6-in polypropylene woofer and 1-in anodized gold metal-dome tweeter. Biwirable. Power handling 20-100 W; FR 45-30,000 Hz ± 3 dB; imp 8 ohms; sens 89 dB sPL/W/m. Rosewood, black-ash, walnut, oak finishes. 81/2 14 x 10 in \$999/pr

Monitor 11 3-Way Speaker

Two 61/2-in woofers and one 1-in metal-dome tweeter. Features one woofer with low-pass filter. Power handling 15-100 W; FR 60-20,000 Hz ±3 dB; imp 8 ohms; sens 88 dB SPL/W/m. Black-lacquer MDF-construction cabinet. 8 x 221/2 x 9 in \$789/pr

Monitor 7 2-Way Bookshelf Speaker

Rear-ported design with 41/2-in impregnated woofer and 34-in metal-dome tweeter. Power handling 15-70 W; FR 60-20,000 Hz ± 3 dB; imp 8 ohms; sens 88 dB SPL/W/m. MDF-construction cabinet. 61/2 x 131/2 x 7 in \$379/pr

MORDAUNT-SHORT Classic 40 2-Way Speaker

Bass-reflex design featuring two 61/2-in woofers and one 1-in metal-dome tweeter. Features polypropylene injection-molded woofer cones and surrounds; ferrofluid tweeter damping and cooling; Positec protection system. Power handling 100 W cont; FR 50-20,000 Hz; sens 78 dB/W/m; nom imp 8 ohms; crossover 4,000 Hz. Walnut, mahogany, or black-ash finish. 5-year warranty. 81/2 x 311/2 x 11 in; 37.6 lb \$1,450/pr

Classic 20 2-Way Speaker

Bass-reflex design featuring 61/2-in woofer and 1in metal-dome tweeter. Features polypropylene injection-molded woofer cone and surround; ferrofluid tweeter damping and cooling; Positec protection system. Power handling 75 W cont: FR 60-20,000 Hz; sens 87 dB/W/m; nom imp 8 oh ms; crossover point 5,000 Hz. Available in walnut, mahogany, or black-ash finish. 5-year warranty. 81/2 x 141/2 x 101/2 in; 17.7 lb \$950/pr

MOREL

Encore Satellite/Subwoofer System

Subwoofer with dual 9-in woofers in push-pull configuration and satellites each with one 6-in woofer and one 1.1-in dome tweeter. Satellite: power handling 120 W cont; FR 90-22,000 Hz. Subwoofer: power handling 150 W cont; FR 30-90 Hz; crossover point 90 Hz. Matte-black subwoofer finish; black-lacquer satellite finish. Subwoofer: 12 x 20 x 14 in; 32 lb. Satellite: 7 x 11 x 9 in; 16 lb \$990/sys

MLP-501 3-Way Speaker

9-in woofer, 3-in dome midrange, and 1.1-in dome tweeter. Power handling 20-180 W; FR 35-25,000 Hz ±3 dB; imp 8 ohms; sens 90 dB spL/W/m. Walnut or black wood veneer finish \$895/pr

MLP-203 2-Way Speaker

Linear-phase design with 6-in woofer and 11/8-in ferrofluid-cooled soft-dome tweeter. Features sealed cabinet; double woofer magnet; 3-in woofer voice coil. Power handling 150 W; FR 45-28,000 Hz ±3 dB. Walnut, red walnut, teak, or black finish. 8 x 16 x 91/2 in; 18 lb \$640/pr

CR-7 2-Way Bookshelf Speaker

Acoustic-suspension design with 6-in treated paper-cone woofer and 1-in soft-dome tweeter. Features metal driver grilles; asymmetrical cabinet design. Power handling 20-200 W cont; FR 70-25,000 Hz ± 3 dB; sens 90 dB SPL/W/m; imp 4-8 ohms. Available in mirrored pairs. Black finish. 4¼ x 11 x 7½ in; 10 lb ea \$498/pr

MTX

DS 1010 3-Way Speaker

Bass-reflex design with two 10-in woofers, 5-in ferrofluid-cooled midrange, and 1-in soft-dome tweeter. Power handling 200 W cont; FR 34-22,000 Hz; sens 94 dB SPL/W/m; imp 4 ohms. 14 x 37¼ x 14% in \$750/pr



WE'VE SPIKED THE PUNCH.

Klipsch speakers have always had a singular impact on listeners fortunate enough to own them. Now the unique Klipsch sound and legendary craftsmanship are available in new sizes and designs. Witness the Klipsch® kg 5.2 and kg 4.2 speakers. Both feature our new *Tractrix™* tweeter horn which helps create an even more crisp and lifelike sound. In addition, both speakers have a unique spike and foot combination for better bass coup∫ing with any floor surface. Or enjoy the Klipsch kg SW Passive Subwoofer that delivers exceptional low frequency reproduction. Ask for a demonstration of the kg series at your authorized Klipsch dealer today. Your eyes may not believe they're from Klipsch. But there's no fooling your ears.



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DS 66 2-Way Speaker

Bass-reflex design with two 61/2-in woofers and 1in soft-dome tweeter. Power handling 85 W cont avg; FR 42-22,000 Hz; sens 93 dB SPL/W/m; imp 4 ohms. 101/2 x 211/2 x 107/8 in \$300/pr

American Acoustics D Series D5550E 4-Way Speaker

Vented design with 15-in polymer-coated woofer, 5-in sealed-back ferrofluid-cooled midrange, 1-in ferrofluid-cooled soft-dome tweeter, and 3-in dome ferrofluid-cooled tweeter. Power handling 120 W cont; FR 43-22,000 Hz; sens 96.5 dB sPL/W/ m; imp 4/8 ohm; crossover points 1,700 and 6,000 Hz. 151/2 x 27 x 101/4 in \$520/pr

D3550E 2-Way Bookshelf Speaker

Vented design with 8-in polymer woofer and 1-in soft-dome tweeter. Features ferrofluid tweeter cooling and damping. Power handling 45 W cont; FR 60-22,000 Hz; sens 94.5 dB SPL/W/m; imp 4/8 ohm. 111/4 x 181/2 x 8 in \$280/pr

AAL Series

AAL 223 4-Way Speaker

Vented design with two 12-in fiber-cone woofers, 5-in ferrofluid-cooled midrange, and round hornloaded quartz tweeter. Power handling 300 W cont; FR 38-22,000 Hz; sens 93 dB SPL/W/m; imp 4 ohms. 16 x 39% x 15 in \$299 ea

AAL 62 2-Way Bookshelf Speaker

Vented design with 61/2-in fiber-cone woofer and 3³/₄-in round horn-loaded tweeter. Power handling 38 W cont; FR 90-20,000 Hz; sens 90 dB SPL/ W/m; imp 4 ohms. 91/2 x 127/8 x 71/2 in \$200/pr

MUSEATEX

Melior One Speaker

Dipolar planar design incorporating point-source technology. Power 40-200 W; FR 45-20,000 Hz ±3 dB; sens 86 dB; imp 4 ohms. Mahogany or black wood finish with black grille. 45 lb ea.....\$2,300/pr

Melior Two Speaker

Dipolar planar design incorporating point-source technology. Power 40-150 W; FR 50-20,000 Hz ± 3 dB; sens 84 dB; imp 4 ohms. Mahogany or black wood finish with black grille; 38 lb \$1,750/pr ea.

Melior Powered Subwoofer

Sealed design with downward firing 15-in cone woofer powered by 200-W amplifier. Features feedback system. FR 27-400 Hz ±3 dB. Black wood finish. 20 x 20 x 23 in \$1,500 ea

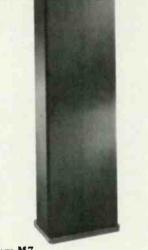
NAIM

NA SBL 2-Way Speaker

8-in woofer and 34-in dome tweeter. Features external detachable crossover; decoupled tweeter. Power handling 75 W; FR 30-20,000 Hz ± 3 dB; sens 88 dB SPL/W/m; imp 6 ohms. Black-ash or walnut finish with stand. 101/3 x 341/2 x 101/2 in \$3,045/pr

NEAR

Symphony No. 1 CS-4000 M 3-Way Speaker Infinite-baffle design with 2 woofers, one 61/2-in midrange, and eight 2-in tweeters in array. Power handling 250 W max; imp 8 ohms; crossover



Mirage M7

points 400 and 2,500 Hz. Classic styling. 261/4 x 441/2 x 151/8 in \$4,400/pr

Concerto V CS-302 M 3-Way Speaker

Infinite-baffle design with 12-in woofer, 6-in midrange, and two 2-in tweeters. Power handling 150 W; imp 8 ohms; crossovers 400 and 2,500 Hz. Walnut finish. 26 x 28 x 15 in \$2,200/pr

NEAR-60M 3-Way Speaker

Ported design with 12-in woofer, 4-in metal-alloy midrange, and 1-in metal dome tweeter. Power handling 25-100 W; FR 35-22,000 Hz ± 3 dB; imp 8 ohms; crossover points 300 and 4,000 Hz. Vinyl. 15¼ x 27 x 11 in; 48 lb \$899/pr Dark oak \$1,098/pr

NEAR-10M 2-Way Speaker

Sealed design with 51/4-in metal cone woofer and 1-in metal-dome tweeter. Power handling 25-75 W; FR 60-23,000 Hz ±2.5 dB; imp 8 ohms; crossover point 3,500 Hz. Black lacquer. 7 x 11 x 9 in; 17 lb \$349/pr

A.E.S. 1.1 Outdoor Speaker. 514-in metal alloy cone/dome driver. FR 65-14,000 Hz. Molded cabinet \$299/pr

NHT

Model 2.3 3-Way Speaker

Sealed design with two 61/2-in woofers, one 61/2-in midrange, and one 1-in ferrofluid-cooled softdome tweeter. Features angled baffle. Min power 35 W; FR 35-25,000 Hz ± 3 dB; nom imp 4 ohms. Black, white, or oak veneer finish. 7 x 37 x 12 in; 48 lb ea \$1,200/pr

Model 1.8 3-Way Speaker

Sealed design with two 61/2-in woofers, one 61/2-in midrange, and one 1-in ferrofluid-cooled softdome tweeter. Features angled baffle. Min power 35 W; FR 43-22,000 Hz ± 3 dB; nom imp 8 ohms. Gloss black or oak veneer finish. 7 x 34 x 12 in; 33 lb ea \$800/pr

SW2 Subwoofer

Vented design with 10-in high-excursion woofer. Features passive crossover; direct input. Power handling 200 W max; FR 22-130 Hz (network), 22-350 Hz (direct); nom imp 8 ohms; sens 89 dB SPL/ W/m. Black, white, or oak finish. 16 x 16 x 16 in; 40 lb

Model 1.3 2-Way Speaker

Sealed design with 61/2-in polypropylene woofer and 1-in ferrofluid-cooled dome tweeter. Features angled baffle. FR 50-25,000 Hz ±3 dB; nom imp 8 ohms; sens 86 dB SPL/W/m. Black, white, or oak finish. 7 x 161/2 x 10 in; 15 lb \$500/pr

Model One 2-Way Speaker

Sealed design with 61/2-in woofer, 61/2-in midrange, and 1-in dome tweeter. Features angled baffle; magnetic shielding. Min power 20 W; FR 63-22,000 Hz ± 3 dB; nom imp 8 ohms. Black or white grille. 7 x 12 x 10 in; 11 lb ea \$340/pr

Model 1C 2-Way Speaker

Sealed design with 61/2-in woofer and 1-in tweeter. Features magnetic shielding. Min power 20 W; FR 63-22,000 Hz ±3 dB; nom imp 8 ohms. Black finish. 7 x 12 x 8½ in; 11 lb ea \$170 ea

NILES

Model 300.2-Way In-Wall Speaker

8-in polypropylene woofer and 1-in soft-dome tweeter. Features butyl woofer surround; treated-fabric woofer dust cap; crossover with 2position tweeter-level control. Power handling 5-105 W; FR 40-20,000 Hz ±2 dB; sens 89 dB SPL/ W/m; imp 8 ohms; crossover point 2,500 Hz. Pearl-white finish with cloth or metal grille. 10 x 14 x 4 in; 12 lb/pr \$650/pr

Model 100 2-Way In-Wall Speaker

61/2-in polypropylene woofer and 1-in dome tweeter. Features treated-foam woofer surround; treated-fabric dust cap; 2-position tweeter-level control. Power handling 5-55 W; FR 55-20,000 Hz ±3 dB; sens 87 dB SPL/W/m; imp 8 ohms; crossover point 4,000 Hz. Pearl-white finish with cloth or metal grille. Brackets for new construction or retrofit. 9 x 12 x 3 in; 6.5 lb/pr..... \$360/pr

NORMAN LABORATORIES Model 635 3-Way Speaker

Three 10-in cone woofers, 51/4-in cone midrange,

and 1-in dome tweeter. Power handling 600 W max; FR 25-20,000 Hz; sens 95 dB sPL/W/m; imp 8 ohms. 16¼ x 49 x 11 in; 155 lb pr \$900 ea

Model 435 3-Way Speaker

Two 10-in cone woofers, 514-in cone midrange, and 1-in dome tweeter. Power handling 500 W max; FR 30-20,000 Hz; sens 94 dB SPL/W/m; imp 8 ohms. 15 x 40 x 9% in; 112 lb pr \$550 ea

Model 235 3-Way Speaker

10-in cone woofer, 51/4-in cone midrange, and 1-in dome tweeter. Power handling 250 W max; FR 38-20,000 Hz; sens 91 dB SPL/W/m; imp 8 ohms. 12 x 23 x 9³/₈ in; 60 lb pr \$300 ea

Model 82 2-Way Speaker

10-in cone woofer and 1-in dome tweeter. Power handling 250 W max; FR 38-20,000 Hz; sens 91 dB SPL/W/m; imp 8 ohms. 117/8 x 23 x 91/8 in; 58 lb pr.....\$200 ea

ODEON

Point Three 2-Way Speaker

Bass-reflex design with 61/2-in polypropylene woofer and 1-in dome tweeter. Features damped vented enclosure; truncated-pyramid shape; 34-in fiberboard construction. Power handling 10-120 W; FR 58-40,000 Hz ± 3 dB; sens 87 dB SPL/W/m; imp 8 ohms; crossover point 2,000 Hz. Zolatone finish. 19 x 36 x 61/2 in; 36 lb ea \$799/pr

Point/Zero Five Subwoofer/Satellite System

O H M

XO Series

4XO Inverted-Cone Speaker

Bass-reflex design with coherent-line source conical-surface driver. Protection circuits; gold internal connectors; lead-lined cabinet; Monster Cable internal wiring; casters; gold-plated 5-way binding posts. Standard finish walnut and oak; available in rosewood, black, or white lacquer. Power handling 500 W cont; FR 32-23,000 Hz ± 4 dB; imp 8 ohms. 15½ x 40 x 15½ in ... \$2,500/pr

2XO Inverted-Cone Speaker

Full Room Stereo Series FRS 9 2-Way Speaker

FRS 5 2-Way Bookshelf Speaker

6-in woofer and corner-mounted tweeter. Features protection circuits; sub-bass activator; 5way binding posts. Power handling 125 W max; FR 48-20,000 Hz ± 4 dB; imp 8 ohms. Finished in oak-vinyl veneer. 11½ x 11½ x 11½ in ... \$480/pr

Sound Cylinders Series Pro 250 Sound Cylinder Speaker

Coherent Audio Monitors Series CAM 42 SBA 2-Way Bookshelf Speaker

CAM 16 SBA 2-Way Bookshelf Speaker

Ohm Theater Series

SAT-2 2-Way Satellite Speaker

SB-1 Subwoofer. 10-in dual-voice-coil woofer. 12% x 20% x 7% in \$300

OPTIMUS, BY RADIO SHACK Mach Three 3-Way Speaker

Optimus-1050 3-Way Speaker

PARADIGM

Monitor Series

Studio Monitor 3-Way Speaker

Two 8-in mineral-filled copolymer polypropylene cone woofers, one 5-in mineral-filled homo-polymer polypropylene cone midrange, and one 1-in aluminum-dome tweeter. Features Kapton woofer and midrange voice-coil formers; ferrofluid tweeter cooling and damping; individually calibrated phase-corrected 2nd- and 3rd-order crossovers; Medite baffle. Power handling 15-300 W; FR 25-20,000 ± 2 dB; sens 90 dB SPL/W/m. Triwirable and triampable. Walnut, oak, or black-ash finish. 12¼ x 42½ x 16½ in; 93 lb \$1,899/pr

Esprit Monitor 2-Way Speaker

Two 8-in mica-filled copolymer polypropylene cone woofers and one 1-in aluminum-dome tweeter. Kapton woofer voice-coil formers; ferrofluid tweeter damping and cooling; individually calibrated phase-corrected 3rd-order crossover; Medite baffle. Power handling 15-250 W; FR 34-20,000 Hz ± 2 dB; sens 94 dB SPL/W/m. Biwirable and biamplifiable. Walnut, oak, or black-ash finish. 104/ax 37 x 14/a in; 62 lb \$1,149/pr

MkII Performance Series 11seMkII 2-Way Speaker

Two 8-in copolymer polypropylene cone woofers with and one 1-in laminated-textile-dome tweeter. Features Kapton woofer voice-coil formers; ferrofluid tweeter cooling and damping; phasecorrected 3rd-order crossover. Power handling 15-250 W; sens 92 dB SPL/W/m. Walnut or blackash vinyl. 11¼ x 39¼ x 14¼ in; 60 lb ... \$899/pr

7seMkII 2-Way Speaker

8-in copolymer polypropylene cone woofer and

5se 2-Way Speaker

8-in copolymer polypropylene cone woofer and 1-in polyimide-dome tweeter. Features Kapton woofer voice-coil former; ferrofluid tweeter cooling and damping; phase-corrected 2nd-order crossover. Power handling 15-100 W; FR 38-20,000 Hz ± 2 dB; sens 90 dB. Walnut or blackash vinyl finish. 20½ x 10 x 11¾ in \$369/pr

AMS-200 2-Way In-Wall Speaker

PARASOUND

AWM-380 2-Way Outdoor Speaker

PERIOD

All models feature mineral-filled polypropylene cones with rubber surrounds. Available in oak or gray finish.

Model 96013 3-Way Speaker

Model 96012 2-Way Speaker

Two 6½-in cone woofers flank one 1-in titaniumdome tweeter. 9% x 36 x 12¼ in \$249 ea

Model 96011 2-Way Speaker

PHASE TECHNOLOGY PC Series

PC-8.5 3-Way Speaker

PC-80 2-Way Speaker

Unicell acoustic treatment with 6¹/₂-in solid-piston woofer and 1-in soft-dome tweeter. Power



handling 25-100 W; FR 50-20,000 Hz ± 3 dB; sens 88 dB; imp 6 ohms. Dark-oak, light-oak, walnut, or black. 9½ x 15½ x 11¼ in; 32 lb ca ... \$650/pr

PC-90 Subwoofer

PC-40 Mk II 2-Way Bookshelf Speaker

ES Series

Model 730-ES 3-Way Speaker

Model 235-ES Subwoofer/Satellite System

Subwoofer with two 6½-in woofers and 2 satellites each with one 5½-in woofer and one 2¼-in tweeter. Features spring-loaded terminals. Power handling 10-75 W/ch; crossover points 150 and 3,000 Hz; FR 45-20,000 Hz ± 3 dB; sens 88.5 dB APL/W/m; nom imp 8 ohms. Black finish. Subwoofer: 8 x 15 x 18 in; 25 lb. Satellite: 6½ x 9½ x 5½ in; 6.5 lb. \$399/sys

Model 435-ES 2-Way Bookshelf Speaker

8-in bass/midrange and 1-in ferrofluid-cooled soft-dome tweeter. Features asymmetrically mounted tweeter. Power handling 80 W; FR 45-20,000 Hz ± 3 dB; sens 92 dB sPL/W/m; imp 8 ohms; crossover point 2,500 Hz. Black-ash or dark-oak vinyl. 12 x 22½ x 10½ in \$300/pr

CI Series

CI-80 2-Way In-Wall Speaker

CI-40 IV 2-Way In-Wall Speaker

CI-SUB II In-Wall Subwoofer

6 x 9-in damped felt-cone woofer. Power handling 25-100 W; FR 20-90 Hz; imp 4 ohms \$275 ea

PHILIPS

FB-825 3-Way Speaker

Two 8-in soft-coated woofers, 5½-in soft-coated midrange, and Isophase planar ribbon tweeter. Features rounded edge cabinet with two separate woofer enclosures; MDF acoustic-damping baffle with solid-wood edge trim; power-overload protection; banana-plug-compatible input connect

FB-815 3-Way Speaker

FB-690 3-Way Speaker

PINNACLE

PN 8+ 2-Way Bookshelf Speaker

PN70 3-Way Bookshelf Speaker

PN60 2-Way Bookshelf Speaker

PN50 2 · Way Center · Channel Speaker

4th-order vented design with 5¼-in mineral-filled polycone woofer and 1-in metal-dome tweeter. Designed for surround-sound center-channel use. Features magnetic shielding; ferrofluid tweeter cooling; parabolic-dish tweeter faceplate; flush-right driver alignment for optimum shielding when placed on TV. Power handling 10-70 W cont avg, 200 W max; FR 45-21,000 Hz; imp 8 ohms; sens 87 dB SPL/W/m; crossover point 2,500 Hz. Black cabinet with rubber feet. 14¼ x 7/4 x 6/4 in; 9 lb._______\$125 ea

PIONEER

TZ-9 3-Way Speaker

TZ-7 3-Way Speaker

S-T500 3-Way Speaker

Bass-reflex design with 2 front and rear-firing 8-in woofers, one 4-in midrange, and one 1-in ceramic-carbon dome tweeter. Features bar joint to minimize cabinet vibration. Power handling 200



Polk Audio SRS 3.1TL

W max; FR 20-40,000 Hz; sens 88 dB; imp 6 ohms; crossovers 800 and 4,000 Hz. Oak-grain vinyl. 12% x 40% x 14% in; 70.5 lb ea...... \$500 ea

S-T100 2-Way Speaker

S-W1000 Powered Subwoofer

12-in subwoofer in magnetically shielded cabinet. Features subwoofer/center-channel amp with selectable crossover and level controls. Subwoofer: 70 W into 6 ohms from 20-140 Hz with 5% THD. Subwoofer/center-channel: 30 W into 6 ohms at 70 Hz with 5% THD. Center-channel only: 25 W into 6 ohms from 20-20,000 Hz with 1% THD. Black finish with black melamine finish on top broad. 19¼ x 21 x 17¼ in; 46.3 lb...... \$500 ea

POLK AUDIO

SRS Series

SRS 2.3TL Signature Reference Speaker

SRS 3.1TL Signature Reference Speaker

3-way design with tower design with one 12-in planar sub-bass radiator, five 6¹/₂-in trilaminate-

What Stereo Review Has To Say About Ensemble II.

"Cambridge SoundWorks, in the few years since its entry into the ranks of high-fidelity speaker manufacturers, has earned a reputation for above-average sound quality at below-average prices. It was also one of the first audio manufacturers to market its products directly from the factory to the customer, with a thirty-day full-refund return privilege. Cambridge Soundworks products come with all necessary hardware and ample connecting cables (additional lengths are available at no charge if needed), and there is a toll-free number to use if problems or questions arise.

"Cambridge SoundWorks speakers are designed by Henry Kloss, a co-founder of Acoustic Research and KLH and founder of Advent and Kloss Video. His expertise in speaker design has typically been applied to providing the best sound for the price, and Kloss designs include many loudspeaker classics...



"Since each part of the Ensemble II contains its own crossover filter, the bass module has only two pairs of spring-loaded connectors, and the components for each channel of the system can be wired in parallel in any sequence. This wiring flexibility, combined with the inclusion of 100 feet of connecting wire with the system, encourages experimentation with placement of both the satellites and the bass module. The bass unit cannot be located by ear and can be placed behind or under furniture as well as in the open...

"The Ensemble II showed itself capable of handling very high short-term input levels without serious distortion. In fact, at a 100-Hz test frequency the woofers accepted a 1-cycle input of 900 watts into their 5.5-ohm impedance (at which point the driving amplifier clipped)... "The sound of the Cambridge SoundWorks Ensemble II was notably smooth and balanced, without any obvious emphasis or lack in any part of the audio range. In fact, there was nothing in its sound that suggested the size of its components. It could be played as

loud as a reasonable listener might wish without giving a clue to its threepiece configuration or its low price.

a \$400 speaker system to fully

Samplete copies a review evailable on request.)

Ensemble II

Subwoofer-Satellite

Speaker System

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match the sound of one

costing several times as much, but it is a fact that not all expensive speakers produce a sound quality commensurate with their price tags. The Ensemble II, however, like its companions in the Cambridge SoundWorks lineup, performs so far beyond its price and size class that it can be compared only with much larger speakers at substantially hgher prices... The Ensemble II is appreciably cheaper than its competitors, yet in our opinion it can hold its own against any cff them in overall performance. It represents an outstanding value for the average person looking for a good music system at an affordable price."





RTA Series

RTA 15TL Monitor 3-Way Speaker

Real-Time-Array design with two 10-in sub-bass radiators, four 6½-in trilaminate-polymer midbass drivers, and one SL3000 1-in trilaminate polymer/metal-dome tweeter. Power handling 250 W; FR 35-25,000 Hz + 0, -3 dB; imp8 ohms. Black or natural oak finish. 43 x 12½ x 15½ in; 77 lb. \$1,400/pr

RTA 8TL Monitor 3-Way Speaker

RM Series

RM3000 Subwoofer/Satellite System

Subwoofer with two 6½-in drivers and one 10-in sub-bass radiator and 2 satellites each with one ¼in dome tweeter and one 3½-in midrange. Power handling 125 W; FR 42-18,000 Hz \pm 0, -3 dB; imp 8 ohms. Available in black-matrix, piano-black, and white finishes. Subwoofer: 12½ x 20¼ x 13 in. Satellites: 7 x 4¼ x 5½ in. 46 lb total ... \$750/sys

Monitor Series 2

Monitor 10 Series 2 3-Way Speaker

10-in sub-bass radiator, two $6\frac{1}{2}$ -in trilaminate polymer midbass drivers, and one 1-in polymerdome tweeter. Power handling 250 W; sens 89 dB; imp 8 ohms; FR 37-23,000 Hz +0, -3 dB. Black and oak finishes. 15 x 28 x 12 in ... \$740/pr

Monitor 6 Series 2 Subwoofer/Satellite System

Monitor 5 Series 2 3-Way Speaker

8-in sub-bass radiator, 6½-in trilaminate-polymer midbass driver, and 1-in polymer dome tweeter. Power handling 125 W; sens 90 dB; imp 8 ohms; FR 43-23,000 Hz + 0, -3 dB. Black or oak finish. 24 lb \$450/pr

Monitor 4.6 Series 2 2-Way Speaker

Architectural Reference AB Series AB-900 In-Wall Subwoofer/Satellite System

AB-800 2-Way In-Wall Speaker

AB-500 2-Way In-Wall Speaker

5¹/₄-in trilaminate polymer midbass driver and ³/₄in polymer-dome tweeter. Power handling 10-100 W; FR 56-20,000 Hz; sens 89 dB SPL/W/m. Paintable white finish. 6¹/₂ x 9³/₄ x 3 in; 6 lb ... \$250/pr

M³ 2-Way Bookshelf Speaker

CS100 Center-Channel Speaker

Two 4-in woofers and $\frac{1}{16}$ in dome tweeter. Power handling 10-100 W; FR 60-20,000 Hz + 0, -3 dB; sens 89 dB SPL/W/m; imp 8 ohms. Black finish with black knit grille. 18 x 6 x 6 $\frac{1}{2}$ in \$170 ea

PROAC

Studio One MKII Speaker

Tablette MKII 2-Way Bookshelf Speaker

4¹/₂-in midbass driver and ¹/₄-in dome tweeter. Power handling 25-100 W; FR 45-20,000 Hz; imp 8 ohms; sens 87 dB. 6 x 10¹/₂ x 9¹/₄ in \$825/pr

PSB

Stratus Gold 3-Way Speaker

New Stratus 2-Way Speaker

CS 180 Tower 2-Way Speaker

PSB 50 MKII 2-Way Speaker

HW-I 2-Way In-Wall Speaker

 $6\frac{1}{2}$ -in polypropylene woofer and $\frac{1}{4}$ -in textiledome tweeter. Power handling 5-75 W; crossover point 2,400 Hz; FR 56-20,000 Hz ± 2 dB; sens 89 dB; imp 8 ohms. Off-white finish \$350/pr

PSB 30 MKII 2-Way Speaker

61/2-in polypropylene woofer and 3/4-in textile-

dome tweeter. Imp 6 ohms. Black or brown finish......\$330/pr

QUAD

ESL-63 US Monitor Electrostatic Speaker

Full-range electrostatic design with dipole source. Two protection circuits. Power handling 150 W; sens 86 dB SPL/W/m; imp 8 ohms. Oak finish. 28 x 36 x 11 in; 46.5 lb \$4,700/pr

SW-63 Subwoofer

REALISTIC, BY RADIO SHACK

Nova 18 2-Way Speaker

Realistic Subwoofer

12-in long-throw driver with dual voice coils. Features push-type terminals. Power handling 100 W; FR 35-200 Hz. Walnut veneer. 12% x 18% x 15% in\$140

Minimus Series

Model 77 2-Way Speaker

5-in woofer and 1-in dome tweeter in die-cast aluminum cabinet. Power handling 55 W max; FR 50-20,000 Hz. 51/2 x 81/4 x 43/4 in; 5.3 lb ... \$160/pr

Model 7 2-Way Speaker

ROCKUSTICS

Rockustic speakers are designed for outdoor use. They feature stone-like waterproof enclosures.

Soundstone 2-Way Speaker

 $6\frac{1}{2}$ -in long-throw poly cone woofer and 1-in ferrofluid-cooled tweeter mounted coaxially. Power handling 100 W; FR 69-19,000 Hz ± 3 dB; imp 8 ohms; sens 89 dB SPL/W/m. 31 lb...... \$640/pr

Punk Rock 2-Way Speaker

5¼-in long-throw poly cone woofer and 2-in ferrofluid-cooled tweeter coaxially mounted. Power handling 50 W; FR 70-20,000 Hz ± 5 dB; imp 4 ohms; sens 92 dB SPL/W/m. 8 lb...... \$300/pr

ROGERS

Studio 1a 2-Way Speaker

LS3/5a 2-Way Bookshelf Speaker

Power handling 75 W; FR 70-20,000 Hz ± 3 dB; sens 82.5 dB SPL/W/m; imp 11 ohms. Walnut,

teak, or black finish. 71/2 x 117/8 x 63/8 in; 25 lb per pair \$799/pr

LS2A/2 2-Way Bookshelf Speaker

Power handling 100 W; FR 60-20,000 Hz $\pm 2 \text{ dB}$; sens 87 dB SPL/W/m; imp 8 ohms. Black/walnut vinyl. 9 x 14 x 8 in; 29 lb/pr \$550/pr

RSL

Compression Guide Series CG-8² 2-Way Speaker

Dual 834-in woofers and 11/8-in tweeter. Power handling 25-250 W; FR 32-22,000 Hz ±2.5 dB; sens 92 dB SPL/W/m; imp 4 ohms; crossover point 2,500 Hz. 10¾ x 48% x 16 in; 112 lb ea ... \$599 ea

CG-5² 2-Way Speaker

Dual 57/8-in woofer and 11/8-in tweeter. Power handling 20-150 W; FR 50-22,000 Hz ±2.5 dB; sens 91 dB SPL/W/m; imp 4 ohms; crossover point 3,000 Hz. 7¾ x 35 x 10¼ in; 40 lb ea \$399 ea

Monitor Series

Features carbon-filled polypropylene woofers and midranges, circuit breaker tweeter protection with auto reset, Monster Cable wiring, and gold-plated 5-way binding posts.

Model 4200a 3-Way Speaker

Dual 8-in woofers, 41/2-in midrange, and 21/4 x 1/2-in ribbon tweeter. Power handling 25-200 W; FR 35-25,000 Hz ±3 dB; sens 92 dB SPL/W/m; imp 4 ohms; crossover points 650 and 4,000 Hz. Wedge tower cabinet covered with black cloth and carpet with oiled-oak top and bottom caps; includes carpet spikes and non-marring nylon feet. 42 x 101/2 x 12 in; 55 lb ea \$499

Model 3800a 3-Way Speaker

12-in woofer, 41/2-in midrange, and 1-in soft-dome tweeter. Features heavily-braced tuned port enclosure; midrange and tweeter level controls. Power handling 15-300 W; FR 32-22,000 Hz ±3 dB; sens 93 dB SPL/W/m; imp 8 ohms; crossover points 800 and 4,000 Hz. Oiled oak finish. 27 x 15 x 111/2 in; 44 lb ea \$299

VS-8² 2-Way Speaker

Two 8-in carbon/polypropylene woofers and one 1-in polycarbonate-dome tweeter. Features magnetic shielding. Power handling 30-100 W; FR 50-18,000 Hz ±2.5 dB; sens 91 dB SPL/W/m; imp 4 ohms; crossover point 3,000 Hz. 10 x 37 x 113/4 in; 42 lb ea \$199 ea

SANSUI

SP-X5U 3-Way Speaker

61/2-in woofer, 51/4-in carbon-filled polypropylene midbass with butyl rubber surround and aluminum die-cast frame, and 1-in liquid-cooled tweeter. Features rounded baffle edges; gold-plated 5way binding posts. Power handling 75 W cont; FR 45-23,000 Hz ± 3 dB; sens 88 dB sPL/W/m; imp 6 ohms; crossover points 350 and 7,000 Hz. Oak or black finish. 111/2 x 371/2 x 111/2 in \$440/pr

SW-S7.7U Subwoofer/Satellite System

Bass module with two 6-in woofers and two acoustic-suspension satellites each with one 5-in polypropylene midrange and one 1/2-in soft-dome tweeter. Power handling 60 W cont; imp 6 ohms; FR 55-22,000 Hz; sens 88 dB SPL/W/m; crossover points 200 and 6,000 Hz. Black textured subwoofer finish and oak or black wood-grain satellite finish. Subwoofer: 9³/₄ x 19 x 11³/₄ in; 26 lb. Satellite: 7 x 11¾ x 7⅛ in; 10 lb \$370/sys

SENNET

SH88. Subwoofer with 8-in driver \$100 ea SH40. 2-way speaker \$90/pr

SH44 2-Way Center-Channel Speaker

Two 4-in woofers and 1/2-in dome mid/tweeter. Designed for surround-sound applications. Features magnetic shielding. Power handling 100 W; FR 80-20,000 Hz; sens 90 dB \$90 ea

SHAHINIAN

Obelisk 3-Way Speaker

Folded double-prism 50-in hybrid transmissionline design with 8-in asymmetrically placed polypropylene woofer, 10-in mass-loaded-membrane polypropylene passive radiator, two 1%-in cambric-dome midranges, and four 3/8-in W-shaped dome tweeters. Power handling 50-500 W; nom imp 6 ohms. Walnut, oak, and optional finishes available. 141/2 x 29 x 121/2 in; 55 lb \$2,050/pr

Double Eagle Stereo Subwoofer

One enclosure with two acoustically separated 8in polypropylene woofers and two 10-in polypropylene passive radiators. Power handling 1,000 W max; FR 26-1,0000 Hz - 3 dB; nom imp 6 ohm/ ch; crossover 18 dB/oct at 140 Hz. Walnut finish on Finland birch. Optional finishes available. 23 x 30 x 14 in; 105 lb \$1,300 ca

Arc 3-Way Speaker

Vertical transmission-line speaker with 8-in polypropylene woofer, 10-in viscous-damped passive radiator, 11/2-in cambric-dome midrange, and 1-in titanium supertweeter. Time-aligned phase-correct driver placement. Power handling 30-350 watts; nom imp 4 ohms. Natural, medium, or dark-oak finish. 14 x 271/2 x 93/4 in \$1,200/pr

Super Elf 2-Way Speaker

Vented design with 51/4-in polypropylene woofer, 1-in polypropylene-dome tweeter. Power handling 25-150 W; FR 55-18,000 Hz +0, -3 dB; nom imp 6 ohms. Natural, medium, or dark oak finish. 81/2 x 143/4 x 10 in; 28 lb/pr \$650/pr

SHURE

HTS 50CF Monitor 2-Way Speaker

Two 61/2-in woofers and 1-in dome tweeter in magnetically shielded enclosure. Features fluidcooled solid-state tweeter protection; 3rd/4thorder crossover with mode switch to change EQ. Power handling 100 W; FR 55-20,000 Hz; sensitivity 88 dB SPL/W/m; nom imp 5.6 ohms. 131/2 x 20 x 8¹/₈ in; 37 lb \$599/pr

HTS 50SW Subwoofer

4th-order vented design with 12-in driver. Features 10.2-lb double magnet; heavy-damped paper cone with rolled-rubber surround; flat spider suspension. Power handling 200 W; FR 33-80 Hz; sens 91 dB SPL/W/m; nom imp 8 ohms. 18 x 23 x 14 in; 65 lb \$499 ea

HTS 50LRS 2-Way Speaker

61/2-in woofer and 1-in fluid-cooled fused dome tweeter in magnetically shielded enclosure. FR 60-20,000 Hz; sens 85 dB sPL/W/m; nom imp 5.6 ohms. 131/2 x 10 x 81/8 in; 24.2 lb \$299/pr

SIGNET

SL280 2-Way Speaker

8-in polypropylene woofer and 1-in ferrofluidcooled aluminum-dome tweeter. Features rubber woofer surround: injection-molded magnesium woofer frame; vented enclosure; crossover with air-core inductors, polypropylene capacitors, and OFC wire. Biwirable. Power handling 20-200 W; FR 35-25,000 Hz; sens 88 dB; nom imp 8 ohms; crossover point 2,500 Hz. Oak veneer. 93/4 x 25 x 127/s in; 35 lb \$900/pr

SL230 Subwoofer/Satellite System

Subwoofer with two downward-firing slot-loaded 6-in woofers and satellites each with one 31/2-in injection-molded midrange and one 34-in ferrofluid-oooled dome tweeter. Power handling 100 W cont avg; FR 50-20,000 Hz; sens 88 dB SPL/W/ m; crossovers 200 and 3,000 Hz. Satellites finished in oak veneer, subwoofer in black vinyl. Satellites: 41/8 x 81/8 x 41/4 in. Subwoofer: 13 x 21 x 6¾ in. 25 lb total \$600/sys

SL250B/U 2-Way Speaker

51/2-in treated-paper cone woofer and 3/4-in metallized-polycarbonate dome tweeter. Features rubber woofer surround; ferrofluid tweeter cooling; vented enclosure; crossover with air-core inductors, polypropylene capacitors, and OFC wire. Power handling 15-100 W; FR 50-22,000 Hz; sens 88 dB; crossover point 3,300 Hz. Black-vinyl finish. 121/2 x 10 x 7 in; 17 lb \$300/pr

SNELL

Type B 4-Way Speaker

Two 10-in woofers, two 5-in polypropylene midranges, and 1-in aluminum-dome tweeter in D'Appolito configuration with 3/4-in rear-firing supertweeter. FR 22-20,000 Hz; crossover points 40, 275, 2,700, and 5,000 Hz. 25 x 48 x 19 in; 304 lb/pr \$4,200/pr

Type C-IV 3-Way Speaker

Bass-reflex design with 10-in long-throw woofer, 5-in midrange, 1-in ferrofluid-cooled aluminumdome tweeter, and 34-in switchable rear tweeter. Features 4th-order 24-dB/oct crossovers at 275 and 2,700 Hz. Biwirable and biamplifiable. Power handling 250 W cont; FR 34-22,000 Hz ±3 dB; sens 88.5 dB SPL/W/m; nom imp 8 ohms. Handsanded, hand-rubbed matching oak, dark oak, walnut, or black veneer finishes. 141/2 x 46 x 111/4 in; 95 lb ea \$2,190/pr

LCR-500 2-Way Speaker

Two 61/2-in polypropylene woofers and two 3/4-in aluminum-dome tweeters in magnetically shielded cabinet. Designed for front placement in home-theater systems. Features special driver configuration said to limit horizontal directivity and maximize voice intelligibility. FR 80-20,000 Hz; imp 8 ohms. High-gloss black veneer finish. 91/2 x 22 x 7 in; 35 lb ea \$799 ea

SUR-500 2-Way Speaker

Compact dipole design with two 61/2-in polypropylene woofers and two 1-in aluminum-dome tweeters. Suitable for surround channel in hometheater system. Power handling 150 W cont avg; FR 125-20,000 Hz; imp 4 ohms. High-gloss black veneer finish. 91/2 x 161/2 x 7 in; 35 lb \$799 ea

SUB-500 Subwoofer

Magnetically shielded cabinet with 10-in woofer. Features 4th-order bass-reflex enclosure tuned to



Type K-II 2-Way Bookshelf Speaker

Acoustic-suspension design with 8-in polypropylene woofer and $\frac{3}{-in}$ ferrofluid-cooled softdome tweeter. Features hand-adjusted crossover values; dual inputs allowing biwiring or biamplifying. Power handling 100 W cont; FR 70-20,000 Hz ± 2 dB; sens 90 dB SPL/W/m; nom imp 8 ohms; crossover point 2,700 Hz. Oak, dark oak, walnut, or black veneer finish. 11 x 18 x 9 in; 26 lb each \$465/pr K-II-v. As above, shielded \$240 each \$240 each

SONANCE

Sonance 45 2-Way In-Wall Speaker

AIS 500 2-Way In-Wall Speaker

PSW2 In-Wall Subwoofer

Sonance IIIc 2-Way In-Wall Speaker

Infinite-baffle design with 6½-in polypropylene woofer and 1-in soft-dome tweeter. Features woofer with treated-urethane surround and protective screens on basket; 2-position tweeterlevel control; 12 dB/oct crossover at 3,000 Hz. Power range 75 W; FR 45-20,000 ± 2 dB; sens 89 dB; imp 8 ohms. Available in white ABS with cloth or metal grille. 9 x 12 x 3¼ in ... \$399/pr

MB20 2-Way Indoor/Outdoor Speaker

Sonance II 2-Way In-Wall Speaker

S O N Y

SS-TL6 4-Way Speaker

SS-TL4 3-Way Speaker

SOTA

Time Domain 3-Way Speaker

SOUND-LAB

A-5 Electrostatic Speaker

B-1 Electrostatic Subwoofer



Signet SL280

Dynastat Hybrid Electrostatic Speaker

Electrostatic hybrid design with 10½-in woofer and 48 x 10-in tweeter. Min power handling 50 W; FR 28-22,000 Hz ± 2 dB; sens 88 dB SPL/W/m; nom imp 8 ohms; crossover point 150 Hz. 17 x 72 x 3 in; 75 lb ea. \$2,500/pr

SPEAKERLAB

Auricle RD75 Speaker

5 x 75½-in planar dipole transducer. Min power 30 W; FR 145-18,500 Hz; sens 87 dB; crossover point 150 Hz; nom imp 6 ohms. Satin-black enamel finish. $1\frac{1}{4}$ x $4\frac{1}{2}$ x 75½ in; 35 lb .. \$799 ea

ST4 3-Way Speaker

Band-pass enclosure with 8-in woofer, 5-in cone midrange, and ³/₄-in aluminum-dome tweeter. Min power 40 W; FR 25-20,000 Hz; sens 89 dB SPL/W/m; crossover points 150 and 3,000 Hz; nom imp 4 ohms. Oiled-oak finish with black knit grille. 10 x 37 x 12 in; 60 lb \$749/pr

DAS .8 3-Way Speaker

Auricle RD50 Speaker

5 x 50½-in planar dipole transducer. Min power 30 W; FR 145-18,500 Hz; sens 87 dB; crossover point 150 Hz; nom imp 4 ohms. Satin-black enamel finish. $1\frac{1}{4}$ x $4\frac{1}{2}$ x 50½ in; 22 lb ... \$499 ea

DAS/SW Subwoofer

DAS 3 2-Way Speaker

SLAB In-Wall 6 2-Way Speaker

SPICA

Angelus 2-Way Speaker

Mirror-imaged system with 8-inch plastic-cone mid/bass driver and 1-inch soft-dome tweeter. Features computer-optimized crossover; adjustable carpet spikes. Power handling 50-200 W; FR 35-17,500 Hz \pm 3 dB, 90-15,000 Hz \pm 1.5 dB; nom imp 8 ohms; crossover point 3,400 Hz. Walnut or oak finish. 21 x 46 x 10¹/₄ in; 57 lb ... \$1,275/pr

SC-30 2-Way Bookshelf Speaker

Build your audio/video system on a solid bass.

Velodyne subwoofers are already known as the finest in the world. Now, the same revolutionary patented technology is available in an exciting new design.

Introducing "The Foundation Series" The new Servo F-1000, Servo F-1200, and Servo F-1500: Designed with style and elegance to fit every need.

The clean, undistorted bass of a Velodyne subwoofer provides the solid foundation on which to build a superb sound system. By reducing the r.gorous demands of low bass from your main speakers, your system will have increased dynamic range and clarity that you never thought possible.

Each unit in The Foundation Series is completely self-contained with amplifier and adjustable cross-over, and upholds our commitment to quality: As long as there are people who appreciate perfection, Velodyne will continue to produce it.



Velodyne Acoustics, Inc.

1070 Commercial St., Suite 101 San Jose, CA 95112 408/436-7270 800/VELODYNE In Canada: Positive Marketing 416/671-8990 In Europe: Boffi Audio Rack Hi-Fi 39-02/331-04266 CIRCLE NO. 33 ON READER SERVICE CARD



SYNTHESIS, BY CONRAD-JOHNSON LM 310 3-Way Speaker

10-in woofer, 7-in midrange, and 1-in dome tweeter. FR 25-20,000 Hz ± 2 dB; Power handling 200 W cont; sens 91 dB SPL/W/m; imp 8 ohms. Lightor dark-oak cabinet with rounded hardwood edges. 13³/4 x 45¹/₂ x 14¹/₂ in; 70 lb ea ... \$3.250/pr

LM 210 2. Way Speaker

TANNOY

Model 615 3-Way Speaker

8-in woofer, 8-in dual-concentric midrange/ tweeter, and 8-in passive cone. Features 1storder low-pass crossover; gold-plated biwiring terminals. Power handling 300 W max; FR 45-30,000 Hz \pm 3 dB; sens 92 dB; nom imp 6 ohms; min imp 4 ohms; crossover points 400 and 2,500 Hz; recommended power 10-170 W. Black ash or walnut. 12¹/₈ x 38 x 8⁷/₈ in; 46 lb \$1,399/pr

Model 611 3-Way Speaker

Model 607 2-Way Bookshelf Speaker

TARA LABS

Time Passage Model 2 3-Way Speaker

TDL

Studio 3 2-Way Speaker

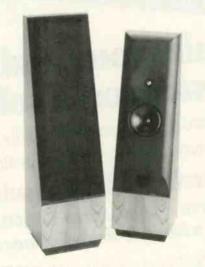
Transmission-line bass design with two 8-in Cobex-cone woofers and one 1-in magnesium-alloy dome tweeter. Biamplifiable and biwirable. Min power 30 W; FR 24-20,000 Hz; sens 87 dB spL/W/ m; crossover points 3,000 Hz; imp 8 ohms. Walnut or black-oak veneer finish. 12 x 37 x 16 in; 59 lb ca. \$2,595/pr in: 48 lb ea .

Studio 2. As above, FR 24-20,000 Hz. 11 x 37 x 16

\$1.995/pr

TECHNICS SB-CX700 3-Way Speaker

12-in mica cone woofer, 13-inch passive radiator, 4-in midrange, and 1-in mica dome tweeter. Features rigid nondiffractive cabinet; vertical in-line speaker alignment; tweeter attenuator; auto-reset thermal relay protection for tweeter. Power handling 200 W; sens 90 dB SPL/W/m; FR 25-



Thiel CS 1.2

45,000 Hz; imp 6 ohms; crossovers 400 and 3,500 Hz. 14³/₈ x 35¹/₂ x 12¹/₄ in; 52 lb \$700/pr

SB-CL50 2-Way Speaker

Sealed design with $7\frac{1}{s}$ -in woofer and 1-in dome tweeter. Features rounded-baffle cabinet. Power handling 160 W; FR 52-22,000 Hz at -10 dB; sens 87 dB SPL/W/m; imp 8 ohms; crossover point 3,000 Hz. Woodgrain-style finish. $8\frac{1}{2} \times 15 \times 8$ in; 12 lb \$\$260/pr

THIEL

CS 5 Coherent Source 5-Way Speaker

CS 2.2 Coherent Source 3-Way Speaker

CS 1.2 Coherent Source 2-Way Speaker

Sloping-baffle design with polypropylene woofer and metal-dome tweeter. Features internal bracing. Power handling 150 W cont; FR 52-18,000 Hz ± 2 dB; sens 87 dB SPL/W/m; imp 4 ohms. Amberwood or black-gloss finish with sculpted speaker grille. 11 x 37 x 11 in; 47 lb ea..... \$1,250/pr

3A AUDIO DESIGN

M3 3-Way Speaker

TR-100 Satellite/Subwoofer System.

Allegretto 2-Way Speaker

Andante 2-Way Speaker

TRIAD

System 7 Satellite/Powered-Woofer System Bass module with 10%-in polypropylene cone woofer and 150-W amplifier, satellites with 1-in fabric-dome tweeter and 5-in polypropylenecone midrange. Satellites: power handling 100 W cont; FR 110-20,000 Hz ± 2 dB; nom imp 8 ohms; crossover point 2,400 Hz; sens 90 dB SPL/W/m. Woofer: FR 28-90 Hz ± 3 dB. Black, white, and galaxy textured enamel finishes. Satellites: 5½ x 10 x 5½ in. Woofer: 13 x 13 x 13 in ... \$1,050/sys

System 3 Satellite/Subwoofer System

VANDERSTEEN

Model 3 3-Way Speaker

10-in acoustic coupler, 8-in polycone woofer, 4½in polycone midrange with ferrofluid cooling, and 1-in critically damped metal-alloy dual-chamber dome tweeter with ferrofluid cooling. Fast Fourier Transform analysis used in all stages of assembly. Biwirable. Power handling 100-200 W into 8 ohms; FR 26-30,000 Hz ± 3 dB; sens 88 dB SPL/W/ m; imp 4 ohms; crossovers 600 and 5,000 Hz. 16 x 48 x 101/4 in; 97 lb \$2,395/pr

Model 2Ci 3-Way Speaker

Model 1B 2-Way Speaker

Rear slot-loading design with 8-in polycone woofer and 1-in dual-chamber polymer dome tweeter. Features 4th-order filter; Fast Fourier Transform analysis used during all stages of assembly. Power handling 20-100 W; FR 38-20,000 Hz ± 3 dB; sens 90 dB SPL/W/m; imp 6.8 ohms; crossover point 2,800 Hz. 12 x 36 x 10 in; 50 lb... \$650/pr

VECTOR RESEARCH

VELODYNE

ULD-18 Powered Subwoofer

F-1500 Powered Subwoofer

15-in driver with $\frac{1}{2}$ -in linear travel, 250-W cont avg Class A/B amplifier. Features 3-in voice coil; 96-oz magnet; resin/fiber cone; passive high-pass crossover at 85 Hz with 6-dB/oct slope; active low-pass crossover adjustable between 40-100 Hz. FR 18-85 Hz ± 3 dB. Black vinyl woodgrain finish. 20-in cube; 79 lb \$1,395 ea F-1200. As above, 12-in driver and 100-W amplifier. $\frac{2}{4}$ -in voice coil; 56-oz magnet. FR 20-85 Hz ± 3 dB. 16 $\frac{1}{6}$ -in cube; 55 lb \$\$995 ea F-1000. As F-1200, 10-in driver with $\frac{1}{2}$ -in linear excursion and 80-W amplifier. $\frac{14}{4}$ -in cube; 44 lb \$\$795 ea

VMPS BY ITONE

Super Tower/R 5-Way Speaker

Multiband bass design with two 15-in woofers, one 12-in woofer, two 5-in cone midranges, two 2in ribbon tweeters, and two 1-in dome supertweeters. Separate level controls for midrange, tweeter, and supertweeter. FR 20-50,000 Hz ± 3 dB; sens 96 dB SPLW/m; min amp power 20 W; crossover points 80, 400, 4,000, and 12,000 Hz; nom imp 4 ohms. Oiled walnut finish; black knit grille. 22 x 49 x 17 in; 150 lb \$1,998/pr

Tower II 4-Way Speaker

Multiband design with three 12-in woofers, one 5in cone midrange, one 1-in dome tweeter, and one piezo supertweeter. Separate level controls for midrange and tweeters. Fr 22-50,000 Hz ± 3 dB; sens 95 dB SPL/W/m; min amp power 20 W/ch; crossovers 80, 400, 4,000, and 12,000 Hz; nom imp 4 ohms. Oiled-walnut finish; black knit grille. 15 x 43 x 15 in; 95 lb. \$1,298/pr

QSO 808 4-Way Speaker

VMPS Large Subwoofer

VORTEX

Vortex Screen Subwoofer/Satellite System

Hybrid transmission-line design with 8-in mineral-filled double-thick plastic cone woofer in separate triple-chamber multivented enclosure; 4-in damped plastic cone midrange and 1-in aluminum-dome tweeter mounted in minimum baffle with butyl rubber edge in MDF double-chamber enclosure. Computer-designed Linkwitz-Riley crossover; gold-plated binding posts. Biamplifiable and biwirable. FR 27-25,000 Hz ± 3 dB; sens 88 dB SPL/W/m. Woofer module: 35 x 18 x 11 in; 69 lb ea. Midrange-tweeter module: 14 x 18 x 11 in; 68 lb/pr

WALL SOUND SE 890 In-Wall Subwoofer

SE 790 2-Way In-Wall Speaker

WESTLAKE AUDIO BBSM-8F 3-Way Speaker

BBSM-6F 3-Way Speaker

BBSM-4F 2-Way Speaker

Ported design with dual 4-in woofers and 3¼-in dome tweeter. Power handling 25-50 W; FR 65-

20,000 Hz ±3 dB; nom imp 4 ohms; crossover point 1.500 Hz. 15 x 8 x 10 in; 26 lb ... \$1,600/pr

WHARFEDALE

Coleridge C Class 2-Way Speaker

Model 515 C Class 2-Way Speaker

Acoustic-suspension enclosure with 8-in woofer and 1-in ceramic dome tweeter. Power handling 100 W cont; FR 42-40,000 Hz ± 3 dB; sens 87 dB SPL/W/m; nom imp 8 ohms. Black-ash finish with black grille. 16 x 11 x 12 in; 48 lb/pr... \$650/pr

Model 410 2-Way Speaker

Ported design with 6¼-in woofer and 1-in metaldome tweeter. Power handling 20 W cont; Fr 45-20,000 Hz; sens 89 dB SPL/W/m; crossover point 3,500 Hz. Black-vinyl finish with black-knit grille. 9 x 13½ x 8 in; 26.7 lb/pr......\$375/pr

Delta 50.2 2-Way Speaker

Vented design with 8-in woofer and ¼-in polyimide soft-dome tweeter. Power handling 20 W cont; FR 45-25,000 Hz ±3 dB; sens 90 dB; nom imp 8 ohms; crossover point 5,000 Hz. Black-oak vinyl finish with black-knit grille. 10 x 18 x 8 in; 20.5 lb/pr \$325/pr

Diamond IV

Ported design with 4¼-in woofer and ¼-in metaldome tweeter. Power handling 20 W cont; FR 50-25,000 Hz; sens 86 dB; nom imp 8 ohms; crossover point 3,500 Hz. 7¼ x 10½ x 7¼ in . . \$300/pr

YAMAHA

YST-SW100 Powered Subwoofer

Two 7-in cone woofers. Features line-input and speaker-input connections; magnetic shielding; continuously variable high-cut filter. Amplifier: 70 W into 5 ohms; FR 21-180 Hz. Black...\$429 ea

WSX-10 2-Way In-Wall Speaker

NS-A820 2-Way Bookshelf Speaker

8-in polycarbonate woofer and 1-in microcell dome tweeter. Power handling 140 W cont avg; imp 6 ohms; sens 90 dB SPL/W/m; FR 50-22,000 Hz ± 3 dB. Solid-oak and veneer finish..... \$180 ea

NS-C70 Center-Channel Speaker

Two 4-in full-range drivers. Magnetic shielding; slanted front panel. FR 70-20,000 Hz; imp 6 ohms. Black finish. $5\% \times 17\frac{1}{2} \times 6\frac{1}{4}$ in \$129 ca

NS-A95 2-Way Rear Speaker

Acoustic-suspension design with $4\frac{1}{2}$ -in longthrow woofer and 2-in cone tweeter. Includes mounting bracket and speaker wire. Power handling 30 W; imp 4 ohms; sens 91 dB spL/W/m. Black finish. 9 x 9 x 3 $\frac{1}{2}$ in; 4 lb....... \$80/pr

Acoustat (see Hafler)

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a/d/s/. One Progress Way, Wilmington, MA 01887 (800) 522-4434

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Thursday in the Park With Paul

AUL SIMON looked like a pale shadow of himself at the turn of the Eighties with "One Trick Pony," only to rise from his own ashes with "Graceland" and "The Rhythm of the Saints." "Graceland," especially, with its charming melding of bicultural rhythms and Tin Pan Alley familiarity, restored Simon's reputation, showing him to be not only aging gracefully but still growing as an artist, maybe even becoming a visionary. The new twodisc set of his much-publicized live concert in New York's Central Park one Thursday last August is as much a celebration of that as it is a musical event

Simon and his eighteen back-up musicians—many of whom appeared on his "Graceland" tours—offer stylish and often majestic renditions of his songs, from the Simon and Garfunkel "Sound of Silence" era onward. A couple of the older songs, especially *Kodachrome*, come off as less spirited than in their original recordings. But there's such a *joie de vivre* about the rest of the program, including other older songs like *Me and Julio Down by the School Yard* and *Loves Me Like a Rock*, that it hardly matters.

Simon is in friendly, silky, and occasionally wimpy choirboy voice, and his r-&-b global band, with its odd yet cheerful synthesis of sound, is always fascinating even if a little incongruous.

EDIE BASK

PHOTO



What a girl who calls herself a "human trampoline" and Elvis Presley's Graceland have in common, I'm not really sure. But when Simon hits his stride, he can suspend logic and sweet-talk even bitter enemies into joyful union. From start to finish, this is an exemplary set, and it's one of the clearest and best-engineered live recordings in recent memory. Alanna Nash

PAUL SIMON: Concert in the Park. Paul Simon (vocals, guitar); Michael Brecket (saxophone, EWI); Ray Phiri, John Selowane (guitar); other musicians. The Obvious Child; The Boy in the Bubble; She Moves On; Kodachrome; Born at the Right Time; Train in the Distance; Me and Julio Down by the School Yard; I Know What I Know; The Cool, Cool River; Bridge over Troubled Water; Proof; The Coast; Graceland; You Can Call Me Al; Still Crazy After All These Years; Loves Me Like a Rock; Diamonds on the Soles of Her Shoes; Hearts and Bones; Late in the Evening; America; The Boxer; Cecilia; The Sound of Silence. WARNER BROS. @ 26737-2 two CD's (118 min), © two cassettes 26737-4.

Barenboim Upholds Chicago's Strauss Tradition

HE Chicago Symphony Orchestra's founder, Theodore Thomas, was a friend of Richard Strauss's father, and Thomas and the CSO gave the U.S. premières of several of Strauss's tone poems. Naturally, when Strauss made his first visit to America, in 1904, the Chicago was one of the orchestras he conducted, and the Strauss tradition continued

there under all of Thomas's successors as music director, most notably Fritz Reiner and Georg Solti. There could hardly be more appropriate repertory than Strauss for Daniel Barenboim to record as a symbol of continuity as he succeeds Solti on the Chicago podium and launches the great orchestra's second century.

The new Erato release of Don Qui-

xote and Don Juan with Barenboim and the CSO is altogether more persuasive than their earlier one of Ein Heldenleben and Till Eulenspiegel. It is not merely a matter of admiring the orchestra and the vividness with which Erato has recorded it. These are downright glorious performances of both works.

When Strauss came to America in





1904 he had the twenty-seven-year-old Pablo Casals as soloist in his New York performance of *Don Quixote*, but in many of his subsequent performances he used the respective orchestras' principal cellists, as Barenboim does in this recording and as André Previn did in his recent Telarc recording with the Vienna Philharmonic. The Previn version, also one of the best, comes into direct competition with Barenboim's because it, too, has *Don Juan* for its coupling. Chicago's John Sharp is more than a match for his Viennese colleague, Franz Bartolomey, who plays splendidly but with somewhat less flexibility than Sharp in both color and expressiveness. Barenboim's experience in the opera house was surely an advantage, too, in realvisual visual vi

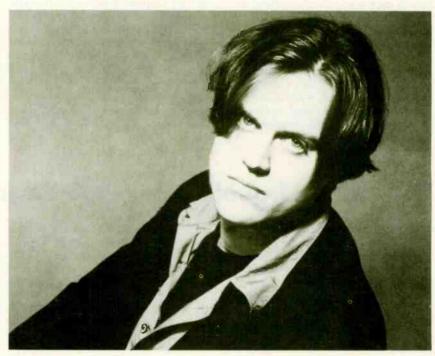
The other Chicago soloists— Charles Pikler, viola, and Samuel Magad, the concertmaster—do the team proud, as indeed every element of this remarkable ensemble does, not least the magnificent horns and Ray Still's oboe in the blazing *Don Juan*. There are other first-rate recordings of both works (including treasurable ones by the same orchestra under Reiner), and there will be others still. Right now, though, there is none more satisfying than Barenboim's. *Richard Freed*

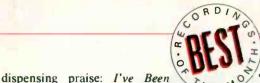
R. STRAUSS: Don Quixote, Op. 35; Don Juan, Op. 20. John Sharp (cello, in Don Quixote): Chicago Symphony Orchestra, Daniel Barenboim cond. ERATO (1) 2292-45625-2 (61 min).

Matthew Sweet's Good-as-It-Gets Pop

Fall the cult records of the Seventies, none stands taller than Big Star's "Radio City," considered by many to be the Great Lost American Pop Album. What the first Velvet Underground album was to the Sixties-a record that didn't sell many copies but led everyone who bought it to form a band (so the story goes)-"Radio City" was to the next decade. Matthew Sweet's newly released third album, "Girlfriend," is a sterling example of how the influence of "Radio City" continues to the present day. "Girlfriend" is not only positively inspired by "Radio City" but arguably equal to it.

What makes both records so magical is that their pop is pristine without being polished to the point of unreality. Amid a flock of nicely composed songs there's room for spontaneity, small mistakes, and self-expression. There's also a healthy reverence for the purity of the guitars-and-drums tradition from the Beatles onward, and





the notion that guitar solos ought to carry the emotion of the song forward or not be there at all. To that end, Sweet has enlisted several of New York City's finest guitarists—Richard Lloyd, Robert Quine, and Lloyd Cole—to play their hearts out.

"Girlfriend" is a cornucopia of great hooks, solid playing, and winsome, impassioned vocals from Sweet. It begins strongly, if strangely, with *Divine Intervention*, a longish song about dislocation ("Don't know where I'm gonna live/Don't know if I'll find a place") whose soul-baring rawness is reminiscent of John Lennon's plaints in "Plastic Ono Band." The next eleven songs make up an uninterrupted streak of good-as-it-gets pop. It's hard to know where to start Waiting, with its rainbow of rich harmonies and jubilant twelve-string guitar; You Don't Love Me, whose crying pedal steel and rustic bounce bring to mind the Neil Young of "Harvest"; the two girl's-name songs, Winona (as in Ryder) and Evangeline. respectively importuning and irreverent. The title track is worth cranking up, too, evolving into a hot jam in which guitarist Ouine pitches a guirky fit. It all neatly segues, by way of a drum bridge, into the gorgeous, ruminative Looking at the Sun. Sweet closes the CD with three tracks left over from his last album, including the uncharacteristically splenetic Does She Talk? and one of rock's more M → "... I'm not in for killing another man/Defending my Holy Land/ As if there's a God who would understand."

If it gets a fair and public hearing, "Girlfriend" might finally seduce America into noticing one of its most talented pop musicians. If not, we may just have another cult masterpiece on our hands. Parke Puterbaugh

MATTHEW SWEET: Girlfriend. Matthew Sweet (vocals, bass, guitars, piano); other musicians. Divine Intervention; I've Been Waiting; Girlfriend; Looking at the Sun; Winona; Evangeline; Day for Night; Thought I Knew You; You Don't Love Me; I Wanted to Tell You; Don't Go; Your Sweet Voice; Does She Talk?; Holy War; Nothing Lasts. Zoo © 72445-11015-2 (62 min), © 72445-110152-4.

Rostropovich's Triumphant Homecoming

STISLAV ROSTROPOVICH'S new "Return to Russia" album, recorded at concerts on February 13 and 14, 1990, in the Great Hall of the Moscow Conservatory, not only conveys the passionate sense of occasion by way of stormy and well-deserved applause. It offers superb musicmaking throughout a program ranging from the somber "Pathétique" Symphony of Tchaikovsky to an insouciant Gershwin number to a rousing rendition of John Philip Sousa's Stars and Stripes Forever.

Rostropovich has not been known for moderation in his musical interpretations, especially of the Russian masters, but this performance of the Tchaikovsky symphony exhibits a fine-grained intensity. The whole reading is magnificently controlled from start to finish, yet it is heartclutching in its urgency. The valedictory coda of the opening movement is something to be remembered, and the famous 5/4 "limping waltz" is elegance itself even with the undercurrent of melancholy in the pedal-pointed middle section. The march-scherzo is a true Russian quickstep and free from the hysteria heard in some other performances. The harrowing Adagio lamentoso finale comes across as dryeved, tight-lipped sorrow for most of its course; only at the final outburst does Rostropovich let his forces have their head. The effect is overwhelming. I would rate this overall as one of the half-dozen most distinguished recordings of the "Pathétique."

effective antiwar songs, Holy War:

The encores are a study in light and shade: Shostakovich's witty orchestration of a Strauss polka, heartfelt string playing in "Aase's Death" from Grieg's Peer Gynt, a light-as-a feather run-through of Paganini's challenging Moto Perpetuo, a properly savage treatment of "Tybalt's Death" from Prokofiev's Romeo and Juliet, a delightfully stylish treatment of Gershwin's Walking the Dog, and then the Sousa. When the audience spontaneously claps along to this American march, it brings home in no uncertain terms the end of the Cold War. It is all wonderfully exhilarating and moving, and despite the inevitable hazards of live concert recording, the sound is handsome. David Hall

MSTISLAV ROSTROPOVICH: Return to Russia. Tchaikovsky: Symphony No. 6, in B Minor, Op. 74 ("Pathétique"). J. Strauss (arr. Shostakovich): Excursion Train Polka. Grieg: Peer Gynt, Aase's Death. Paganini (arr. Makris): Moto Perpetuo. Prokofiev: Romeo and Juliet, Tybalt's Death. Gershwin (arr. Kostelanetz): Shall We Dance, Walking the Dog Promenade. Sousa: The Stars and Stripes Forever. National Symphony Orchestra of Washington, Mstislav Rostropovich cond. Sony CLASSICAL © SK 45836 (72 min), © ST 45836.





TECHNOLOGICAL BREAKTHROUGH

At the 1990 Consumer Electronics Show the convention floor was buzzing with the news of Datawave's WS7 Wireless Speaker System. This product has been touted in a number of electronics magazines as one of the most exciting new products of the 90's. The heart of Datawave's breakthrough design is a patented FM technology which broadcasts music wirelessly from a small transmitter to satellite speakers. The transmitter, about the size of a paperback book, broadcasts music from virtually any sound source to a receiver built into the speaker - no speaker wires are needed!

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The Datawave Speaker system is of the highest quality design. The speaker is mounted in a bookshelf-size, acoustically constructed cabinet providing a convenient design for placement in any room.

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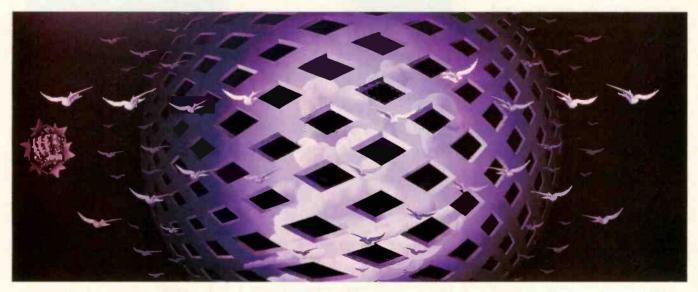
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Recent discs and cassettes reviewed by Chris Albertson, Phyl Garland, Ron Givens, Roy Hemming, Alanna Nash, Parke Puterbaugh, and Steve Simels

BRYAN ADAMS: Waking Up The Neighbours. Bryan Adams (vocals, guitar); other musicians. Is Your Momma Gonna Miss You; Hey Honey, I'm Packin' You In; Can't Stop This Thing We Started; Not Guilty; Vanishing; and ten others. A&M (5367-2 (75 min), C 5367-4.

Performance: Pure product Recording: Good

It's not that Bryan Adams isn't a nice guy, it's the formulaic nature of his rock and the willing-to-please mush of his ballads that rankles. There's scarcely an original idea in this new album, from the Stones-like "cowbell rock" of Is Your Momma Gonna Miss You to the Rod Stewartish bluster of Hey Honey, I'm Packin' You In, reminiscent of Hot Legs and Stay with Me without improving on either. Adams keeps all his ducks in a row when it comes to pleasing radiostation program directors and MTV. His canny commercial instincts and knack for hooking mainstream rock fans is beyond dispute, but in "Waking Up the Neighbours" he lapses into mediocrity. Vanishing, for instance, starts out promisingly but devolves into a grinding chant whose lyrics would be appropriate to "Spinal Tap II": "If it takes all night/ Gonna swim your sea/Gonna sail your ocean/Gonna shake your tree ... Imagine more than an hour of such stuff. That's what aspirins are made for. P.P.

THE BAD EXAMPLES: Bad Is Beautiful. The Bad Examples (vocals and instrumentals); other musicians. Not Dead Yet; Statue by the Phone; Promises in the Dark; Faces in Picasso's Notebook; and ten others. WATERDOG () WD 9101 (48 min), © WD 9101.

Performance: Winning Recording: Good

An interesting album, like love, is where you find it, and these days that's often on a small independent label. Case in point: the Waterdog Records debut of the Bad Examples, a youngish, Chicago-based

Explanation of Symbols

O = Compact disc

© = Tape cassette

Popular Music



Bryan Adams: nice guy with a formula

rock-and-roll outfit with the traditional lineup of two guitars, bass, and drums and a stylistic range extending from blues-based rave-ups (Rubber Cement Man) to Squeeze-style pop rock (Ashes in My Heart).

What the Examples are doing obviously isn't blindingly original, but what raises them above the level of a superior bar band is frontman Ralph Covert, as authentic a rock-and-roll natural as you are likely to hear any time soon. Covert writes like a dream-terrific tunes with funny, intelligent, occasionally even heartbreaking lyrics about life as it is actually lived by normal human beings rather than rock stars-and he sings in a classic ravaged-but-sweet (that is, real) rock voice that gets under your skin. about 2 minutes into the disc. Imagine a less dissolute Alex Chilton at the top of his form, and you'll have an idea what a marvelous racket Covert and his colleagues are making all over "Bad Is Beautiful." In short, get it immediately. Pick hits: Stranger Than Fiction, ridiculously catchy power pop, and She Smiles Like Richard Nixon, which actually lives up to what is clearly the neatest song title of the Nineties so far. 2.2

DRAMARAMA: Vinyl. Dramarama (vocals and instrumentals); Mick Taylor (guitar); other musicians. Until the Next Time; Haven't Got a Clue; What Are We Gonna Do?; Classic Rot; Memo from Turner; and six others. CHAMELEON (D) 61242-2 (51 min), © 61242-4.

Performance: Sizzling Recording: Very good

Dramarama likes the Seventies, and they bring 'em back alive in an album

that bristles with big guitars, earnest inyour-face vocals, and a pinch of glam-rock swagger. "Vinyl" is recorded cleanly, with precisely separated instruments and a close-miked sound that'll flatten you with its presence. There's nothing to hide, because the band has chops to burn and John Easdale's songs stand on their own two feet. Some of them are more infectious than type-A flu, notably the barnstorming opener, Until the Next Time, a tuneful blitzkrieg of guitars in overdrive and breathless vocals, and In Quiet Rooms, whose onenote vocal and reverberant guitars come from Tom Petty by way of the Byrds-a grand and glorious lineage. And any band that can rock Mick Jagger's longlost Memo from Turner (from the Performance soundtrack) more sinuously than the original has gone from students to masters of the genre. Nearly every song here offers something of substance worth gnawing on, and Dramarama's eagerness and energy are infectious. If you liked groups like Mott the Hoople and Cheap Trick at their peaks, give "Vinyl" a spin. You won't be disappointed. PP

HAMMER: Too Legit to Quit. Hammer (vocals); vocal and instrumental accompaniment. This Is the Way We Roll; Brothers Hang On; Too Legit to Quit; Living in a World Like This; Tell Me (Why Can't We Live Together); and eight others (twelve others on cassette). CAPITOL © CDP 98151-2 (71 min), © C4-98151.

Performance: Newly sophisticated Recording: Excellent

You can't accuse Hammer of playing it safe. After selling more than ten million safe. After selling more than ten million

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copies of his last album, "Please Hammer Don't Hurt 'Em," the rapper has dropped the "M.C." from his name and sampling from his bag of audio tricks. Obviously bothered by those who accused him of riding the coattails of Rick James, whose Super Freak (Part 1) supplied the devastating hook for the megahit U Can't Touch This, Hammer has come up with his own music this time. (All but Brothers Hang On, which takes its main riff from the Temptations' Papa Was a Rollin' Stone, are originals cowritten by Hammer.) He's also brought a new sophistication to the sound of his rap, working overtime to jam as many sounds into each cut as he can. At times you can hear him doing the main rap as well as a softer counter-rap, along with back-up singers, choirs, full horn sections, and even, in one cut, a flute solo.

As before, Hammer's primary concerns are social justice and self-help, with a little boasting tossed in. The overall musical and political effect isn't that far from latter-day Marvin Gaye, particularly because of the sweet-voiced men who croon over many of the raps. "Too Legit to Quit" may sound a little old-fashioned for those hip-hop fans who like their music on the cutting edge, but for musical sweat equity no one else can touch this. RG

I'M YOUR FAN: The Songs of Leonard Cohen. R.E.M .: First We Take Manhattan. Ian McCulloch: Hey That's No Way to Say Goodbye. Pixies: I Can't Forget. That Petrol Emotion: Stories of the Street, Lilac Time: Bird on the Wire, And thirteen others. ATLANTIC @ 82349-2 (76 min), © 82349-4.

Performance: Wonderful Recording: Fine

Tribute albums generally make for diverting entertainment, but only rarely do the multiple perspectives enlarge one's view of an artist to the point where they become crucial listening. "I'm You're Fan" is that happy exception, an album whose performances are consistently enlightening and deeply felt. The songto-song flow is nothing short of a miracle, proving that the avalanche of "alternative" artists enlisted to contribute really do owe a creative debt to Leonard Cohen, the low-voiced poet whose intermittent recordings have been cherished discriminating pop-culture literati by since the late Sixties. Cohen's material is particularly tailor-made for the romantic fatalism and urbane bohemianism of the late-model outcasts assembled here. In a way, "I'm Your Fan" could pass for an album of early Velvet Underground outtakes: wry, literate, mournful, dashingly electric yet somewhat fragile, and decidedly European in temperament.

Cohen has been widely celebrated as a lyricist, but the grace and detail of his comely melodies stand out in Stories of the Street (performed here by That Petrol Emotion), Bird on the Wire (the Lilac Time), Chelsea Hotel (Lloyd Cole), and

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So Long Marianne (James). He can be a wickedly funny writer-check out Don't Go Home with Your Hard-On (David McComb and Adam Peters) and Tower of Song (in two versions, one by Robert Forster and one by Nick Cave and the Bad Seeds). And certain of his songs readily lend themselves to rock-band treatments, like R.E.M.'s corrosive version of First We Take Manhattan and the Pixies' fibrillating electric drone in I Can't Forget. "I'm Your Fan" is a triumph that goes far beyond tribute, bringing the words and music of Leonard Cohen into the Nineties with electricity and passion. PP

MICHAEL JACKSON: Dangerous. Michael Jackson (vocals); other musicians. Jam; Why You Wanna Trip on Me; In the Closet: She Drives Me Wild; Remember the Time; Can't Let Her Get Away; Heal the World; Will You Be There; and six others. EPIC © EK 45400 (77 min), © ET 45400.

Performance: Forced Recording: Good

Time and pop music wait for no mannot even Michael Jackson. A lot has happened in the r-&-b world since he got "Bad" in 1987. Rap has gone mainstream in a major way and, along the way, spawned New Jack Swing. Of course, Jackson knows that, so to bring himself hip-hopping into the Nineties he hired Teddy Riley, the New Jack Swingi-est producer around. "Dangerous" includes seven Riley-Jackson collaborations, all of which go heavy on the rhythms and light on the melodies. Of these, only Jam, In the Closet, and the title cut manage to be more than catchy grooves-even Michael Jackson cannot sing a melody that doesn't exist. When his soaring falsetto whips into the liberating bridge in the middle of In the Closet, you can feel the sweet power of New Jackson Swing, but for the most part it feels like his talents have been grafted onto the newer style.

Other songs sound much more natural, mainly because they're close relatives of earlier Jackson songs. Heal the World recycles the sentiment, as well as a line or two, of We Are the World, and the luxurious funk-pop of Who Is It would have been right at home in "Bad" or "Thriller." Two gospel-heavy num-bers, Will You Be There and Keep the Faith, have moments of genuine feeling, but they seem out of place alongside the eight songs that deal, sometimes naïvely, sometimes raunchily, with romance and sex. This confusion of attitudes reinforces the impression that "Dangerous" is the result of obsessive calculations-a reflection of what Jackson thinks we want rather than what he feels. Even though the album has strong moments, like the hit Black or White, on the whole it seems forced. R.G.

THE KINKS: Did Ya. The Kinks (vocals and instrumentals). Did Ya; Gotta Move; Days; New World: Look Through Any Doorway. COLUMBIA © 44K 74050 (18 min).

Performance: Exciting Recording: Fine

If memory serves, this latest effort by the Kinks-the third or fourth greatest rockand-roll band of all time-is their first EP since the mid-Sixties. More to the point, it's also the most interesting thing they've released in what seems like ages. It's not quite top-shelf Kinks, perhaps, but at least every note sounds like the work of a band excited about making music. And, believe it or not, the standout track is by Dave (!) Davies, who hadn't written a memorable song since 1970; his new Look Through Any Doorway is an ingratiating bit of melancholia in a style splitting the difference between the Kinks' original crunch-guitar and folk-rock modes. Meanwhile, big brother Ray Davies weighs in with a remake of his obscure-in-America early-Seventies hit Days, improving on the original sonically and emotionally. He also belts out a concert version of one of the group's best early rave-ups, Gotta Move, that's the hottest live Kinks track ever to appear commercially. Earlier, the title song finds him in a political mood, which doesn't stop him from crafting one of his cutest music-hall rockers (complete with Sunny Afternoon harmonies), and even his throwaway dance track New World

grabs your attention and holds it. All in all, then, "Did Ya" is a very pleasant surprise. If the band's next fulllength album displays the level of energy and inspiration on display here, then 1992 could be a better year than anybody around my house anticipated. S.S.

PIXIES: Trompe le Monde. Pixies (vocals and instrumentals); other musicians. Trompe le Monde; Planet of Sound; Alec Eiffel; The Sad Punk; Head On; U-Mass; Palace of Brine; and eight others. ELEK-TRA © 61118-2 (39 min), © 61118-4.

Performance: Erratic Recording: Good

The Pixies can be fun, but they can also be work. Take the song U-Mass in this new album, for example. You have to listen to lead vocalist Black Francis meander through various oblique ruminations about the obvious effects of college life-kids stop being kids, they develop political thoughts, and they work out their sexuality—before he begins to *screech* "It's educational" over and over and over. It's a wonderfully obsessive punch line to a tedious, murky joke. Listening to "Trompe le Monde" is pretty much just like that: crisp moments of rage, wit, and metaphysics connected by murky imagery and scrambled syntax. Sometimes the slashing guitars and chugging rhythm section make the bumpy moments worth the effort, but often they don't. RG

(Continued on page 132)



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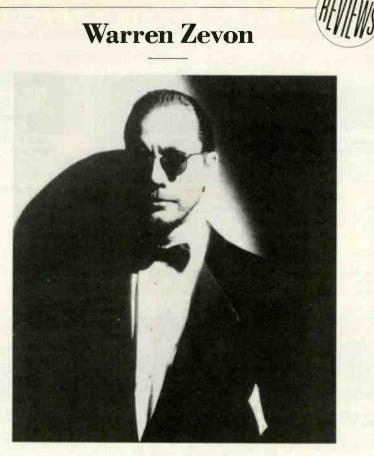


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HE new album "Mr. Bad Example" deserves to restore Warren Zevon's popularity to the level of his early career peak, "Excitable Boy" in the late Seventies. It's got a cabaret of quirky characters equal to that album's rogue's gallery-everything from greedy scoundrels to square-peg misfits. Zevon relates their tales with the dry, brittle wit of someone who's seen it all, yet he stops short of condescension. There's the crack-addled character in Angel Dressed in Black who's wondering why his punkette girl friend hasn't come home but is too stupefied and comfy to go out looking for her. The title song is a sprightly ig about a globe-trotting reprobate who's run down every scam in the book to turn a profit. Zevon's jaunty keyboards help give the song the antic air of a crook celebrating ill-gotten gains. He touches on serious topics, too. "Renegade" is a stately piano ballad whose lyrics about lost wars and stubborn perseverence ("I am a renegade/I've been a rebel all my days") could refer to the vanquished South, an aging generation of rock-and-rollers, or Zevon himself.

No contemporary songwriter's words hold up on a printed page better than Zevon's. But he's also musically solid, having shown he's able to hold onto the best aspects of the Southern California singer/songwriter school while going with the flow of changing times. Anyone who can record an impromptu blues

album with R.E.M. (last year's "Hindu Love Gods") and then make a record as polished and varied as this one is definitely on top of his game. Some of the futuristic, Orwellian dread of Zevon's previous solo album, "Transverse City," crops up now and again-most overtly in Quite Ugly One Morning, whose acrid air of impending nuclear holocaust lurks in its difficult time signature and the strange array of stringed instruments played by David Lindley. But there's comic relief and compassion to counterpoint the gnawing fear and uncertainty. In fact, Zevon has written here what may be his prettiest song ever, Suzie Lightning, a classically tempered love song with a billowy chorus that carries his husky voice into a fragile falsetto.

All in all, "Mr. Bad Example" finds Warren Zevon in fine form: literary and colloquial, irascible yet sincere, and as entertaining as they come.

Parke Puterbaugh

WARREN ZEVON: Mr. Bad Example. Warren Zevon (piano, guitar, vocals); Waddy Wachtel (guitar); other musicans. Finishing Touches; Suzie Lightning; Model Citizen; Angel Dressed in Black; Mr. Bad Example; Renegade; Heartache Spoken Here; Quite Ugly One Morning; Things to Do in Denver When You're Dead; Searching for a Heart. GI-ANT @ 24431-2 (40 min), © 24431-4. PRINCE AND THE NEW POWER GENERATION: Diamonds and Pearls. Prince (vocals and instrumentals); other musicians. Thunder; Daddy Pop; Diamonds and Pearls; Cream; Strollin'; and eight others. PAISLEY PARK/WARNER BROS. © 25379-2 (66 min), © 25379-4.

Performance: Transitional Recording: Very good

The good news is that Prince is working with a band again. So "Diamonds and Pearls" sounds better, in terms of audio breadth and depth, than any Prince album in a long time. The bad news is that Prince is working with a band again. So "Diamonds and Pearls" shows pop's most irrepressible imp being held back by an unmovable funk band. In cut after cut, the music settles down for a long winter's groove—sometimes, as in the sassy, pumping *Cream*, for a good time, but sometimes, as in the empty, cocktailloungy *Strollin*', for a big yawn.

Even for the eclectic Prince, this album reaches far and wide for musical accents. Willing and Able tosses West African jive into the funk stewpot. Walk Don't Walk marches along to a hootenannish acoustic guitar. And Jughead hypes a new dance style with warmed-over raps. Most of these tunes sound like experiments, which makes the album feel transitional. It's a signpost between what Prince has been and what he is becoming. R.G.

PUBLIC ENEMY: Apocalypse 91... The Enemy Strikes Black. Public Enemy (vocals and instrumentals); other musicians. Lost at Birth; Rebirth; Nighttrain; Can't Truss It; How to Kill a Radio Consultant; and nine others. DEF JAM/Co-LUMBIA ⁽¹⁾ CK 47374 (52 min), ⁽²⁾ CT 47374.

Performance: Intense Recording: Good

Rap is changing faster than the speed of sound. In the past few years rap groups have been pushing the musical boundaries of the genre, moving from straight sampling to original arrangements and from plain chanting to dazzling tonguetripping. But Public Enemy continues to plow the same musical course: heavierthan-thou beats, uncomplicated riffs, syncopated scratching, and the relentless rapping of Chuck D.

"Apocalypse 91" sounds a lot like its three predecessors, but Public Enemy has lost none of its punch. As before, the group takes a sharp-eyed look at problems confronting the black community, and the analysis spares no one, black or white. In *Nighttrain*, a grinding look at black-to-black relationships, Chuck D says, "You mustn't put your trust in every brother, yo." In *By the Time I Get to Arizona*, he takes on the state for not observing Martin Luther King, Jr.'s birthday: "I'm on the one mission/to get a politician/to honor or he's a goner." Although these songs may lose focus occasionally, Public Enemy remains an



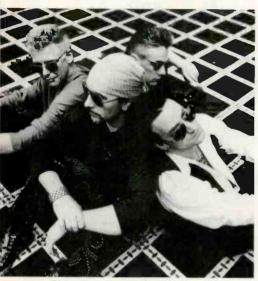


essential musical force because Chuck D has both a fiercely moral view of society and a compelling way of phrasing it. His voice cannot be ignored. *R.G.*

KEITH RICHARDS AND THE X-PEN-SIVE WINOS: Live at the Hollywood Palladium December 15, 1988. Keith Richards (guitar, vocals); Sarah Dash (vocals); other musicians. Take It So Hard; How I Wish; Stood You Up; Too Rude; Make No Mistake; Time Is on My Side; and seven others. VIRGIN ⁽¹⁾ 91808-2 (64 min), ⁽²⁾ 91808-4.

Performance: Ragged but right Recording: Good

This live memento of the 1988 tour by Keith Richards and the X-pensive Winos (in support of his "Talk Is Cheap" album) proves which Rolling Stone is the true repository of the rock-and-roll spirit. As a frontman, Richards doesn't



U2: oblique strategies

waste a lot of time on banter or theater; he'd rather let the music do the talking. There's no mistaking his surging chords and sloppy but affecting vocals for anyone else's. For a little more than an hour, he and his Winos assay a boozy primer of rock, rhythm-and-blues, and reggae. This is unretouched live music; the offkey notes and bum chords were left in, which gives the set a measure of charm and immediacy as well as integrity.

Richards really is a walking (slouching?) encyclopedia of music. In the space of three songs, he moves from a galloping Chuck Berry-inspired rocker (Stood You Up) to a hummable popreggae shuffle (Too Rude) to a torchy, Al Green-style r-&-b number (Make No Mistake) in a steamy duet with Sarah Dash. Dash then goes it alone, belting out a version of Time Is on My Side that's closer to the Irma Thomas original than the Stones' more famous cover. Richards pulls out a few old Stones plums— Happy and (inspired choice) Connection—toward the end of the set. And a satisfying set it is, from a modest rockand-roll master who, you'll recall, didn't really want to make a solo album in the first place. Hats off, Keef. *P.P.*

PAUL SIMON: Concert in the Park (see Best of the Month, page 121)

MATTHEW SWEET: Girlfriend (see Best of the Month, page 122)

TWO ROOMS: Celebrating the Songs of Elton John & Bernie Taupin. Eric Clapton: Border Song. Kate Bush: Rocket Man (I think it's going to be a long, long time). Sting: Come Down in Time. The Who: Saturday Night's Alright (for Fighting). The Beach Boys: Crocodile Rock. And eleven others. POLYDOR @ 845-750-2 (79 min), © 845-750-4.

Performance: Inspired Recording: Very good

Since 1967, Elton John and Bernie Taupin have sat in two rooms miles apart and turned out some of the most popular melodies and lyrics in rock-and-roll. As tribute to that collaboration, sixteen groups and artists have recorded their favorite songs by the duo. The album not only holds up as terrific entertainment but in several cases makes the material come alive in a new way. Kate Bush's version of Rocket Man, for instance, uses her ethereal, otherworldly whisper to bring out the loneliness and fear an astronaut in space might readily experience. The Who's Saturday Night's Alright (for Fighting) sounds much more menacing and believable, and less campy, than John's, if just as jumpy. And Joe Cocker's exquisite, tortured vocal in Sorry Seems to Be the Hardest Word reveals the depth of Taupin's writing. Some of the singers are perfect matches to the material-Oleta Adams in the gospel-tinged Don't Let the Sun Go Down on Me, Tina Turner in The Bitch Is Back-though Hall and Oates doing Philadelphia Freedom probably sounded better as an idea than it sounds on disc. Rod Stewart and Bruce Hornsby don't manage to illuminate Your Song and Madman Across the Water, respectively, any more than John did, but the lyrics may be just too obscure. More often than not, though, "Two Rooms" is surprisingly stirring and involving-and enormous good fun. A.N.

U2: Achtung Baby. U2 (vocals and instrumentals). Zoo Station; Even Better Than the Real Thing; One; Until the End of the World; Who's Gonna Ride Your Wild Horses; So Cruel; and six others. ISLAND © 314-510 347-2 (55 min), © 314-510 347-4.

Performance: U who? Recording: Poor

No, your stereo isn't broken, nor did the record company accidentally slip the long-awaited CD version of Lou Reed's "Metal Machine Music" (with bonus tracks!) into the wrong jewel box. That distorted noise crackling out of your speakers is U2's five-years-in-the-making new album, the perplexingly titled "Achtung Baby." In its murky experimentalism and casually desperate attempts at plumbing for the unexpected, this is the sound of a band on the run. While some might laud its daring, I say that it's simply not very good.

The first minute of the opener, Zoo Station, will have you on the phone to the hi-fi repair shop. The Edge executes snaky, slalom-run guitar riffs and is answered by hyperdistorted bass splats; Bono's heavily treated voice makes him sound like he's shouting through a cardboard paper-towel tube. It's hard to decipher what he's singing-or to want to make the effort. This is U2 reflected off a funhouse mirror, playing around with sounds and disfiguring songs out of a reckless desire to deconstruct their music. While oblique strategies and spontaneous creation might serve some artists well, it makes U2 sound indifferent at best and incompetent at worst.

Moments of "Joshua Tree"-style yearning peep through the surreal scrim, as in Tryin' to Throw Your Arms Around the World, but they are faint, secondhand echoes drowned out by the clamorous context. That the band may be pushing toward something new and worthwhile is suggested by the r-&-b inflected chants and kinetic rhythm guitar of Mysterious Ways and Even Better Than the Real Thing, but for the most part "Achtung Baby" is a bomb that misses its target from a band whose sense of itself has been ruptured by a suffocating fame. Let's hope it's a temporary condition. P.P.

Jazz

BILLIE HOLIDAY: The Legacy, 1933-1958. Billie Holiday (vocals); Roy Eldridge, Bunny Berigan, others (trumpet); Vic Dickenson, Urbie Green (trombone); Lester Young, Ben Webster, Chu Berry, Artie Shaw, Benny Goodman, others (reeds); Teddy Wilson, Kenny Kersey, Claude Thornhill (piano); Milt Hinton, John Kirby (bass); Cozy Cole, Kenny Clarke, Jo Jones, J. C. Heard (drums); other musicians. Your Mother's Son-in-Law; What a Little Moonlight Can Do; Billie's Blues; Saddest Tale; Miss Brown to You; I Wished on the Moon; Why Was I Born?; Moanin' Low; Easy Living; They Can't Take That Away from Me; Trav'lin All Alone; He's Funny That Way; My Man; Jeepers Creepers; and fifty-six others. COLUMBIA/LEGACY © C3K 47724 three CD's (211 min), © C3T 47724 three cassettes.

BILLIE HOLIDAY: The Original Decca Recordings, 1944-1950. Billie Holiday (vocals); vocal and instrumental accompaniment. Easy Living; Solitude; Weep No More; My Man; Them There Eyes (two



The Pop Boxes



0 many boxes, so little time (and money). The success of 1990's multidisc/cassette Led Zeppelin and Robert Johnson packages has inspired a bumper crop of new boxed sets devoted to artists all over the pop spectrum. These compilations-all containing three or four albums' worth of music-aren't for beginners. If you're merely curious about the musicians, you're better off with a greatest-hits or best-of album if you can find one. True fans, however, will probably buy these sets no matter what. And now, without further remastering, here are the boxes of winter 1991-1992. Ron Givens

AEROSMITH: Pandora's Box.

Devotees of these strutting hard rockers will cherish the 1966 track by lead yowler Steven Tyler, and they'll dote on the snippets of Aerosmith jams that later turned into full-fledged songs. But compared with the group's kick-butt classics, the previously unheard material in "Pandora's Box" seems like a bargainbasement clearance, with a few real finds among a lot of dross. (Columbia, 3 CD's or cassettes; 52 tracks, 22 previously unreleased)

JEFF BECK: Beckology.

This survey touches all the right bases, from Beck's early group the Tridents to his original deification with the Yardbirds to the bands he led in the Seventies

and enough imagination for several careers. Later on, however, he descends into flashy, less satisfying rock-jazz fuzak. (Epic, 3 CD's or cassettes; 55 tracks, 5 previously unreleased) CARPENTERS: From the Top.

and Eighties. The early work is astonish-

ing. Beck shows explosive technique

Do you really want to hear this glossy duo singing a commercial for Japanese soda pop? Or Karen Carpenter covering Paul Simon's *Still Crazy After All These Years*? Sure, you've got all the Top 10 chartbusters here, but only seven of their sixteen lesser hits. "From the Top" is a curious tribute. (A&M, 4 CD's or cassettes; 67 tracks, 20 previously unreleased)

RAY CHARLES: The Birth of Soul.

Brother Ray's fusion of blues, r-&-b, gospel, and jazz in the Fifties laid the foundation for soul music, but this is the first decent collection of his formative work to come along for quite a while. "The Birth of Soul" is a must for anyone who wants to understand the history of black pop. (Atlantic, 3 CD's or cassettes; 53 tracks)

CHICAGO: Group Portrait.

Yes, they're the most successful pop horn band ever, but as time lurched on, Chicago became less jazzy and more gooey. If you liked them both early and late, then maybe you really do want "Group Portrait" instead of one of their previous greatest-hits albums. (Columbia, 4 CD's or cassettes; 73 tracks, 1 previously unreleased)

THE CLASH: On Broadway.

A respectful retrospective for these surly iconoclasts? Seems incongruous, but here we have the unified field theory of the Clash, putting tracks that were replaced on American versions of their albums back in their proper chronological order. "On Broadway" shows how powerful and entertaining their politicized pop really was. (Epic, 3 CD's or cassettes; 63 tracks, 8 previously unreleased)

THE PATSY CLINE COLLECTION.

You may think that 4 hours and 25 minutes of Patsy Cline is a lot. You're right. But this remarkably strong set showcases what may be the all-time greatest voice in country music—capable of growling sass as well as throbbing tenderness. (MCA, 4 CD's or cassettes; 104 tracks, 10 previously unreleased)

CROSBY, STILLS & NASH: CSN.

Beginning with the point where David Crosby, Stephen Stills, and Graham Nash first began to work as a trio, "CSN" traces their subsequent music both together and apart. The set includes their solo and duo songs as well as Crosby, Stills, Nash, and Young tunes. Unfortunately, because C, S, and N have become less compelling over the years, "CSN" goes from wonderful (the first two volumes) to a real snooze (the last two). (Atlantic, 4 CD's or cassettes; 77 tracks, 25 previously unreleased)

ANTOINE "FATS" DOMINO: They Call Me the Fat Man.

With a career as big as the man himself, it's a wonder that they could fit this retrospective onto only four discs. Fats Domino had thirty-nine Top 10 r-&-b hits and eleven Top 10 pop hits during the Fifties, and this set has them all. Even better, the first volume shows Domino working through a variety of New Orleans influences before settling into his trademark easy-rolling style. (EMI, 4 CD's or cassettes; 100 tracks, 1 previously unreleased)

HOWLIN' WOLF: The Chess Box.

Oo-oooo-ooh! Here's another terrific box from the Chess vaults, this one devoted to gravel-voiced Chicago blues great Howlin' Wolf. Unlike nearly every other box on this list, this one doesn't waste a track. Blues people (and everybody else) should put down this magazine and head to the store right now. (MCA/Chess, 3 CD's, cassettes, or LP's; 75 tracks, 22 previously unreleased)

THE ESSENTIAL KING CRIMSON: Frame by Frame.

King Crimson made its uncompromising art through a variety of personnel changes. All the lineups included Robert Fripp, who painstakingly compiled this box. Including an entire volume of live performances may not have been the commercial thing to do, but it must have made aesthetic sense to Fripp. (Editions EG/Caroline, 4 CD's or cassettes; 45 tracks, 9 previously unreleased)

LYNYRD SKYNRD.

The Lynyrd Skynyrd catalog is a mite picked over by now, but "Lynyrd Skynrd" manages to unearth some real treasures, including a demo of *Free Bird* and a blistering three-guitar remake of Jimmie Rogers's *T for Texas*. (MCA, 3 CD's or cassettes; 47 tracks, 15 previously unreleased)

THE MONKEES: Listen to the Band.

Some of this is darned cute, but "Listen to the Band" just goes on . . . and on . . . and on . . . (Rhino, 4 CD's or cassettes; 80 tracks, 15 previously unreleased)

BARBRA STREISAND: Just for the Record

Compiled by Streisand herself, this set lists all of her awards and even includes stuff like the audio from an Oscar acceptance speech, which gives it the appearance of a vanity project. But it does provide a sumptuous overview of her crystalline pop talents (though she's skipped over most of her rockish efforts). This year, people who like Streisand are the luckiest people in the world. (Columbia, 4 CD's or cassettes; 90 tracks, 67 previously unreleased)

PHIL SPECTOR: Back to Mono (1958-1969).

Producer Phil Spector brought his larger-than-life pop orchestrations to a variety of singers, from the Crystals to Ike and Tina Turner to the Righteous Brothers, and now his orgiastic approach to sonics has been documented for posterity. Included in this set is the best pop Christmas album of all time, Spector's "A Christmas Gift for You." (Phil Spector/ABKCO, 4 CD's or cassettes; 73 tracks, 12 previously unreleased)

T. REX: The Essential Collection.

Glam-rock lovers will eat this up, but hey, how "essential" can this package be if it doesn't have the single most essential T. Rex song, *Bang a Gong (Get It On)*? (Relativity, 3 CD's or cassettes; 40 tracks, 8 previously unreleased) takes); Gimme a Pigfoot and a Bottle of Beer; You're My Thrill; God Bless the Child; Don't Explain; 'Tain't Nobody's Business If I Do (two takes); I Loves You, Porgy; Lover Man; Guilty (three takes); and thirty-three others. DECCA JAZZ GRD2-601 two CD's (151 min), © GRD4-601 two cassettes.

BILLIE HOLIDAY: Lady in Autumn-The Best of the Verve Years. Billie Holiday (vocals); Charlie Shavers, Joe Newman, Harry "Sweets" Edison (trumpet); Lester Young, Coleman Hawkins, Ben Webster, Paul Quinichette, Flip Phillips, Benny Carter, Budd Johnson (saxophone); Oscar Peterson (piano); Ray Brown (bass); Cozy Cole (drums); other musicians. My Man; Yesterdays; Stormy Weather; Autumn in New York; Lover Man; April in Paris; Fine and Mellow: Tenderly; What a Little Moonlight Can Do; Body and Soul; Don't Worry 'Bout Me; and twenty-four others. VERVE (1) 849 434-2 two CD's (130 min), © 849 434-4 two cassettes.

Performances: Good to glorious Recordings: Mostly fine

"Billie Holiday—The Legacy" consists for the most part of selections that originally appeared on Columbia, Vocalion, and Okeh between 1933 and 1958, a period that spans Holiday's recording career. Much of this material has already appeared on CD's, but there are also previously unreleased items, including a couple of 1939 airchecks with the Benny Goodman band and a track where vocalists Martha Tilton, Leo Watson, and Johnny Mercer join Billie in Jeepers Creepers.

If you are a Billie Holiday fan, you hardly need to know that these Columbia recordings are among her finest-great material handled in the unique manner that brought her worldwide attention and established her as a major star. They're also notable for the outstanding accompaniments by the cream of the jazz crop, including trumpeters Buck Clayton, Henry "Red" Allen, and Roy Eldridge and reedmen Ben Webster, Chu Berry, Buster Bailey, and, of course, Lester Young, a truly kindred spirit. Add rhythm sections with Teddy Wilson, Claude Thornhill, Milt Hinton, and Cozy Cole, and you have a series of perfect combinations.

"The Original Decca Recordings" covers the years 1944 to 1950 and represents another phase of Holiday's career-indeed, another sound. Between the Columbia and Decca sessions she made an extensive series of Commodore recordings with small bands, but at Decca the approach changed. In an obvious attempt to reach a broader market, she was recorded with big bands, strings, and other name performers like Louis Armstrong and the Stardusters. I never cared much for the original sound quality of the Decca recordings, but reissue engineer Doug Schwartz has done wonders, and this two-disc set sounds fine.

While there are glorious ballad performances in the Decca album-gems like Good Morning Heartache, Lover Man, and You're My Thrill-Holiday was really at her best with a small group, and that is mostly what we hear in "Lady in Autumn: The Best of the Verve Years," which begins with 1946-1947 Jazz at the Philharmonic performances and takes us up to two smooth 1959 recordings with the Ray Ellis orchestra, complete with strings. The Verve years brought Holiday together with some of the finest musicians on the scene. Personnel for Body and Soul and All of Me cannot be verified with certainty, but they're thought to include trumpeters Joe Guy and Buck Clayton and the two most important tenor players of all times, Coleman Hawkins and Lester Young. In most of the rest of the thirty-five Verve performances Holiday is backed by a small band including such giants from the Norman Granz roster as Oscar Peterson, Herb Ellis, Ben Webster, Charlie Shavers, Harry "Sweets" Edison, and Benny Carter. By the mid-Fifties Holiday's voice had changed, grown as delicate as fine china. Some called it deterioration, and to an extent they were right, but the quality that had always separated her from all other vocalists was still there, still ever so engaging. Put this Verve reissue with the Columbia and Decca sets and you have a marvelous, representative Holiday collection with very few obvious gaps. C.A.

MILT JACKSON: The Harem. Milt Jackson (vibraphone); Jimmy Heath (soprano and tenor saxophones); James Moody (flute); Cedar Walton (piano); Bob Cranshaw (bass); Kenny Washington (drums). Blues for Gene; Holy Land; Ellington's Strayhorn; N.P.S.; The Harem; and four others. MUSICMASTERS (1) 5061-2 (57 min), (5) 5061-4.

Performance: Lethargic Recording: Bad balance

This is a well-conceived gathering of top professionals led by Milt Jackson, whose mellow vibes still sound like they did in the Fifties, when the Modern Jazz Ouartet-of which he remains a member-epitomized polite jazz: a gentle caress. Jackson was to the Bop Era what Lionel Hampton had been to the Swing Era, the pre-eminent vibraphone player. Public taste has changed since he reigned, and the vibraphone, which never had a dominant voice in jazz, has almost been reduced to an aside. Jackson remains on top of the heap, alongside Hampton, but there has been no change in his style, so this album could just as well have been recorded twenty or thirty years ago. What can I say? Apart from a bad mix, which gives Kenny Washington's drums an uncomfortable prominence (no reflection on his performance), this is an album few people will fault. I, preferring a more eventful meeting of the masters, find it surprisingly sluggish. C.A.



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Recent discs and cassettes reviewed by Robert Ackart, Richard Freed, David Hall, George Jellinek, Eric Salzman, and David Patrick Stearns

BACH: Brandenburg Concertos Nos. 1-6 (BWV 1046-1051). Marieke Blankestijn (violin); Thierry Fischer (flute); Douglas Boyd (oboe); Mark Bennett (trumpet); Ian Watson (harpsichord); Chamber Orchestra of Europe. DEUTSCHE GRAMMO-PHON @ 431 660-2 two discs (95 min).

Performance: Exuberant Recording: Lively

In its ten years of existence, the Chamber Orchestra of Europe has challenged a lot of traditional European assumptions, crossing borders to recruit young musicians, often performing without a conductor or music director, and depending on ticket sales, recording contracts, and corporate sponsorship rather than government support. The latest in the ensemble's current, and quite successful, series on Deutsche Grammophon shows the best side of its fresh approach—and also a few problems.

These recordings of the "Brandenburg" Concertos-made in Ferrara, Italy, and Aldeburgh, England-have a lot of vitality, even exuberance. But they show real character in only one place: Ian Watson's cheeky harpsichord solo in No. 5. For the rest, this is consensus playing-the best of its kind, but almost too breezy and easygoing. Do I hear someone argue that this music was not originally conducted? True enough, but eighteenth-century music was performed by ensembles that played and rehearsed together endlessly, year in and year out, usually under the composer's own direction and nearly always in a very stable and known tradition. These are not such performances, nor do they evoke true eighteenth-century practice. They are lively, contemporary, pan-European readings and recordings that give pleasure but do not penetrate very deeply beneath the surface. E.S.

BARBER: Ballade (see GERSHWIN)

BRUCKNER: Symphony No. 6, in A Major. Cincinnati Symphony Orchestra, Je-

Explanation of Symbols

© = Tape cassette

Classical Music

sús López-Cobos cond. TELARC [®] CD-80264 (57 min).

Performance: Good Recording: Very good

This most terse of the late Bruckner symphonies fares better with Jesús López-Cobos and the Cincinnati Symphony than did the Seventh in their early 1990 recording. The playing is more polished, and there is a steadier flow to the music as a whole. Particularly felicitous is the steady maintenance throughout the first movement of the rhythmic figure that opens the score and subtly dominates the entire work (I would have wished, however, for a more pointed final chord). The slow movement emerges here as darkly poignant, if not quite as eloquent as in Günter Wand's 1988 live recording from Hamburg. The bluff scherzo comes off very well indeed, notably in the trio section with its bucolic horn fanfares. The finale, with its nervous brass interjections and episodes of relentless forward movement, is convincingly set forth, and the whole production benefits from recorded sound that is both full-bodied and effective in its imaging. D.H.

COPLAND: El Sálon México; Piano Blues No. 3 (see GERSHWIN)

FAURÉ: Requiem, Op. 48; Cantique de Jean Racine, Op. 11; Masques et Bergamasques, Op. 12. Gaële Le Roi (soprano); François Le Roux (baritone); Jean-Louis Gil (organ); Choeurs and Orchestre National de Lyon, Emmanuel Krivine cond. DENON © 79527-2 (54 min).

Performance: Radiant Recording: Excellent

Fauré's Requiem is one of the best examples of his music: at once intellectual and deeply felt, melodically inventive, economical of expression, and supremely elegant. Written piecemeal over a number of years and incorporating various occasional compositions, it was first performed as an entity in 1894. Fauré said that it was composed to express his feelings about death as a deliverance and a hope for happiness. Every bar of music sustains his intent; only the "Libera me," evoking the Day of Judgment, interrupts the overall serenity, and then only briefly. The final "In paradisum" approaches the sublime.

The performance here is, indeed, radiant—imbued with purity of tone, preciseness of phrasing, exactness of execution, and, most important, conviction on the part of all concerned. The timbres of Gaële Le Roy and François Le Roux are exactly right, and their unaffected delivery of the "*Pie Jésu*" and "*Libera me*," respectively, are singularly affecting. The chorus sings in exemplary fashion, and the orchestra likewise contributes a superior performance under the obviously dedicated direction of Emmanuel Krivine.

The orchestral filler pieces are also well done. The *Cantique de Jean Racine*, written when Fauré was eighteen, already bears his signature, and the *Masques et Bergamasques*, a delightful little suite, is played with stylish grace. Warmly recommended. *R.A.*



Peter Jablonski

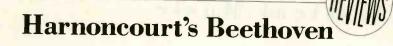
GERSHWIN: Concerto in F. Peter Jablonski (piano); Royal Philharmonic, Vladimir Ashkenazy cond. Three Preludes. COPLAND: El Sálon México (trans. Bernstein); Piano Blues No. 3. BARBER: Ballade. Peter Jablonski (piano). LONDON © 430 542-2 (61 min).

Performance: Stunning soloist Recording: Very good

This is a very Russian Romantic performance of Gershwin's very American Concerto in F. Peter Jablonski is a brilliant young pianist, but the performance seems overly dominated by whatever Rachmaninoffisms Vladimir Ashkenazy can find in the score. They are there, of course. But, alas, the music's rhythmic edge is lost in the shuffle.

That these choices are not Jablonski's can be inferred from his brilliant performance of the solos in the concerto. But things are even clearer in the solo piano music, especially the stunning performance of Leonard Bernstein's transcription of Copland's *El Sálon México*. This hair-raising arrangement, a completely fresh and dynamic look at familiar music, deserves to be better known. As set forth here, it has even more thrust and excitement than the orchestral original.

The Copland piano blues, the Gershwin preludes, and the Barber ballade (the only nonjazzy piece) fare equally well. Jablonski's talent is not purely in his steel fingers; he has a very engaging



IKOLAUS HARNONCOURT always has a surprise or two for us, but never one simply calculated to be different for the sake of difference. In his new Teldec set of the Beethoven symphonies there is as much that is comfortable and reassuring as there is that is startling. With his own ensemble, the Concentus Musicus Wien, Harnoncourt was the most influential pioneer of the original-instruments and authenticity movement in performing Baroque and early Classical music; yet when he got around to recording Mozart and Haydn symphonies he didn't use original instruments, or even a chamber orchestra, but conducted the Amsterdam Concertgebouw Orchestra. His Beethoven cycle is with the Chamber Orchestra of Europe, and the only concession to period instruments is the use of natural trumpets, which Harnoncourt says he chose



both for their symbolic effect and for the practical consideration that they can "blare out" in Beethoven's numerous fanfare passages without overriding the orchestra the way modern trumpets do.

The Chamber Orchestra of Europe was a happy choice. This wonderful aggregation of young players responds with a rare but consistent blend of enthusiasm, brilliance, and resiliency, making for the most effective and appropriate kind of enlivenment. The performances were recorded live at concerts in Graz in the summers of 1990 and 1991. There is no noticeable coughing, and no distracting applause.

Harnoncourt, whom I had never heard in Beethoven before, strikes me as more strongly and consistently persuasive in this music than in anything else I have heard from him. Just about everything every choice of tempo, every shaping of a phrase, every balance between voices—seems uncontrivedly right.

A few specific observations: Repeats

are taken, and they are made to seem indispensable to the design of the respective works. The First Symphony is an enticing beginning: pointed, brisk, elegant, yet affectionate. Only in the concluding gestures for the winds might I have wished for a little more character. The Second is sheer enchantment from first note to last, one of the set's special glories. The opening of the "Eroica" is a little matter-of-fact, but once launched it is clearly an outstanding account of the work, with unlabored grandeur in the Funeral March, an especially brilliant scherzo, and exceptional momentum throughout (though the horns that make the scherzo so brilliant might have opened up a bit more in the finale). The Fourth is fiery yet elegant; I can imagine some listeners finding the slow movement a little unyielding, but the underlying vitality makes for a fine sense of flow. The approach in No. 5 is no-nonsense but certainly not uninvolved: There is a fine dramatic tension, generated from the inside rather than laid on at surface level, with an unerring sense of proportion. The "Pastoral" is surprisingly leisurely-and downright radiant, truly lovable without a hint of coyness. The Seventh, too, is taken broadly, but with verve; the natural trumpets tell, and so do the horns. Humor takes care of itself in a neat, deadpan way in the crisp, pointed Symphony No. 8.

The Ninth is a true culmination, with superb momentum and textures. I could have wished for a tad more force from the men of the chorus in the "Seid umschlungen" episode, but the only real disappointments were the solo singers. Both of the women are undistinguished, and the tenor, Rudolf Schasching, lost me with his starry-eyed breathlessness. There is little else to fault, though, and a great deal to celebrate. Robert Holl is a model of dignity, vitality, and conviction in his recitative, and Peter Richards certainly deserves the printed credit for his horn solos.

Teldec has come through with exemplary recordings whose clarity splendidly points up the clarity of the performances themselves as well as their warmth and color. Those who feel there is no compelling reason to buy an "integral" set of the Beethoven symphonies owe it to themselves to hear this one. *Richard Freed*

BEETHOVEN: Symphonies Nos. 1-9. Charlotte Margiono (soprano); Birgit Remmert (contralto); Rudolf Schasching (tenor); Robert Holl (bass); Arnold Schoenberg Chorus; Chamber Orchestra of Europe, Nikolaus Harnoncourt cond. TELDEC © 2292-46452-2 five CD's (358 min). lyric side. What is missing or submerged in the concerto—timing, edge, frame, groove—is laid out perfectly in the preludes. Big talent this Jablonski, even if he doesn't quite beat out Ashkenazy and the Royal Philharmonic. E.S.

HANSON: Symphony No. 4, Op. 34 ("Requiem"); The Lament for Beowulf, Op. 25; Suite from "Merry Mount," Op. 31. Seattle Symphony Chorale; Seattle Symphony, Gerard Schwarz cond. Serenade for Flute, Harp, and Strings, Op. 35; Pastorale for Oboe, Harp, and Strings, Op. 38. Judith Mendenhall (flute); Randall Ellis (oboe); Susan Jolles (harp); New York Chamber Symphony, Gerard Schwarz cond. DELOS © DE 3105 (75 min).

Performance: Con amore Recording: Very good

Howard Hanson composed his Fourth Symphony in 1943, as a Requiem for his father. It marks a sharp departure from the uninhibited, even melodramatic, emotionality of his Second and Third Symphonies. The music is intense and to the point, orchestrated with a master hand, and telling in its impact, with a highly effective use of passing disso-nance, especially in the finale. Gerard Schwarz stresses the work's broadly lyrical element, but without in any way impairing the pulse and rhythmic vitality of the music. The same is true of his readings of the Serenade and Pastorale for solo winds plus strings, both recorded in New York with fine work from the principals.

Hanson's setting of the funeral scene from *Beowulf* is a remarkable achievement for a composer under thirty. The choral writing is relatively uncomplicated but highly effective, and the orchestral treatment would befit a movie epic. The composer's 1959 Mercury recording is a mite tauter than Schwarz's, with an acoustic to match. But the Seattle chorus is stronger than Hanson's was, and the new recording enhances the score with its effective depth imaging, as in the trumpet fanfares preceding the entry of the chorus.

The opera Merry Mount, after a Hawthorne tale, has never been a favorite of mine, and much of what I don't like about it can be heard in the four-movement orchestral suite. The music has all of the kitsch of the Second Symphony but little of the robust romanticism from which that work takes its name. Still, the performance here is a fine one, and the sonics are resplendent, as they are throughout the CD. D.H.

MOZART: Piano Concertos No. 21, in C Major (K. 467); and No. 27, in B-flat Major (K. 595). Murray Perahia (piano); Chamber Orchestra of Europe, Perahia cond. SONY CLASSICAL (D) SK 46485 (57 min).

Performance: Elegant Recording: Too close

MOZART: Piano Concertos No. 20, in D Minor (K. 466); No. 21, in C Major (K.

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467); No. 22, in E-flat Major (K. 482); No. 23, in A Major (K. 488); No. 24, in C Minor (K. 491); No. 25, in C Major (K. 503); No. 26, in D Major (K. 537, "Coronation"); and No. 27, in B-flat Major (K. 595). Daniel Barenboim (piano); Berlin Philharmonic Orchestra, Barenboim cond. TELDEC () 9031-72024-2 four discs (250 min).

Performance: Expansive Recording: Big

About twenty-five years ago Daniel Barenboim began recording all the Mozart piano concertos for Angel/EMI, and ten or fifteen years later Murray Perahia began his similar cycle for what was then Columbia Records. Both pianists conducted the English Chamber Orchestra from the keyboard, and both cycles were fairly distinguished. Now, for the same house, since renamed Sony Classical, Perahia has remade Nos. 21 and 27 with the Chamber Orchestra of Europe, and Barenboim has remade the last eight concertos with the Berlin Philharmonic in a four-disc set for Teldec.

The orchestral contribution strikes me as a little more interesting in both new packages than in the earlier ones. In Perahia's case this may be owing to his additional years of experience, not merely as a conductor but in the dual role, and the Chamber Orchestra of Europe responds with stylish animation. Perahia's tempos are well chosen-it is especially refreshing to hear the much abused andante of the C Major without its bathetic encrustations; it has an elegant pulse here, as everything does in both concertos.

The recording itself, however, lets the performances down. While it is in other respects crisp and well balanced, the piano, in its very close focus, tends to be overreverberant, suggesting at times the aural equivalent of TV "ghosts" and blurring the trills in the slow movement of K. 595. The winds, too, tend to blur in that work's final movement.

Barenboim's approach is somewhat more personal than Perahia's. In general, his is a more expansive view of these works, very large-scaled and especially attuned to their dramatic and occasionally darker elements. In the opening movement of K. 467 he leans toward the spurious maestoso, and his romanticized view of the succeeding andante sounds especially deliberate next to Perahia's. Phrasing is more highly inflected, and sometimes a bit arch. But Barenboim makes the tempos work, and he makes the phrasing work as well. There is never the slightest danger his momentum will fail or his premise seem less than Mozartean. Throughout the set the playing of the Berlin Philharmonic winds is a special joy.

As it happens, both recordings were made at the Simens-Villa in Berlin. Teldec was a good deal more successful than Sony, but its sound is very big and one is aware of the electronics; string textures lack warmth, and the piano is



Gil Shaham

again close-up and occasionally overreverberant, though it never blurs as it does on the Sony disc.

MOZART: Die Zauberflöte. Kurt Moll (bass), Sarastro; Uwe Heilmann (tenor), Tamino; Ruth Ziesak (soprano), Pamina; Sumi Jo (soprano), Queen of the Night; Michael Kraus (baritone), Papageno; Lotte Leitner (soprano), Papagena; Heinz Zednik (tenor), Monostatos; Andreas Schmidt (baritone). Speaker; others. Vienna Philharmonic, Georg Solti cond. LONDON (1) 433 210-2 two CD's (152 min).

Performance: First-rate Recording: Excellent

Tamino's magic flute must have worked its miraculous spell on Georg Solti, too: His approach to this opera is considerably tamer here than the driving propulsion of his earlier (1969) recording. An unbroken momentum binds each act into a coherent and fluid whole, and his overall view is now mellower and wiser. At only one juncture-Papageno's desperate suicidal scene with the rope-does the old drillmaster emerge, making the scene fast and charmless.

The production rests, in part, on young and unfamiliar singers. Tenor Uwe Heilmann is a manly, firm-toned Tamino who sings with an unaffected, graceful lyricism. Without challenging such formidable recorded predecessors as Gundula Janowitz, Lucia Popp, or Evelyn Lear, Ruth Ziesak brings warmth and tonal purity to Pamina's music. Michael Kraus is a hearty, vital Papageno in the idiomatic Viennese tradition, managing to rein in a slightly unfocused voice of Wagnerian potential.

Among the singers of international renown, Kurt Moll renders his familiar organ-toned Sarastro, tremendous in his first aria, merely very good in the sec-ond. Sumi Jo sings the fiendish music of the Queen of the Night purely and accurately, though not for a moment does she

suggest an intimidating character. Andreas Schmidt is a smooth and dignified Speaker, and Heinz Zednik's Monostatos is short on voice but long on expertise. London's technical production realizes the various sound effects with unexaggerated realism. A generous amount of dialogue has been retained, yet the opera is captured on only two discs. Even in a crowded field, this new set should hold its own.

PAGANINI: Violin Concerto No. 1, in D Major, Op. 6. SAINT-SAENS: Violin Concerto No. 3, in B Minor, Op. 61. Gil Shaham (violin); New York Philharmonic, Giuseppe Sinopoli cond. DEUTSCHE GRAMMOPHON () 429 786-2 (63 min).

Performance: Youthful Recording: Excellent

These two rarely heard violin concertos require an interpreter with a thoroughly adult technique but a certain unjaded openness that many performers lose when they reach maturity. The twentyyear-old Israeli-American violinist Gil Shaham is at just the right age for the music's fearsome combination of steep technical demands, romantic posturing, and almost naïve thematic simplicity. Though Shaham hasn't a particularly individual tone quality or style-perhaps an unfair expectation of so young a musician-he is far more than merely a flashy technician. He seems incapable of doing anything in the least bit unmusical, from the lushness of his tone to the lyrical sweep of his phrasing.

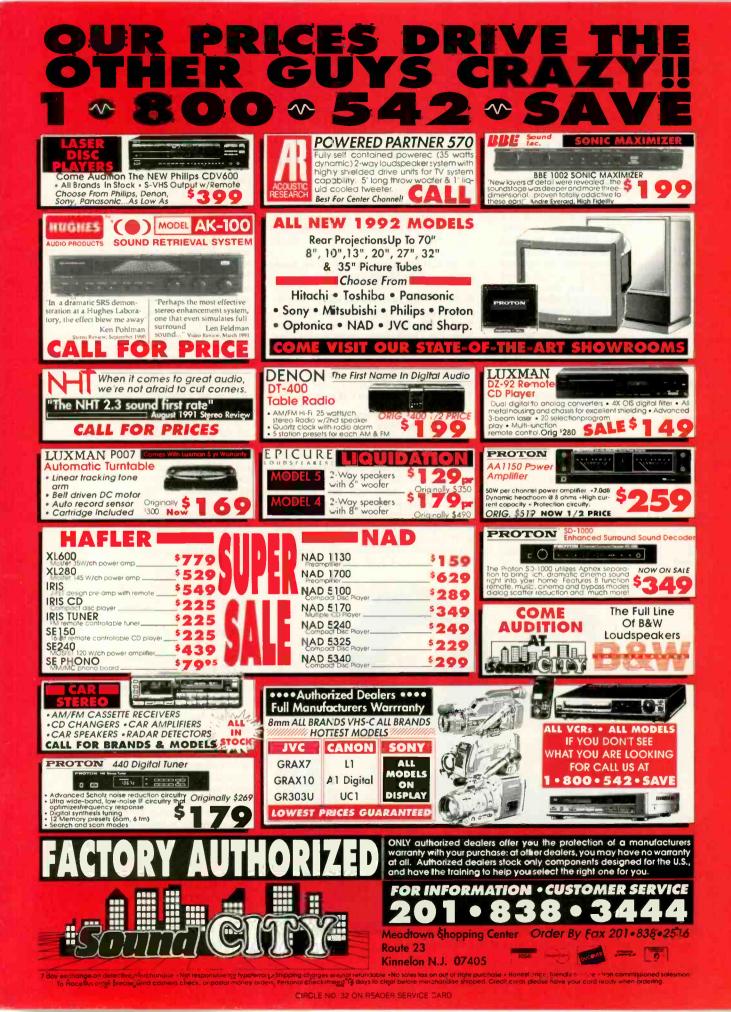
There's a wonderful excitement in Shaham's musicmaking here-it's so infectious that he makes you like the music even if you don't admire it. He gives a special lilt to the slow movement of the Saint-Saëns and a slight air of mystery to the adagio of the Paganini; he even carries off the Paganini's rustic, folk-like finale. Giuseppe Sinopoli is a surprisingly sympathetic accompanist in this repertory, and the engineering allows Shaham to be heard clearly. D.P.S.

SAINT-SAËNS: Violin Concerto No. 3 (see PAGANINI)

SCHUMANN: Symphony No. 2, in C Major, Op. 61; Symphony No. 4, in D Minor, Op. 120. Bamberg Symphony Orchestra, Christoph Eschenbach cond. VIRGIN © 91194-2 (74 min).

Performance: Fine-grained Recording: Good

Christoph Eschenbach does not take the usual interpretive approach to these Schumann symphonies-a bluff, even hectic heartiness contrasted with a dreamy lyrical Romanticism-but works for more refined textures. The Sostenuto introduction to the Symphony No. 2 is taken at an unusually slow pace, and the main body of the movement, exposition repeat included, is handled in a way that emphasizes flow rather than dynamic contrast. This fluid approach is very



effective in the scherzo, which assumes an almost Mendelssohnian quality. The noble Adagio espressivo slow movement, however, is paced so slowly that one fears for the continuity of line. The central fugato episode is played triplepiano, which relieves much of its inherent dryness. The normally exuberant finale is a bit lethargic for my taste.

The reading of the Symphony No. 4, in D Minor, is somewhat less deliberate, though it is disconcerting to hear the principal theme of the main allegro section of the first movement handled in a markedly détaché manner with ultraprecise articulation. Eschenbach and his Bamberg players achieve a handsome crescendo in the transition leading to the finale. Exposition repeats are observed for both the first and last movements. Sonics are good in terms of reflecting the dynamic and coloristic refinement of the readings. Among recent recordings of the D Minor, though, I prefer the one by Roger Norrington and the London Classical players on EMI/Angel. D.H.

SHOSTAKOVICH: Symphony No. 10, in E Minor, Op. 93. Royal Concertgebouw Orchestra, Claus Peter Flor cond. RCA VICTOR © 09026-60448-2 (57 min).

Performance: Somewhat low-energy Recording: Spacious to a fault

This latest recording of Shostakovich's masterly and moving Tenth Symphony lacks both the bitter bleakness of Herbert von Karajan's two readings for Deutsche Grammophon and the passion brought to the score by Leonard Slatkin and the Saint Louis Symphony on RCA. Claus Peter Flor favors a slower than usual tempo for the *Moderato* opening

movement, but thanks to the fine Concertgebouw string section, the pacing does not become oppressive. The satanic scherzo goes with great precision but not with the ferocity it truly needs. The rest fares somewhat better. The monitory horn calls in the third movement come off to great effect, and the firstchair oboe makes the slow introduction to the finale a deeply moving experience.

Perhaps the impression of somewhat low energy in this reading stems from the longish reverberation period of the Concertgebouw itself, which tends to diffuse the impact of the great climaxes in this recording. D.H.

R. STRAUSS: Don Quixote; Don Juan (see Best of the Month, page 121)

R. STRAUSS: Der Rosenkavalier, Op. 59. Kiri Te Kanawa (soprano), Marschallin; Kurt Rydl (bass), Baron Ochs; Anne Sofie von Otter (mezzo-soprano), Octavian; Barbara Hendricks (soprano), Sophie; others. Staatsopernchor Dresden; Dresden Kreuzchor; Staatskapelle Dresden, Bernard Haitink cond. EMI/ ANGEL © 54259-2 three CD's (205 min).

Performance: Aristocratic Recording: Airy

With its patrician cast of singers, the tradition-steeped Dresden State Orchestra, and the ever-dignified Bernard Haitink, this is a blue-blooded *Der Rosenka*valier if ever there was one, both for better and for worse. A good deal of the fun in this dry, bittersweet comedy about illicit love affairs and arranged marriages in the Viennese aristocracy is the spectacle of the bewigged characters making asses of each other and them



Von Otter, Hendricks, Te Kanawa: stars of Der Rosenkavalier

selves. Part of that fun is lost here, perhaps in the interest of bringing out the work's purely musical aspects. As a result, the repartee sometimes fails to sparkle, especially in the case of Baron Ochs; Kurt Rydl presents such a lyrical characterization of this normally crass character that you'd think he was worried about offending someone.

The culprit is not Haitink, who has had plenty of dour moments in his long career, but none here. He responds to the score in a surprisingly animated manner. especially in the finely etched, humorfilled passages Strauss wrote to underscore the libretto's detailed stage directions. Haitink is so alert to Strauss's word and scene painting that in the Marschallin's monologue about the ravages of time, for example, you can almost hear the sand in the hourglass. Aided by the resonant acoustics of Dresden's Lukaskirche, Haitink achieves moments of coloristic brilliance in the third act that surpass all of the great previous recordings.

For the most part, Anne Sofie von Otter's playful, ardent, intelligent Octavian is an answer to an opera lover's prayers. Barbara Hendricks is a fine Sophie, her fast vibrato seeming to mirror the anxious expectancy of her character. As the Marschallin, Kiri Te Kanawa uses the increasingly darker colors of her voice to great effect, but she sometimes seems reserved to the point of blandness. At other moments, however, as in the first act when she answers Octavian's proclamations of love, her vocal coloring is profoundly expressive and precise.

This version may not displace the classic *Rosenkavalier* recordings—Herbert von Karajan's on EMI/Angel and Georg Solti's on London—but it provides enough fresh insights to make it indispensable for lovers of this opera. *D.P.S.*

STRAVINSKY: Petrushka (1911 version); Scènes de Ballet. Berlin Philharmonic Orchestra, Bernard Haitink cond. PHILIPS © 422 415-2 (52 min).

Performance: Splendid Petrushka Recording: Excellent

Bernard Haitink's new Petrushka is not merely "satisfying" but highly competitive. Leonard Bernstein's Petrushka with the Israel Philharmonic on Deutsche Grammophon is also coupled with Stravinsky's Scènes de Ballet, but Bernstein used the 1947 score for Petrushka, while Haitink conducts the somewhat more richly colored 1911 original. That strikes me as a definite advantage; the superb playing of the Berlin Philharmonic and Philips's vivid, beautifully balanced recording are strong factors, too, in making this one of the most attractive Petrushkas available now. In Scènes de Ballet, however, Bernstein has the edge, if only a slight one. *R*.*F*.

TCHAIKOVSKY: Symphony No. 6, Op. 74 (see Best of the Month, page 123)



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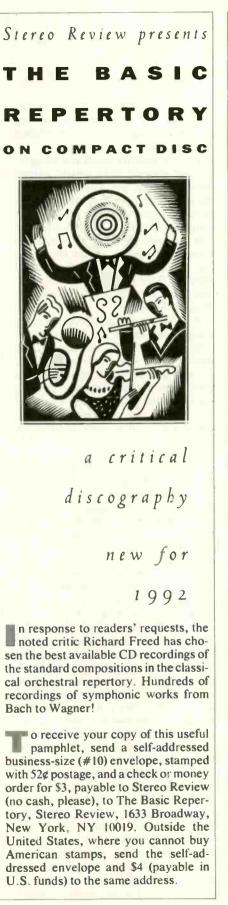
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A Polarized Convention

HE ninety-first convention of the Audio Engineering Society has come and gone, with some hints of changes in direction. After several years of seeming to move closer to home-audio concerns and philosophies, the pros appear to be drifting apart again. Pretty much absent were the former discussions of purist recording techniques and minimalist signal paths, supplanted by orations on digital interface and automation, the digital "workstation," and "auralization," which is the coming term for computer simulation of an acoustic environment, real or imagined (in other words, synthesizing a concert hall, but under interactive computer control). We're heading back into a maximalist phase with a vengeance. But there were still a few places in the convention program where "lunatic fringers" like me could hang out comfortably, one being the sessions on the audibility of polarityalso called absolute phase, although not with equivalent authority.

When you swap connections to the plus and minus terminals of a loudspeaker in a stereo system, you are inverting its polarity. You are also throwing the entire system out of phase, with the familiar unpleasant results. Do the same to the other speaker and you restore the in-phase condition, but at the expense of inverted polarity for the entire system. Does it matter? It does not, according to

THE HIGH END

by Ralph Hodges

many audio engineers. It does matter very much, according to a growing number of impressively credentialed dissenters.

The pro-polarity position is straightforward enough. With correct overall polarity, when the microphone diaphragm in the recording studio moves inward in response to a compression pulse, the speaker cone in the listening room moves outward to produce a compression pulse. When the opposite occurs, as it will with inverted polarity, there is a conceptually obvious distortion. But is it a *perceptually* obvious distortion?

Because many amplifiers and other components invert phase (somewhat arbitrarily, as a rule-the designs just work out that way), it is reasonable to suspect that fully half the audio systems in the nation disagree in polarity with the other half, although we do not hear half the system owners complaining about it. (It is even possible for sources within a system, such as a CD player and a tape deck, to have outputs of opposite polarity.) On the other hand, some highly credible authorities have suggested that the subtledifferences many audiophiles insist they hear between amplifiers and CD players could well have their origins in undiscovered or ignored polarity differences.

The convention explored the full scope of polarity opinions well enough. Basically on the nay side were James Kaiser and Gary Hedden, recording engineers from Nashville. They pointed out that musicians tend to dislike it when the microphones they are performing into and the headphones they are listening to themselves through are out of phase (and no wonder!), but they confessed that they had as yet been unable to hear polarity changes in simple playback situations, even with material recorded and selected to reveal them. Solidly in the yea camp, Clark Johnsen, a Boston retailer, argued that polarity is pervasively audible, that listeners can be taught to detect it, and that once detection is learned it can never be unlearned. (Enhanced articulation of speech and many instruments, increased impact and crispness, and greater "timbral beauty and bloom" are said to be the signatures of proper polarity.) Johnsen provided a helpful paper chase through the polarity literature, and he described a procedure that he employs to demonstrate his assertions.

The academic case was made by Professors Richard Greiner and Douglas E. Melton from the University of Wisconsin, and it was backed up by the results of numerous large- and small-scale listening tests, not all of which were conclusive. Nevertheless, the researchers did conclude that polarity is not audible most of the time, but it is audible often enough to make it worth our attention. Typically, when audible, polarity switches were evidenced by changes in perceived timbre and pitch, with the pitch change sometimes seeming the dominant one.

It has long been assumed that polarity changes are likely to be most audible with asymmetric waveformsnamely, waveforms that, when they are viewed on an oscilloscope, consistently exhibit more energy on one side of the horizontal axis than on the other. (Many wind instruments, including the human larynx, are examples of asymmetric waveform producers.) Greiner and Melton, however, found that their listeners were marginally better able to detect polarity changes on fundamentally symmetrical waveforms, such as those produced by piano and acoustic guitar. Some rethinking of polarity consequences may be in order here.

Puzzling over all of this led to some experiments of my own. I lack space for details, but I can report that polarity detection, even when you design waveforms to be maximally revealing, can be a tough call. Tougher still is determining the fundamental polarity of recordings you buy, if they have any at all (multimike techniques rarely respect consistent polarity). But there is now a powerful tool to help us: digital analysis. This can establish the polarity patterns of recordings at any time during or after their manufacture, even when the session producer and engineer paid no attention to the matter at all. Such analysis, together with the growing number of listeners who say they hear polarity effects, may mean that polarity's time has finally come.

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